



# Plane Talk

July 2018

**Weeks 2 & 4 are our flying weeks,  
Weeks 1 & 3 belong to the carters.**

**AMA Chapter 385, Jackson, Mississippi  
Visit us on the web at: [www.CCRCC.org](http://www.CCRCC.org)**

## Club Officers

President: Bobby Day  
Vice President: Wayne Squires  
Secretary/Treasurer: Jerry Bowen  
Member at Large: D. J. Powell  
Safety Coordinator: Dennis Conner  
Newsletter Editor: Wayne Squires  
Webmaster: Kirk Sansom

## Club Meetings

We meet on the forth Monday night, 7PM in the food court of the Mississippi Outlet Mall. Prior the each meeting an email will be sent out to announce the meeting. Visitors are ALWAYS welcome.

## Welcome

Spectators and friends are welcome to visit us at Hinkle Field located in Buddy Butts Park on North McRaven Road, Jackson. From I-20 west, take the Springridge Road (Exit 36) south 1½ miles to North McRaven Road, and then go east ¼ mile to park entrance. Follow the park road around to the north east section of the park. A current AMA license is required to fly at Hinkle Field.

Also please be aware that some FM channels have experienced interference. Do not use channels 16, 17, 21, or 44 at Hinkle Field. No problems have been reported with spread spectrum (2.4GHz).

## 2.4 GHz Spectrum

- Wayne Squires

With the mass migration to 2.4 GHz spectrum, I thought it would be interesting to learn more about this segment of the radio spectrum. The information in this article came from several sources including the National Institute of Standards and Technology, Wikipedia, forms like RC Universe and Hotware Wireless.

The 2.4 GHz spectrum is basically unregulated by the FCC. It is shared with Ham radio, Bluetooth, Wi-Fi, RC airplanes, RC surface vehicles, wireless microphones, wireless telephones and the list goes on. The segment of this band we share is 2.4 GHz-2.485 GHz.

OK, with so much stuff going on, why are we not experiencing more interference? As you know, most radios utilize 2 distinct methods of jam-proof synchronization, direct spread spectrum (DSSS) and frequency hopping (FHSS).

## Direct Sequence Spread Spectrum (DSSS).

Direct sequence spreading is very different from frequency hopping.

Instead of splitting a data signal into pieces, direct sequencing encodes each data bit into a longer bit string, called a chip. Usually, 11 to 20 bits are used for the chip, depending on the application. Because the military requires a much higher degree of security, it generally uses much longer chips—even a long as 1,000 to 10,000 bits! An eleven-bit chip is illustrated below.

0=10010010110  
1=01101101001

Notice that the binary string encoding a 0 has the opposite form as the string encoding a 1— where a "1" is used in one chip, a zero is used in the other. The chip is then used to modulate (change) the signal generated by the radio transmitter, spreading the signal out over a wide band of frequencies. The receiver uses the same code and so listens for the unique signature across the frequency spectrum. It then decodes the signal back to the original data.

This is a simplified explanation of a very technical subject, but hopefully it gives you an idea of how spread spectrum works. The gist is that spread spectrum technology allows multiple radio signals to operate in an open, unlicensed band with a minimum of interference. It also provides security for the transmission.

## Frequency Hopping Spread Spectrum (FHSS).

Frequency hopping spread spectrum was the brainchild of the 1940's movie star Hedy Lamarr.



Hedy Lamarr, inventor of Spread Spectrum

**From her official website:** *As if being a beautiful, talented actress was not enough, Hedy was also extremely intelligent. In addition to her film accomplishments, Hedy patented an idea that later became the crutch of both secure military communications and mobile phone technology. In 1942, Hedy and composer George Antheil patented what they called the "Secret Communication System." The original idea, meant to solve the problem of enemies blocking signals from radio-controlled missiles during World War II, involved changing radio frequencies simultaneously to prevent enemies from being able to detect the messages. While the technology of the time prevented the feasibility of the idea at first, the advent of the*

*transistor and its later downsizing made Hedy's idea very important to both the military and the cell phone industry.*

Though developed and implementation by the U.S. military, the problem first addressed by Hedy Lamarr, a famous actress of Austrian descent in the 1930s and 1940s. She and a music composer, George Antheil, patented the idea in 1940. She was so far ahead of her time in conceptualizing the idea that she never received any monetary rewards for her patent. The patent license expired before government and commercial implementation of the concepts occurred.

A communications signal (voice or data) is split into separate parts. Instead of transmitting a signal continuously over one narrow frequency band, the several parts are transmitted separately over a wide spectrum of radio frequencies. A defined, but random-appearing pattern of non-sequential bands is used, with successive parts being transmitted over the next frequency band in the pattern. On the other end, a receiver is configured to receive the signals in the same pattern. The radio receiver then reassembles the pieces into the original signal. Since many distinct patterns can be developed, it is possible to have multiple radios transmitting at the same time, but never at the same frequency at the same time.

The process of jumping quickly from one frequency to another is called frequency hopping. And, therefore, the technique is called frequency hopping spread spectrum. Frequency hopping has two benefits. Electrical noise —random electromagnetic signals which are not part of any communications signal—will only affect a small part of the signal. Also, the effects of any other forms of radio communications operating in narrow bands of the spectrum will

be minimized. Any such interference that occurs will result in only a slightly reduced quality of voice transmission, or a small loss of data. Since data networks acknowledge successful receipt of data, any missing pieces will trigger a request to transmit the lost data.

With all the techno-speak safely behind us, it is comforting to know that many of our radios uses both frequency hopping and DSSS. Wow!

Depending on the brand and model of radio, different numbers of channels and DSSS bandwidth are available. These are listed in the following chart.

| Manufacturer | Marketed Technology | DSSS BW | FHSS Frequencies |
|--------------|---------------------|---------|------------------|
| Futaba       | FHSS                | 10 kHz  | 74               |
| Futaba       | FASST               | 1.6     | 36               |
| Spektrum/JR  | DSM                 | 1 MHz   | 1                |
| Spektrum/JR  | DSM2                | 1 MHz   | 2                |
| Spektrum/JR  | DSMX                | 1 MHz   | 23               |
| JR           | DMSS                | 3 MHz   | 23 estimate      |
| HiTec        | AFHSS               | 1 MHz   | 20               |
| Turnigy      | V1                  | 1 MHz   | 1                |
| Turnigy      | V2                  | 1 MHz   | 16               |
| Airtronics   | FHSS-x              | 1 MHz   | 15               |
| Wi-Fi        |                     | 22      | 1                |

Although interference is almost non-existent, most radios offer a failsafe mode that will return all controls to a pre-set state that you define when you program your transmitter. If the airplane loses your signal, or can no longer bind with the transmitter all controls will return to where you earlier programmed them.

My planes are programmed to return the engine to a low idle and all controls back to neutral. If the receiver is able to re-bind, control is given back to the pilot. Then you can complete another wonderfully perfect landing.

# June 25, 2018 CCRCC Meeting Minutes

- Jerry Bowen

Called to order; 7:00pm

Attendance;

- Bobby Day
- Jerry Bowen
- Dennis Conner
- Wayne Squires
- David Huff
- Vernon Montgomery

Treasurer report was given; Expenditures this month were;

- Port-a-Jon,
- MS Sec of State updated Club Charter
- card fee, grass cutting
- field & ditch and
- container key.

## Items;

### Field Drainage;

~~We will discuss this with the City before the Club attempts any work. However, the following is a repeat of what to bring if we start working on the drainage. This strike through item was not discussed and is still pending.~~

~~Items to bring to work day: Two types of shovels (digging ends to be flat and others pointed), work gloves, wheel barrows/carts, lawnmowers, edge trimmers, tractor with a box blade or scraper blade. Plans are to cut a ditch between the shed and pilot pads to drain toward the existing storm sewer and clean out the existing storm sewer. Fill in low spots, such as near the Port-a-Jon and over by the container area. Cut back sod at the pilot pads south sides so water will drain off the pads and or raise the pads. We may need to sow some grass seed when all is done. This strike through item was not discussed and is still pending.~~

~~It was discussed that the fall fly-in we will not have a Pilots draw, just a raffle. I think we will not even have a landing fee but my memory maybe in error on that. We will serve food as we have in the past. This strike through item was not discussed and is still pending.~~ However, the Fall fly-in will be on October 27th, 2018.

We still have the old folding tables. They are 8-ft long and their hardware is in good shape that we would like to get rid of. The price tag of \$10 was mentioned at the fly-in and none were sold. Some of the tops can be stripped of the photo laminate wood finish and sanded down for a suitable work table without replacing the hard particle board top.

### Budget Discussion:

Jerry did a quick yearly projected budget. Items covered in the projected budget were; Port-a-Jon, grass cutting and other related field maintenance such as ant poison and runway grass poison, expenses of Fly-ins, swap shop, Christmas Party, Club insurance and other such operational expenses. Projected expenses for the year could be \$4,200. Not counting income from fly-ins and other money-making functions, the Club will be in the RED by \$2,840 after dues are paid in from 35-club members. I can tell you that the Club does not make much money off the money-making events that are anywhere near \$2,840.

It was mentioned that maybe we cut the Christmas Party. Wayne suggested a fund raising event.

**Other items discussed was information** regarding AMA grants for field improvements and runway repairs. The Geo-TEX material as a landing surface was discussed but the only problem is possible vandalism of it since the club is in a public park and there has been times when our runway was used as a vehicle drag strip.

Someone needs to investigate how to fill the current cracks. There seems to be some new methods as seen in parking lot repairs in businesses lots. Come on guys volunteer, I cannot do this all the time.

Jerry talked to AMA not only about the grants but about falling membership. I was told that many clubs are having the same problem. One way to attract the younger generation is to have a Drone flying obstacle course. However, our site would not work for this type of activity except on the other side of the road to the south of our covered area. It would be another field to have to be maintained. Also, I watched indoor and outdoor videos on this sport and the drones are fast and the course area may have to be fenced off to keep people from walking into the course who are using the park and may not be aware of the activity.

A short discussion was on the club maybe getting its own lawn mower which was left with a wait and see.

Meeting adjourned about 7:45pm.

**Editor's Note:** Let's start listing projects, new planes, and maiden flights. If you have any of these email them to me at [waynenjoni@gmail.com](mailto:waynenjoni@gmail.com).

## Classified

The classified ads are open for any member, and do not have to be model airplane related. A member can also list something for a friend. If you have sold an item or given up all hope, please let me know so that I can remove it. Thanks, Wayne



## Spektrum

- DX5e 2.4 GHz Transmitter
- Wingspan 59"
- Four 3200mAh 3S 11.1V 20C LiPo Batteries
- Eflite Plane and Batteries
- **NEW Never Flown** \$250.00

Contact: Robin Brumfield  
601-481-3998

**D.J. Powel** has the following items for sale. They can be view at the following URLs:

<https://www.rcgroups.com/forums/showthread.php?3080860-FMS-Pitts-55%C2%94-PNP-new-in-box#post39676338>

<https://www.rcgroups.com/forums/showthread.php?3071123-Hubsan-H111D-with-antenna-and-lens-mod-RTF>

**Jerry Bowen** listed the following items for John Harper:

I am not interested in selling my material piece mill. I want to sell everything to one individual and allow them to then make a profit selling to club members. I hope someone is interested. Thanks for your response. John Harper

I am getting out of the model airplane hobby; I have flown RC since 1969. Recently my wife sold our home and moved to a garden home. No room for a shop. I am looking for someone to buy everything I have in the hobby line. Following is a partial list: Many other small items. My telephone number in Starkville is 662-324-8424. Be happy to bring all items to Jackson.

- 12 electric motors including 3 OS 10s
- 20 sets of wheels in various sizes from 1 to 3 inch
- 9 2.4 GHz receivers
- 6 72 MHZ receivers
- 1 Spectrum 6 channels transmitter
- 1 72 MHZ Tower 6 channel transmitter
- 6 airplanes complete ready to fly
- 30 APC props in various sizes
- new battery charger
- 20 lithium polymer batteries all 3 cell ranging from 2100 mhATO 1100 MHA
- NEW HEAR GUN
- Several rolls of shrink wrap

Contact John Harper

at: [harper@maxxsouth.net](mailto:harper@maxxsouth.net)

## Maiden Flight



### Wayne's kit-bashed Tower Hobbies Uproar 60

We have all read that a tail heavy plane will crash. This was my first tail heavy beast.

Takeoff was nice and smooth until it reached about 30 feet in altitude, then ***it dove for the ground.*** When I pulled up ***it dove for the ground.*** When I got it going up again, ***it dove for the ground.*** If I tried to turn it with ailerons, it tried to loop and then it ***dove for the ground.*** When I used the rudder, it went into a tailspin and ***dove for the ground.***

After what seemed like 36½ hours of panic riddled flying, I got it headed for the runway. At about 25 feet altitude, ***it dove for the ground.***

I was able to pull it up in time, only to see it drop a wing and ***dive for the ground.***

Thanks to high grass, its single point landing (on prop spinner) caused no damage. The plane had balanced perfectly on a Great Planes balancer, but I fear that it was too big for that flimsy device. Bobby Day loaned me his homemade balancer and it quickly pointed out that there was over 7 ounces too much of lead in the tail.