



# W5AC November Monthly Meeting



Thursday, November 9



# Agenda

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- Introductions
- Officer Reports
  - Secretary, Treasurer, Vice-President, President, QSL Manager
- Old and New Business
  - Constitution Revision   ARES SET   School Club Roundup   CQWW DX
  - ARRL November Sweepstakes   B/CS Christmas Parade
- Good of the Order
  - Next Licensing   Other club meetings   December meeting date
- Program
  - Phased Array Antenna (KG5TZN)
  - Demos (KG5SDD, WG1GEM, KG5VGM)

# Secretary's Report - Kyle (KF5TZN)

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- Review of October Minutes
  - Any changes?
  - Motion to accept the minutes as read?

# Treasurer's Report - Jacob (KG5SDD)

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- Amount deposited and withdrawn since last meeting:
- Current overall balance: September 2017
  - Main Account: \$1,707.53
  - ARRL Test Fee Account: \$21.40
  - Donation Account: \$430.31

# Vice - President's Report - Joshua (AG5JH)

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- T-Shirts for sale!
  - \$10 for design with white text
  - \$5 for design with black text
- Will register W5AC for Spring MSC Open House soon!



# President's Report - Lucas (KG5LYQ)

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- SRT contacted us about licensing, we then coordinated with W5BCS for a special test session.
  - They tested 6:00 pm last Friday, November 3rd.
- All 20 passed!!!
- They will use amateur radio for communications when at the launch site.
- Big thanks to Gerald (W5VUI) and others from W5BCS, Dave (W5QZ), and Marty (W5MHN) for acting as VEs!



*TAMU Sounding Rocketry Team - All passed Technician!*

# President's Report - Lucas (KG5LYQ)

Attention All Radio Amateurs  
Attention All Radio Amateurs

This is (**call sign**) activating the Texas A&M Amateur Radio Club – W5AC  
Weekly Net for Monday, *Month Day, Year*.

- Would anyone like to try running the W5AC weekly net?
  - Joshua ran the net once last month, and Valerie ran it this week
- Would anyone like to work as the Public Relations Director next semester?
  - Duties: Social Media, End-of-Semester Newsletter, etc..
- I'll be coming out with the newsletter for this semester!



# QSL Manager's Report - Marty (W5MHN)

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# Old Business - Annual Constitution Revision

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- Vote on changes to the Constitution presented last month
  - Only voting members may vote
- 1. Propose to split treasurer/secretary into two separate positions
- 2. Propose to add in Historian and Webmaster
- 3. Propose to merge Public Relations and Newsletter Editor

The Constitution of  
The Texas A&M University Amateur Radio Club

as revised 08 October 2015

as revised 'Day' 'Month' 2017

**Article I. Name.**

The name of this organization shall be the Texas A&M University Amateur Radio Club.

# Old Business - Annual Constitution Revision

1. Propose to split treasurer/secretary into two separate positions under section 4.5.

## *Duties of Officers*

### Secretary

- a. shall keep accurate records of all fiscal transactions
- b. shall present a fiscal report at all meetings
- c. shall perform all fiscal transactions including the receipt of dues, equipment purchases, and repairs in a timely manner

### Treasurer

- a. shall keep accurate records of all meetings
- b. shall maintain a roster of members
- c. shall keep the Constitution and bylaws of the Texas A&M Amateur Radio Club, have the same with him at every regular meeting, cause all amendments, changes, and additions to be noted thereon, and shall permit the same to be consulted by members upon request
- d. shall send correspondence of appreciation to outside individuals contributing any type of support to the club
- e. shall regularly check for correspondence directed to the club or to members of the club

# Old Business - Annual Constitution Revision

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2) Propose to add a Historian and Webmaster under section 4.6. *Directors and Duties*

## Historian

Shall be responsible for ensuring the preservation of historical documents and artifacts important to the club. This person shall also be responsible for the documentation of club events and activities.

## Webmaster

Shall be responsible for ensuring the club website content is up to date and accurate. The webmaster will also be responsible for site redesigns, as necessary.

# Old Business - Annual Constitution Revision

1. Propose to merge Director of Public Relations and Newsletter Editor under section 4.6. *Directors and Duties*

## Director of Public Relations

Shall be responsible for all flyers, meeting notices, press releases, school newspaper notices (including “What’s Up?” submissions to The Battalion), social media, and other tasks associated with strong media relations. The director of public relations shall also be responsible for the gathering of information to publish regularly in a club newsletter, and distributing the newsletter in a timely fashion.

## Director of Repeater Operations

Shall be responsible for coordinating maintenance on all club repeaters, including the resolution of any frequency coordination conflicts that may arise from time to time, and maintaining the frequency coordination status on all club repeaters.

## Newsletter Editor

~~Shall be responsible for the gathering of information to publish regularly in a club newsletter, and distributing the newsletter in a timely fashion. The newsletter editor is responsible for keeping subscription records.~~

# Old Business - ARES SET

- Occurred Saturday, October 14
- SET = Simulated Emergency Test
  - Began at 8:30 am on 445.450 repeater. Hams were at the Red Cross Office, local hospitals, a few at home, and here at W5AC. Ended at approximately 11:00 am.
- W5AC participants were Marty (W5MHN) and Lucas (KG5LYQ).



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# Old Business - ARRL School Club Roundup

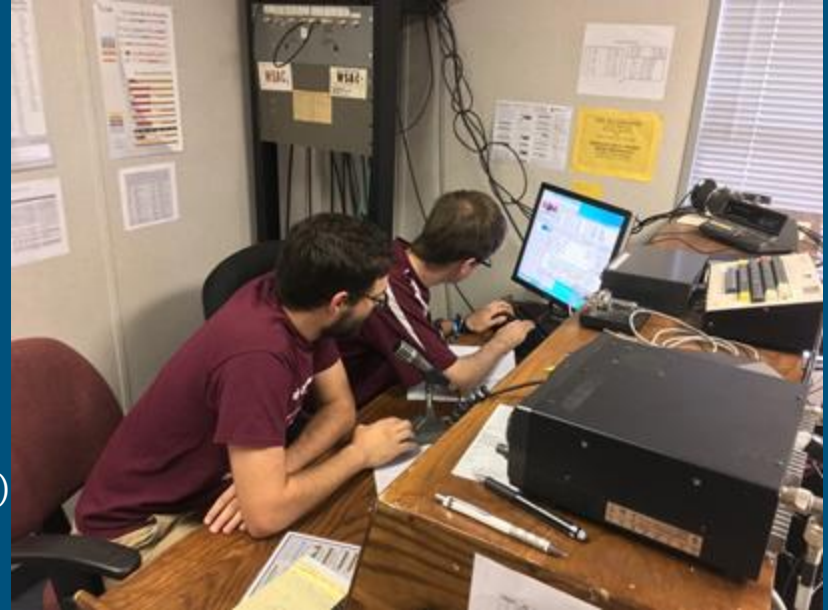
- Occurred the week of October 16-20.
  - We operated about 10 hours
- Worked mostly voice, some digital, and a few CW.
- W5AC Participants:
  - Lucas (KG5LYQ) - Called CQ, logged, a little digital
  - Jacob (KG5SDD) - Worked digital
  - Connor (WG1GEM) - Worked digital
  - Jace (KE0MXN) - Called CQ, logged
  - Daniel (KM4OPI) - Called CQ, logged
  - Dave (W5QZ) - Gave contacts on all bands
  - John (W1JCW) - Gave contacts on all bands
  - Matt (KG5VGM) - Digital
  - John (AC5NB) - Friday support



# Old Business - ARRL School Club Roundup

## What schools did we contact? (24 total)

- K0UND - University of North Dakota
- K3GCC - Grove City College
- KA0KWU - Kansas Wesleyan University
- W0QQQ - Kansas State University
- W4AQL - Georgia Tech
- W4DFU - University of Florida
- W6RFU - University of California, Santa Barbara (Goog ragchew!)
- W8EDU - Case Western Reserve University
- W8PZS - Ohio University
- W8SH - Michigan State University
- W8UM - University of Michigan
- W9NAA - Rose-Hulman Institute of Technology
- W9YT - University of Wisconsin
- AG7HP K1CLS K4DMS K4WBM K9SOU KD8NOM KM4RE KN4BBD N4SMS W9GRS W8MHS





# Old Business - ARRL School Club Roundup

Results:

al AK az ar ca co CT de fl ga HI id il in ia ks ky la ME md ma mi  
mn ms mo MT ne NV NH nj NM ny nc nd oh ok OR pa RI sc sd tn tx  
ut vt va WA wv wi WY -- AB BC MB NB NL NT NS NU on PE qc SK YT  
24 Schools 6 Clubs 361 Phone QSO's 15 Digital QSO's 2 CW QSO's  
323 Individuals 38 States 2 Provinces/Territories 8 Countries  
9.8347 Hrs (Click to update) 180 Multipliers X 395 QSO Pts = 71,100 Total

- 378 total contacts
- 38 states, 8 countries, 24 schools
- 9.8 hours operating time
- 71,100 total points
- 5th place in college division

SCHOOL CLUB ROUNDUP DAY'S END DISPATCH  
WSAC - Texas A&M University Amateur Radio Club  
Dispatched on Monday, October 23, 2017

Operating Hours: 9.83  
Phone Contacts: 361  
Digital Contacts: 15  
CW Contacts: 2  
Current Claimed Score: 71,100

38 States Contacted:  
ALABAMA, ARIZONA, ARKANSAS, CALIFORNIA, COLORADO, DELAWARE, FLORIDA, GEORGIA, IDAHO,  
ILLINOIS, INDIANA, IOWA, KANSAS, KENTUCKY, LOUISIANA, MARYLAND & DC, MASSACHUSETTS,  
MICHIGAN, MINNESOTA, MISSISSIPPI, MISSOURI, NEBRASKA, NEW JERSEY, NEW YORK, NORTH  
CAROLINA, NORTH DAKOTA, OHIO, OKLAHOMA, PENNSYLVANIA, SOUTH CAROLINA, SOUTH DAKOTA,  
TENNESSEE, TEXAS, UTAH, VERMONT, VIRGINIA, WEST VIRGINIA, WISCONSIN

2 Provinces/Territories Contacted:  
ONTARIO, QUEBEC

8 Countries Contacted:  
DOMINICAN REPUBLIC, GUATEMALA, MEXICO, PUERTO RICO, SPAIN, TRINIDAD &  
TOBAGO

6 Clubs Contacted:  
K4SOG K4YTC K5KOG N5JIN N4USA N7YR

24 Schools Contacted:  
A57XP K0UND K1CLS K3GCC K4JMS K4NEM K5SCU K6JEM K6JON K6KRE K6KRD K4JMS W0QQQ  
W4AQL W4DFU W6RPU W6EDU W6JMS W6PIS W6SK W6UM W6URS W6WAA W9YT

# Old Business - ARRL School Club Roundup

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Digital contacts now possible!



# Old Business -

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## CQ World Wide DX Contest

- Occurred October 28-27
- Davis (KF5ZPP) and Lucas (KG5LYQ) were calling CQ Friday night, and some of the stations we talked to mentioned the contest was starting at 7:00 pm. We hung around and worked about 10 countries once the contest started, mostly central and south america. Very cool!
- Kyle (KF5TZN) worked a few countries on Saturday!
  
- For a US station, only contacts with other countries count!!!

# Old Business

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- Anything else for Old Business?

# New Business - ARRL November Sweepstakes

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- Objective: For stations in the United States and Canada to exchange QSO information with as many other US and Canadian stations as possible on 160, 80, 40, 20, 15 and 10 meter bands.
  - We will operate under the “School Club” category.
  - More than one operator allowed!
- When: November 18-20, next weekend!
  - Starts 3:00 PM local time Saturday, and ends 9:00 PM Sunday
- Who: Anybody can participate, sign-up sheet at the front. Talk to Lucas!



# New Business - December Christmas Parade

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- We have been asked to help with communications and logistics support for the B/CS Christmas Parade.
- Sunday, December 3rd. Will need help from 8:00 am - 4:00 pm.

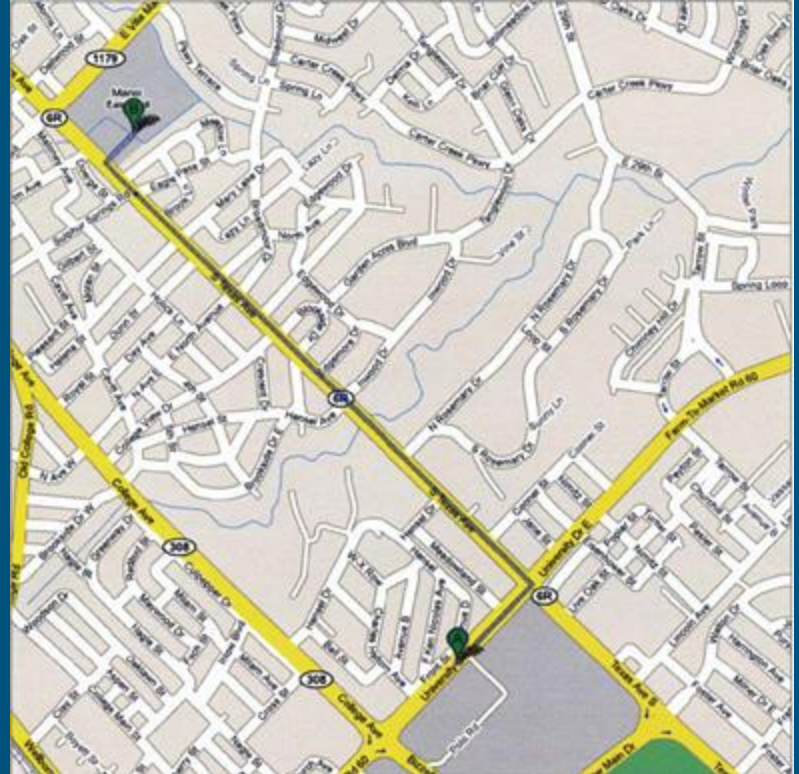


- More information coming soon!

# New Business - December Christmas Parade

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- Our location will be in TAMU Parking Lot 50E (where the parade will start!)
- Let's end the semester with service to our community!
  - Sign-Up at the front, talk to Lucas!



# New Business

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- Anything else for New Business?



# Good of the Order

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- Test Session: Next scheduled one by W5BCS will be in February
- ARES Meeting: next Monday, November 13th at 6:30 pm
  - Will discuss the Christmas Parade and have an ARES guest.
- W5BCS Meeting: next Saturday, November 18th at 9:30 am
  
- November Membership Dues: Voting = \$22, Non-Voting = \$20
  
- December Meeting Date: Wednesday, December 6th. 7:30 PM
  - School is out on the second Thursday!

# Good of the Order

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- Anything else for Good of the Order?

# Questions/Final Call

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- Any questions you have about amateur radio or W5AC before we close the meeting?
- Any final business not mentioned yet?
- Motion to close the business meeting?
  - On to our program!



# Phased Arrays in 10 Minutes

Kyle Flaherty (KF5TZN)

# 2m Phased Array



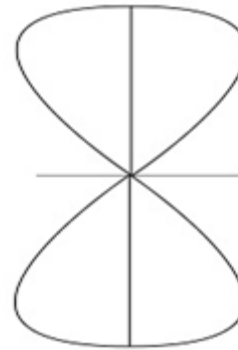
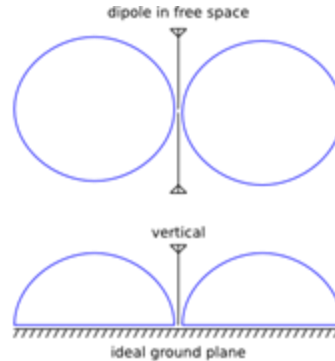
- Harold Thomas K6GWN
- Great Tech. Project
  - Total cost < ~\$100
  - Total time ~ 4 hours
- Intro. into array theory
- Pros:
  - Gain: 6.412 dBi
  - F/B: 7.62 dB
- Cons:
  - Directional
  - Difficult to keep tuned
  - Not weather resilient



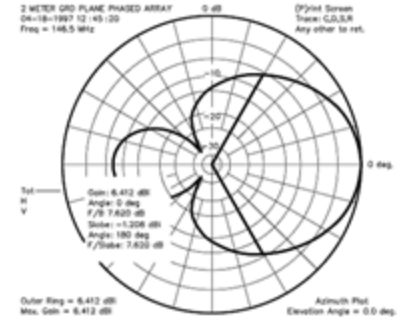
# Array Theory



- Simple Concept
- Pattern Multiplication
- Phasing
- Electrical Changes
  - Design Consideration



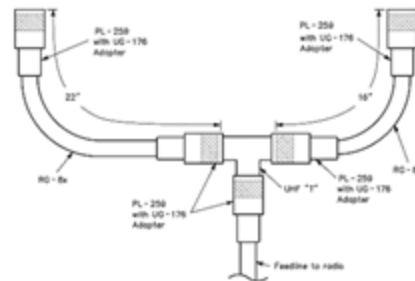
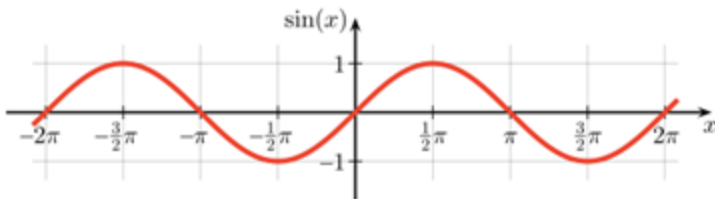
PATTERN WITH TWO ELEMENTS



# Phasing



- Physical Phase Delay
  - Spacing
  - Feedline
- Phase Shifters
  - Flexible
  - Expensive
  - Not Ham Radio oriented



# Lessons Learned



- Directivity is tricky
- Electrical and Physical Constraints
- Antennas in a system
- Useful 2m arrays
  - Moon Bounce
  - Satellites





# Demos

from Jacob (KG5SDD), Connor (WG1GEM), and Matt (KG5VGM)  
Allstar Node, Repeater PoC, Phone Patch



# Repeater Proof of Concept

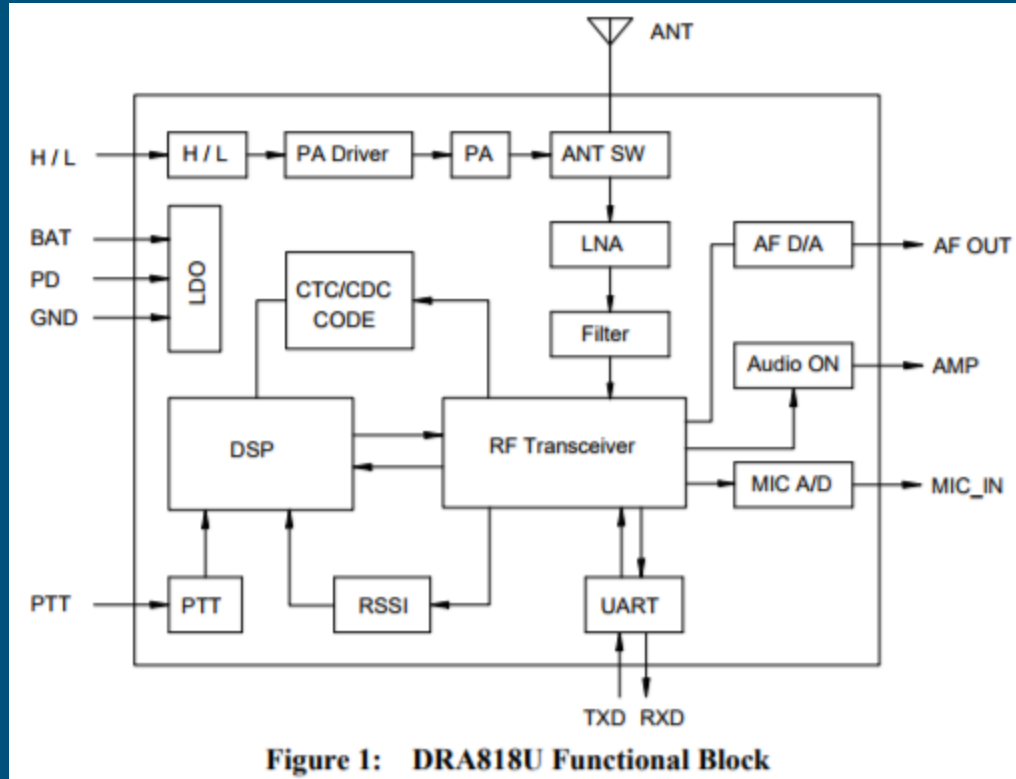


Figure 1: DRA818U Functional Block

# AllStar Node

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- Internet Linked Radio
- Computer Controlled!
- Cooks birds out of the air!
- Zap!
- ZAP!

# Group Picture!

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