



## *North Fulton Amateur Radio League NFARL eNEWS*

*January 2017*

[www.nfarl.org](http://www.nfarl.org)



### ***Atlanta Area Radio Fox Hunt - Interfering with our repeater!***

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This Saturday, various groups around Atlanta are teaming up to be the first to find a menacing radio fox transmitting on the input of our own 145.470 repeater. Will you be part of the fun? Even if you aren't out hunting the fox, you can still participate.

This Saturday, January 21st starting at 8:30am, the fox hunt will begin. All team players will start from the same location - the Walmart parking lot on the south east corner of Hwy 92 and Trickum road. Here's a link:

[January 21st Area Fox Hunt Meeting and start Point Location Map](#)

We will not be able to hear the fox from the parking lot, but it will be heard on the NFARL 2M machine (145.470). The fox will be intermittently transmitting on the repeater input frequency (144.870). The repeater WILL hear it, and the fox could interfere with people that morning that have weak signals. Somewhat simulating malicious interference.

If you're not outside hunting the transmitter location, join with another person (or team). What if you can't get outside that morning, or are unable to spend a few hours that morning in the field? Help out from home (or wherever you are)...

Listen to the input frequency (144.870 MHz) and if you actually hear the fox from your location, tell your favorite team (or teams?). Give them your location, what kind of antenna you have, and the strength of the fox signal. Maybe you'll be driving around that morning? Listen often for the fox. Help others that haven't found the menacing fox yet!

When you find the fox, there will be a notice of another intermittent fox also transmitting on 2M. It is supposed to be much more challenging to find, and will not be linked or associated with the first fox at all. You will hear the second fox at this location. Both foxes will be located in a safe public area. Not a private home or cemetery.

Everyone participating will need to meet up and register at the starting point before 8:30 that

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morning. We'll want to exchange repeater / fox / simplex frequencies, along with cell phone numbers if needed. Most logistic chit chat should happen on the NFARL UHF repeater (444.475 + 100.0). Anyone not directly participating, but able to hear the fox should share their information on this repeater (or your team's secret simplex frequency - if you can reach them).

***Jim, KA4IIA & Tim, WK4U***

## ***Activities Report***

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Mid Month Madness (MMM) is the theme for 2017 as the club's plan is to be more formal in activities that occur between meetings in the new year. In the past these activities have been planned for the first Saturday of the month, but some of these may occur on different Saturdays of a month as schedules dictate.



Thanks to all the volunteers that made the TechFest MMM a huge success. We had a callout for "elmers" to help instruct youth and newcomers on the art of soldering, and we had a great response.

Looking forward, in the next few months, MMMs are planned for:

- 1). Power Poles and Coax Connectors - hands on how to project
- 2). Pixie Kit build - maybe a simple QRP transceiver
- 3). Georgia QSO party - prepare for and participate in the GA QSO party

We have ideas for the entire year, but your suggestions are welcome for a MMM activity that could be held for about 2-3 hours on a Saturday morning - please forward your suggestions and ideas to us.

To add to the fun, we will be keeping track of those who participate in each MMM so they can be recognized for their efforts at the end of the year.

***73 John N4TOL and Jim W4QO***

## NFARL Upcoming Events and Dates

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- **Every Sunday — NFARES net** - 8:30 PM - 147.06 MHz (+) PL 100  
*All licensed Hams are welcome, you do not need to be an ARES member!*
- **Every Monday — Tech Talk** - 8:30 PM - 145.47 MHz (-) PL 100  
NFARL's flagship technical based "non check-in" net. The net is always better when using the web based chat room but Internet is not required to join the net. Check NFARL Nets [website](#) for "how to".
- **Every Wednesday — Hungry Hams Lunch Bunch** - 11:15 AM  
Slope's BBQ, 34 East Crossville Road, Roswell.
- **Every Wednesday — Youth Net** - 7:00 PM - 145.47 MHz (-) PL 100  
Contact Martha W4MSA if you are a student, teacher or educator
- **Every Thursday — YL Net** — 8:00 PM - 145.47 MHz (-) PL 100  
Check NFARL Nets [website](#) for "how to."  
OM's (guys) are welcome to listen in to this YL net.  
Great opportunity to get your YL's on the radio!
- **Every Saturday — Royal Order of the Olde Geezers (ROOG) Lodge No. 1**  
9:00 AM - Reveille Café, 2960 Shallowford Road, Marietta (at Sandy Plains and Shallowford). Everyone is welcome: You don't have to be "old" or a "geezer" to join this breakfast get-together.
- **Second Tuesday — NFARES Meeting** - 7:00 PM - 9:00 PM  
Fellowship Bible Church, 480 W. Crossville Road, Roswell.  
Check [NFARES.net](#) for more information.
- **Third Tuesday — NFARL Club Meeting** - **February 21st, 2017**, 7:30 PM.  
Pre-meeting activities begin at 7:00PM.  
Location: [Alpharetta Adult Activity Center at North Park](#)  
13450 Cogburn Road, Alpharetta, GA 30004  
**Program: Scott Straw, KB4KBS presents "JT65"**
- **Fourth Tuesday — NFARL Executive Team Meeting**  
January 24th, 2017, 7:00 PM  
Location: [Arbor Terrace at Crabapple](#)  
12200 Crabapple Road, Alpharetta, GA 30004  
Meetings are open to all NFARL members. Space is available on a first arrival basis. Please contact the [President](#) to ensure available space.

## ***President's Letter***

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Happy New Year!

2016 was a great year for NFARL which I detailed in last months eNews. The Executive Team and I are excited about what the club can accomplish this year! 2017 is NFARL's 40<sup>th</sup> Anniversary. NFARL was founded in 1977 and while it has gone through several iterations it has grown to one of the largest and most active Amateur Radio organizations in the United States. Celebration planning is underway and will be communicated to the club in the coming months.



**Mark - KK4FOF  
NFARL President**

Last weekend, NFARL hosted a youth activity at the Gwinnett Amateur Radio Society TechFest. NFARL volunteers assisted more than 15 youth and a couple of adults in soldering a more complex blinking light project than in years past. The Elmer's were busy and the attendees said they had a great time! Everyone involved had a great time!

Speaking of activities and opportunities to get involved, our Activity Team lead by John N4TOL and Jim W4QO have been hard at work planning some fun and exciting activities for 2017! In addition to regular club meetings, HamFests, Field Day and Holiday Party, they are organizing Mid-Month madness activities where everyone can participate. This weekend is the North Fulton Fox Hunt led by Tim Lemmon WK4U. In the coming months, they are planning projects including PowerPoles and building a Pixie Kit. Also mark your calendars for the Georgia QSO Party the weekend of April 8<sup>th</sup>.

Also don't forget that NFARL is having a General HamCram starting February 18<sup>th</sup>. The General HamCram is the perfect opportunity for Technician class Hams to upgrade their license. The course will be spread over 3 weekends so there will be plenty of time to review the material and ask questions before taking the exam. Visit the NFARL Mart for more information or to register.

Our club is a diverse group of over 300 individuals with a common interest in Amateur Radio. It's our club and we get out of it what we put into it! I encourage you to get involved, volunteer and contribute to our great organization. I and the Executive team look forward to your ideas. Together we will continuously improve NFARL by providing world class programs and activities that appeal to a new and experienced operators, develop our amateur radio skills and ensure we are prepared to serve the community in time of need!

73's, Happy New Year and Happy 40<sup>th</sup> Anniversary!

**Mark Schumann, KK4FOF  
President  
North Fulton Amateur Radio League**

## ***Upcoming Contests / Scott Straw, KB4KBS***

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There are several opportunities for HF operations in the weekends ahead that can reward you with contacts that will push you closer to awards like DXCC, Worked All States, and Triple Play. These contests don't expect you to be competing for top score, they only want you to participate. The more stations that are on the air, the better. Set a goal of simply making a dozen contacts. Use the DX cluster and spotting networks to find stations you need to reach your certificate goals. Be patient and keep trying until you work the station you need. When you have worked all the stations you can or want, it would be nice if you would then send your log to the contest organizer.

JANUARY 20-22, 2017

### **North American QSO Party, SSB**

- Starts on Saturday 01/21 at 1300 EST, Ends on Sunday 01/22 at 0059 EST
- This contest lasts 12 hours but single operators can only operate a maximum of 10 hours.
- Exchange is Name + (state/DC/province/country).
- You can work a station only once on each band (160, 80, 40, 20, 15, 10 only, not 30, 17, or 12)
- Scoring is 1 point per QSO
- Multipliers count once on each band:
  - ◊ 51 US States (including District of Columbia)
    - \* Alabama, Alaska, Arizona, Arkansas, California, Colorado, Connecticut, Delaware, Florida, Georgia, Hawaii, Idaho, Illinois, Indiana, Iowa, Kansas, Kentucky, Louisiana, Maine, Maryland, Massachusetts, Michigan, Minnesota, Mississippi, Missouri, Montana, Nebraska, Nevada, New Hampshire, New Jersey, New Mexico, New York, North Carolina, North Dakota, Ohio, Oklahoma, Oregon, Pennsylvania, Rhode Island, South Carolina, South Dakota, Tennessee, Texas, Utah, Vermont, Virginia, Washington, West Virginia, Wisconsin, Wyoming
  - ◊ 13 VE Provinces and Territories
    - \* Alberta, British Columbia, Manitoba, New Brunswick, Newfoundland and Labrador, Nova Scotia, Ontario, Prince Edward Island, Quebec, Saskatchewan, Northwest Territories, Nunavut, and Yukon.
  - ◊ 21 North American Countries (except W/VE)
    - \* Antigua and Barbuda, Bahamas, Barbados, Belize, Costa Rica, Cuba, Dominica, Dominican Republic, El Salvador, Grenada, Guatemala, Haiti, Honduras, Jamaica, Mexico, Nicaragua, Panama, Saint Kitts and Nevis, Saint Lucia, Saint Vincent and the Grenadines, Trinidad and Tobago.
- Find Rules at <http://www.ncjweb.com/NAQP-Rules.pdf>

### **ARRL January VHF Contest**

- Starts on Saturday 01/21 at 1400 EST, Ends on Sunday 01/22 at 2259 EST
- Exchange is your Four Character Grid Square (ex: EM74).
- You can work a station only once on each band (50 Mhz & up)
- Scoring is as follows:

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- ◊ 1 point per 50 or 144 MHz QSO
- ◊ 2 points per 222 or 432 MHz QSO
- ◊ 4 points per 902 or 1296 MHz QSO
- ◊ 8 points per 2.3 GHz or higher QSO
- Multipliers count once on each band:
  - ◊ Unique grid squares
- Find rules at <http://www.arrl.org/january-vhf>

## JANUARY 27-29, 2017

### **CQ 160-Meter Contest, CW**

- Starts on Friday 01/27 at 1700 EST, Ends on Sunday 01/29 at 1700 EST
- This contest lasts 48 hours but single operators can only operate a maximum of 30 hours.
- Exchange is RST + (state/province).
- You can work a station only once.
- Scoring is as follows:
  - ◊ 2 points per QSO with own country,
  - ◊ 5 points per QSO with other countries on same continent,
  - ◊ 10 points per QSO with other continents,
  - ◊ 5 points per QSO with maritime mobile
- Multipliers count once on each band:
  - ◊ Each US state + DC (excluding KH6/KL7)
  - ◊ Each VE province
  - ◊ Each DXCC+WAE country (including KH6/KL7)
- Find rules at <http://www.cq160.com/rules.htm>

## February 10-12, 2017

### **CQ WW RTTY WPX Contest** 0000Z, Feb 11 to 2359Z, Feb 12, 2017

- Starts on Friday 02/10 at 2000 EST, Ends on Sunday 02/12 at 2000 EST
- This contest lasts 48 hours but single operators can only operate a maximum of 30 hours.
- Exchange is RST + Serial Number (consecutive contact number).
- Scoring is as follows:
  - ◊ 1 point per QSO with same country on 20/15/10m
  - ◊ 2 points per QSO with same country on 80/40m
  - ◊ 2 points per QSO with different countries on same continent on 20/15/10m
  - ◊ 4 points per QSO with different countries on same continent on 80/40m
  - ◊ 3 points per QSO with different continent on 20/15/10m
  - ◊ 6 points per QSO with different continent on 80/40m
- Multipliers are each unique prefix - character(s) before and number in call sign (ex.: W4, XE3, 6Y1)
- Find rules at <http://www.cqwpqrtty.com/rules.htm>

**STATE QSO PARTIES:** Click on each state or province to learn more about their QSO party.

01/28 [Montana](#)  
02/04 [Vermont](#)  
[Minnesota](#)  
[British Columbia](#)

02/11 – [New Hampshire](#)



### **Want to have the *most* fun in ham radio? Set a goal!**

I will have been a ham for 59 years on my birthday in March. In that time, I've noticed that those who have the most fun in ham radio set a goal. I know I did and still do! Now this might take several forms. I mention a few in my article on my much ignored blog – [w4qo.blogspot.com](http://w4qo.blogspot.com). Scroll down past the article on CW and you'll get some idea if you are a relative newcomer to ham radio. Here are some that you might consider, based on how long you've been a ham and what you may have already done.

1. Upgrade your license – NFARL has several methods to help you including HamCrams and ways to study along with Elmers to help you. A new site you might check out to help you is [hamstudy.org](http://hamstudy.org) I like their system of "burning in the correct answer" and "flash cards" to see how you are doing and give you a handy short explanation if you have trouble with a question.
2. Get on HF. I lot of folks start out with a 2M rig since they can be had NEW now for less than a meal for 2 at a decent restaurant (maybe any restaurant)! Where does NFARL come in to help? Well, we do have that Elmer corps ready to jump in on everything from erecting an antenna to indoctrinating you on how to log contacts (software) to where to order your very own QSL cards to exchange.
3. Achieve an award – There are probably a thousand awards you can strive for but the most popular is Worked All States followed by Worked All Continents (you don't even have to work Antarctica to get the award since it's so cold hardly anyone goes there – hi hi).
4. Speaking of hi hi – that's CW lingo for HA HA or now LOL. Now there is another goal – learn CW or better yet – get on the air and make CW contacts. NFARL even has an award called the CODE 10 award for anyone making 10 CW contacts IF you have just learned CW. And as to learning, the NFARL website and the aforementioned blog have all kinds of tips on learning CW. <http://nfarl.org/sigCW/cwIntro.html>
5. Tackle some new aspect of ham radio – This could be getting on digital, joining ARES to BE PREPARED for the next BIG ONE when it hits, to becoming a VE and help administer exams, to joining a specialty club such the SE DX club or the No GA QRP club.

I'm sure you can find something on the club's website that you might set as a goal to strive for in 2017. There are over 100 things to do in HAM RADIO at this page:  
<http://nfarl.org/HamInfo/100Things.html>

But here is one thing to consider... In the December eNEWS we mentioned our re-emphasis on what we have called for years – Mid Month Madness. We are scheduling or calling attention to activities you can do between meetings of NFARL. For example, if you were a SOLDERING mentor at the GARS TechFest recently, you actually got MMM points. For each MMM, we'll announce participation points and accumulate them for the entire year. We are not sure what we'll do with them; maybe you have ideas.

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In fact, we will have two MMMs in January and the next one is this weekend – January 21. It's a FOX HUNT organized by Tim, WK4U, and his friends. You'll get a POINT for chasing the FOX. You say you don't know how? Well, there will plenty of vehicles heading out at 8:30 AM at the starting point near Sweat Mountain where a number of our repeaters are located. Everything is explained at <http://nfarl.org/Activities/Activities.html#FoxHunt>. We'll have a clipboard there for you to sign in and get a valuable participation point!

This could go on for several pages but you get the idea. Just set a goal to DO IT in 2017. NFARL members are there to help you meet those goals plus you'll have the MOST FUN IN HAM RADIO!

## ***Having fun in NFARL / Daryl Young, K4RGK***

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Speaking of having fun, I'm having fun in radio by participating in our club executive board, scheduling programs for this year, working with GREAT HAM's, editing and publishing eNews, working Satellites with John K4SQC while promoting AmSat and Ham radio in general. Radio is a lot of fun. Participating in NFARL has greatly increased my enjoyment of this hobby/sport, much more so than I could have ever expected. As Mark, KK4FOF mentioned our club and their members gain from what the members put in and I am getting more than my share out of radio right now!

I encourage you to get involved in the club. Set goals for 2017, as W4QO has suggested, and go along for the ride with NFARL in 2017! I can assure you that you will be very glad you did.

Start this weekend by participating in the fox hunt!. Come to the executive meeting next Tuesday (we love new ideas), try some contesting (see Scott, KB4KBS's article) and post your experience on the email reflector! Get involved with Terry, W4YBV in the US Islands club effort this year. By the way, can you believe Terry, one of our founding members, is involved in our club on a daily basis? How fantastic is that! 2017 is going to be a great year in Ham radio!

Speaking of 2017, we have several programs currently scheduled for club meetings this year. Additionally we have several commitments from presenters and that brings us close to having the program year scheduled! That said, we would love to hear what you folks are talking about, what would you like to see in a NFARL program this year? Maybe something you've seen some of in years past and we can re-visit the topic or fill in the gaps. Maybe it's something we have never done before at a NFARL program. We can always adjust the program schedule to bring the "most wanted" to the membership. I'll be looking for your email at [k4rgk@nfarl.org](mailto:k4rgk@nfarl.org)

Cheers!

***Daryl Young, K4RGK***

***Vice President***

***North Fulton Amateur Radio League***



## ***Tape Yagi - Take Two / Bob Freeman, KI4SBL***

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One of the many facets of the amateur radio hobby is satellite operations. Over the past few months I have been developing groundstation hardware and systems for use in satellite and ARISS operations. Some of the most critical element in any groundstation are the antennas. This article is written to share some details of two tape Yagi-Uda designs I have completed, one each for the 2m and 70cm bands.

Some of the goals of the design were to achieve a low cost, light weight solution that provides good gain, VSWR, and radiation pattern characteristics. A light weight design of reasonable size and gain for use on my RAZEL positioner unit for portable operations was also desired.

The electrical design for both antennas was done using the software 4nec2. The software includes an *optimizer* that enables one to tailor their design to the goals. In my case, the key optimization goals were Gain, VSWR, and Front to Back (F/B) ratio. After a few attempts at the design, and trying different ideas to make the antenna easy to build, a solution was found for each frequency band. The NEC files for these designs are on the NFARL Yahoo reflector -- look in the in the Files >> DIY\_Homebrew directory.

As one might expect, the 2m antennas are bulky to move around and take up a lot of storage space. In order to make both designs portable and to reduce their storage space, I developed a unique method to attach the antenna elements to the boom. This method allows all antenna elements, including the driven element, to be quickly installed on the boom and just as quickly removed for storage and transportation. Finally, the weight of these antennas is probably the highest gain per pound that you can find. Perhaps, we need a new unit for this, say G/lb?

Materials used on both designs are similar; a list of the key items follows below:

Boom material used is from Home Depot

For 2m antenna: Everbilt 3/4 in. W x 9/16 in. H x 96 in. L Aluminum C-Channel with 1/16 in. Thick Model# 802667 \$10.97 ea

For 70cm antenna: Everbilt 1/2 in. W x 1/2 in. H x 96 in. L Aluminum C-Channel with 1/16 in. Thick Model# 802657 \$9.39 ea

Antenna Elements:

Tape measure from Harbor Freight, Item 69031, 25 ft x 1 in, "FREE" (with coupon)

Element Attachment to Boom (search Internet for source, including eBay):

Panduit G.75X.75LG6

3" pieces of the Panduit Cover was used to mount all the 2m elements

1" length cover pieces were used to mount the 70 cm parasitic elements

3" piece of the Panduit Duct material was used for both driven element assemblies. Note that an extra piece of cover material can be placed along the boom to serve as a storage location for the feed assembly during transport.

Other items needed to complete the assembly are SMA flange mount connectors (X2), #6 sheet

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metal screws (A/R), RG-174 coaxial cable (about 16" per antenna), and electrical tape. A small number of #2 and #4 screws and nuts are used to mount the connector and to make connections to the driven element using small solder lugs. The coaxial cable connections are soldered to the connector and solder lugs.

Some construction tips and notes are:

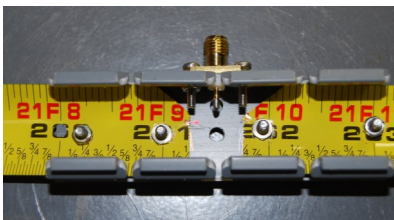
1. Electrical tape is used to cover the ends of the elements for safety.
2. Use of solder lugs and screws for the driven element requires holes in the driven element; these are best made by punching the steel tape material, rather than drilling.
3. Use of lock washers in the driven element construction is advised.
4. The choke balun is 5 turns on a 5/8" form (I used a piece of 1/2" CPVC). Secure the windings using E6000 or similar adhesive. Hot glue is okay for temporary use.
5. Use the spreadsheet "Layout" column to measure drilling locations from boom end.
6. Director elements are numbered starting with D1 (closest to the Driven Element).
7. Cut the elements using sheet metal shears and mark the element numbers and centerline for reference during antenna assembly.
8. Shorten the driven elements as needed to account for the feed gap (1/4" to 1/2").

Antenna measurements were made on my DIY outdoor antenna range. At 145.8 MHz the measurements were: F/B of >20 dB, Gain of 11.4 dB, and Return Loss of 14.4 dB (VSWR ~1.5:1). At 437 MHz the measurements were: F/B of 12 to 20 dB (depending on E or H plane), Gain of 11.8 dB, and Return Loss of 9.5 dB (VSWR ~2:1). Compared to the calculated gains of 10 dBi and 14 dBi, respectively, the above measurements show the limitations of DIY measurement environment!

Some photographs of the antennas and construction are shown below.



*Illustration 1: Future Antenna*



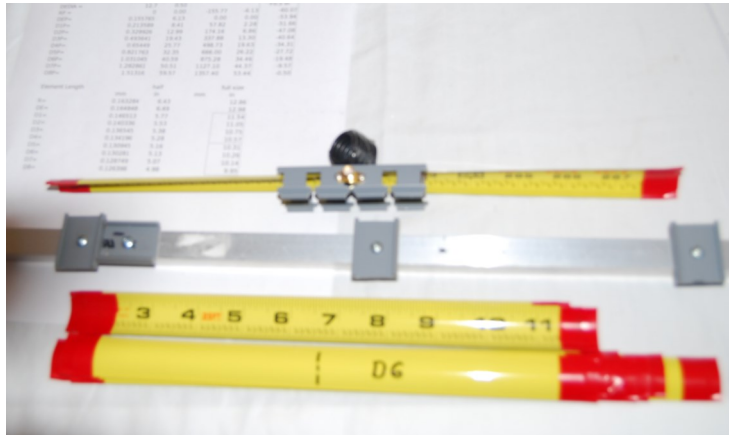
*Illustration 3: Driven Element Mechanical*



*Illustration 2: Antenna Elements*

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*Illustration 4: Antenna Boom Construction*



*Illustration 5: 70 cm Radiation Pattern Measurements*

As a final note, these antenna designs may be improved through further analysis or by using different construction techniques. I look forward to hearing from folks who attempt the construction and welcome all comments. Until then, have fun!

**Bob, KI4SBL**

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## Club Repeaters

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Frequency—Description	P.L. Tone	Location
145.470 (-) EchoLink Node 56086 NF4GA-R	100 Hz	Sweat Mountain
147.060 (+) Primary ARES Repeater	100 Hz	Roswell Water Tower
224.620 (-) Joint Venture with MATPARC	100 Hz	Sweat Mountain
443.150 (+)	No Tone	Roswell Water Tower
444.475 (+)	100 Hz	Sweat Mountain
927.0125 (-)	146.2 Hz	Sweat Mountain

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