



The **SENIOR PATTERN ASSOCIATION** *News Letter*

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JAN/FEB 2006

Precision Aerobatics - like the “good-ole-days”

THE PRESIDENTS PERSPECTIVE



Bruce Underwood

SPA—15

bunderwo@hiwaay.net

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Consumed the traditional blackeyed peas, seasoned with hog jowel and turnip greens loaded with lots of good pepper sauce on New Years day (after SS and Church).....so the year 2006 is guaranteed to be a prosperous one.

Here in No. Alabama, New Years Eve (Sat.) and the Monday after New Years were both fairly nice temperature wise so some of us local RC’ers took advantage and did some flying.

Spend some time eyeing this edition as Steve sheds mucho wisdom with his “other ARF” input. Sorry all couldn’t be with us at the Christmas in Dixie. Phil explains in laymens’ lingo this new SS radio stuff, even includes diagrams to illustrate. Keith incites proper execution in his J-101 column. Just loads of good stuff in this one.

Many condolences to Scott’s family on the loss of their recent-born Grandchild. Our Prayers are with them.

Hope to see many at the SPA tables in Perry, GA.

Georgia Aircraft Modelers Association, Inc.
Warner Robins, Georgia

presents

The Southeastern Model Show 2006

"R/C Modeling Extravaganza in Central Georgia"

at the

Georgia National Fairgrounds and Agricenter,
Perry, Georgia

on

Friday & Saturday, 3-4 Mar 2006

By popular demand, please note our hours, we close Friday evening at 9:00 P.M. and open Saturday morning at 8:00 A.M. The exchange meet will be held in the McGill and Miller - Murphy - Howard Buildings.

Friday set up 12:00 P.M. til 5:00 P.M. Gates open Friday for main event 5:00 -9:00 P.M. Saturday 8:00 A.M. - 5:00 P.M. Located at the Georgia National Fairgrounds & AgriCenter, exit 135 Interstate 75, 100 miles south of Atlanta, Georgia, 135 miles north of the Florida border.



A Current TOPIC
by
Steve Byrum Sec/Tres

THE OTHER ARF

There has been some discussion the last few days on the SPA email list about the lack of available ARFs for SPA use. We need to remember that we are a very small part of the R/C community. There are not enough of us to make production of a vintage pattern ARF economically viable. The Intruder spoiled us. It was also an absolute accident. World Models had no idea they had produced an SPA plane until Sid Austin called to see how many he could get. During part of that conversation, they asked him what SPA was. Other than **Kaos** and **Ugly Stiks**, there are not likely to be SPA ARFs available.

The other ARF . . . There is a line in the movie "As Good As It Gets" where the female star explains to her mother exactly what she'd like to have in a boyfriend. Without missing a beat, mom responded, "Everyone wants that, Dear. It doesn't exist".

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That leaves building a plane, often from scratch.

If you have never built a plane from a kit or from plans, don't even say you can't! That's an excuse for not attempting something new coming from a mouth which has the ego to stand in front of judges and dare them to downgrade its' maneuvers. It really means *I'm afraid to attempt to build my own plane.*

Building a plane is not difficult. If you've put together an ARF, you know how to align a plane correctly. Just put the pieces together and make sure all is true and square as you do it. The only SPECIAL tool required to build a plane is called *afriendwhohas*. You don't have a jig saw. Not a problem. One of your friends has one and won't mind lending its' use for a couple of hours. The same is true of most any tools. If you don't know how to use a tool, your friend will show you. There is nothing you cannot do yourself building an SPA plane. It only takes time.

I know you don't have the time to build a plane. Too much high quality TV to be watched. An hour or so a night for several weeks will get it done. A couple of hours a week will make the project last longer, but it would still be done when the weather gets nice. If you only took the time you've spent saying "I sure wish there were more SPA ARFs available" during the last year, you would have most of a kit cut from scratch.

Gentlemen, if you want something new to fly, build it. There will be no ARFs to the rescue of SPA.

STEVE

(Ed note) Steve has "scratched" numerous RC models, most of which are SPA ones and each have been great performers. He is a meticulous builder and maintains plans of many top performing SPA models which he will be glad to share with others for simply the cost of reproducing them.

The SPA Mail-list is a cache of building help, just address the group of 70 odd with your' questions. All are glad to input assistance.

CHRISTMAS IN DIXIE

December 03, 2005

Despite temperatures in the 40's and rainshowers, a few stalwart SPA'ers gathered for a half-day of eating, fellowshipping and swapping stories and a few model items in Cullman, AL.

The gathering in the "off-season" was a brainchild of CSP Jamie Strong who yearned for some time away from the building bench and alongside some friends with "mutual" interests near the "greatest of all Holidays". CHRISTmas.

The first restaurant chosen was a Bar-B-Que place that served tremendous food for previous gatherings but didn't offer a breakfast serving, so, after gathering at place # 1, the attendees removed to the FIRE MOUNTAIN eatery (pictured) for a shonuff swanky buffet with a menu that left nothing to be desired. The lovely young waitress even joined our party at the table and agreed to a photo with the SPA Public Information Officer-PIO.

The gang then assembled at PYRAMID Hobby Shop where we were joined by M/M Robert Blackwell from Chattanooga, TN and a few of the locals where we remained inside, warm and dry, and traded yarns, tips, some modeling items and purchased a "dukes mixture" of hobby tid-bits from Pyramid's tremendous selection of goodies.

We sounded "adjournment" just prior to having to return to that great restaurant for a luncheon refill.



BREAKFAST
HERE

YUM-YUM
GOOD

Fire
MTN
was
formerly
a
RYAN'S
Steakse
-0-
FOOD

WAS

GREAT!



No way to stick to a diet with that "humongus" buffet !



RAYVEN said "sure, I'll pose with you, POP !



Jamie brought a vehicle full of SPA models for sale and swap including new unboxed A-6 Intruder ARFs.

Spread-Spectrum for R/C

Phil Spelt

AMA 1294, SPA 177, NSRCA 2032

President, Knox County (TN) R/C Society

Recent articles in *Model Aviation* (July, 2005, p. 46) and the Hobbytown USA flyer *HobbyOutlook* have suggested that Spread Spectrum (SS) is on the horizon for R/C aircraft. In fact, it is already being tested with R/C car racing. In this article, I will explain what SS is, what its benefits and drawbacks may be, and what is left to be done to transition this technology to aircraft.

What is SS?

Our present radio systems transmit on a particular frequency (“channel”), hence our “narrow-band” systems. In SS, on the other hand, data is transmitted over a frequency spectrum that is spread over a wide range of the radio frequency (rf) band (Fig. 1). Notice the noise level

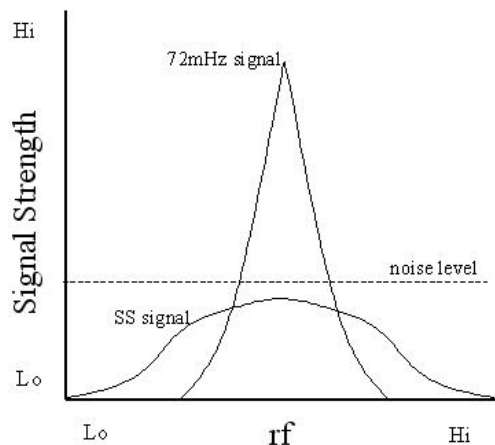


Figure 1. SS and narrow-band signals

line in Fig. 1. Presently, we are OK as long as our radio signal is above that noise. Also notice that the SS signal level is all below the noise. How that works is in the next section.

How SS Works

SS does not work by simply spreading the signal over a wide spectrum band. Rather, it sends little packets of data on a variety of different frequencies, such that the overall effect is to appear to do so. Fig. 2 shows this conceptually.

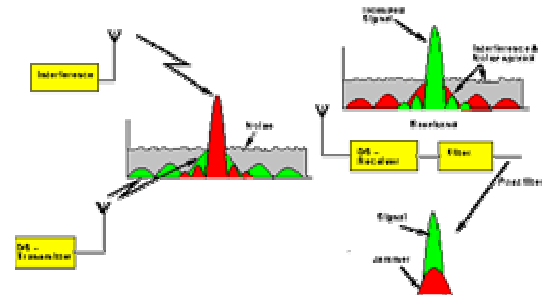


Figure 2. SS signal and “dispredding”

(Figs 2,4 & 5 are taken from the dissertation of Jacobus Petrus Franciscus GLAS, Circuits and Systems Research Lab, Agere Systems.)

The left part of this figure shows the delivery of the spread signal (green), with a spike of “interference” signal (red). This spike is similar to one of our current channels, with the exception that the SS signal is at 2.4 GHz, and our channels are at 72 MHz. The upper right part of Fig. 2 shows the combining of the SS signal at the receiver, with noise spread out. The lower right is the overall signal to noise ratio following combination of the SS signal.

How SS is Created

There are three (or 4, or 5, depending on how you count) ways to assure that the SS signal is properly reassembled at the appropriate receiver.

Direct Sequence spreading uses a code to mark each bit-stream of data – sort of as if all my SS transmissions said “Phil”, and others had all “Ed” and still others all “Mike”. My Rx would look for all the “Phil” signals and ignore the others. This is illustrated in Figure 3, below. In cell phone parlance, this is known as

Code Division Multiple Access, or CDMA.



Fig. 3. Direct Sequence code.

Direct Sequence SS is the most straight-forward, but has at least one limiting factor, shown in Figure 4.



Fig. 4. Near-Far Effect.

The “Near-Far” effect results from an interfering Tx (code B, bottom left in Fig 3) being closer to the receiver for code A than code A’s Tx (right).

Frequency Hopping SS does just what the name implies – spreads the signal across a variety of frequencies, as shown in Fig. 5.

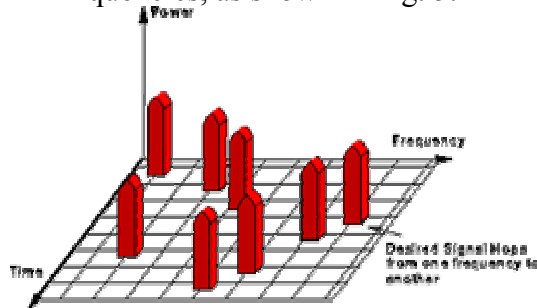


Figure 5. Frequency hopping SS.

Frequency hopping spreads the signal out over both frequency and time, as shown above. Frequency hopping is not affected by the near-far phenomenon, as is direct sequencing. However, it does require fast frequency hopping synthesizers in the Tx & Rx to produce enough gain to make the signal “receivable.”

Time Hopping SS is similar to frequency hopping, except that the signal is spread only over time. In cell phone

parlance, this is known as Time Division Multiple Access, or TDMA.

Hybrid Systems for SS make use of two or several of these methods. A hybrid Direct Sequence—Frequency Hopping system captures the best aspects of both systems.

SS Benefits and Drawbacks

As you may have figured out by now, the major benefit of SS for R/C is the virtual elimination of interference of all kinds – electromechanical interference (noisy clevises, for example) occurs below about 300 MHz, so is well below the 2.4 GHz of SS, and interference from other Tx’s is also a thing of the past, as seen by the above discussion. In addition, SS will eliminate most of the multi-path (spectral reflections) effects when the rf signal bounces off buildings, the ground, etc. This multi-path issue is what causes ghosts on a TV screen when using an antenna in the city. SS is already being tested in R/C car racing, and seems to work as well as anticipated.

The major drawback is antenna orientation. Apparently, SS is sensitive to antenna orientation, which is OK for cars operating on a flat (2-dimensional) surface, but is a problem yet to be worked out for the 3-D world of aircraft.

Of course, another great benefit of SS is that it is totally compatible with our present system of assigned frequencies, supplementing rather than replacing it. Anyone flying a SS system, moreover, would not need to worry about having the pin – as there is no assigned frequency. How long before we see SS available for R/C aircraft? HAH!

That’s the 2.4 GHz question...

--pfs

Invite a “flying buddy” to join us
for SPA *fellowship* !
Membership application on
page 8.



Chairman Spec Projects
 "Eyein" a GREAT 2006
 Jamie Strong—CSP
 & Prattville CD

Well, Christmas has come and gone for the 2005 year, and what a good year for the SPA. It just a special treat to fellowship with old friends and new, and share our great hobby and sport. 2005 was a year of record breaking attendance and expect things to just keep growing and growing.

Great to have the Nessler family come all the way down from Ohio to compete in our First ever Open SPA meet, (thanks, Steve). Think, If more interest will come in this area that we could incorporate some open events into our season events. Its like everything though, it takes folks showing an interest, then, we can certainly make it happen.

Contest Calendar 2006 looks like this as of this writing and still working on 2 other contests to possibly make it onto the schedule real soon.

March 25th and 26th Prattville, Alabama SPA (New Site)

April 22nd and 23rd Cullman, Alabama SPA

May 20th and 21st Knoxville, Tennessee SPA

June 17th and 18th Hotlanta, Georgia SPA (New Date)

Sept 23rd and 24th Cartersville, Georgia SPA (New Site)

Late Oct dates still pending for SPA MASTERS. See everyone at Perry and on the SPA trail real soon!!!

(Ed note:)..On New Years' Day got this from CSP:

Great news for the NEW YEAR!!!!

RCRC is getting on the books for their annual SPA contest. Lamar Blair will be CD'ing with Jon Lowe assisting in the CD'ing

Just got the news, dates coming soon.

That gives us 7 contest and maybe an 8th coming soon. How about it NC, TN, fellows.

Jamie Strong

Election Results—2006

Below is the official notice of the election ballot returns and dues payment requested in the previous newsletter posted by Steve on the SPA Maillist: (Cut and Pasted from the SPA Maillist)

President Bruce Underwood 33

Keith Watson 1

Santa Claus 1

Vice-president Scott Sappington 34

Rudolph 1

Sec/Treas Steve Byrum 34

And Friends 1

There was also one hanging Chad. A nameless member voted for both the

proposed slate of officers and the seasonal Write-ins shown above. In

SPA's normal laid back spirit, I counted it both ways.

Dues collected were for 45 members and \$920. That's about 60% normal

return. I will include a reminder in the Jan/Feb Newsletter to

encourage those who have not paid for this year.

Steve Byrum

There are 70 RC Modelers who subscribe to the SPA Maillist, or Discussion List and sometimes some good topics are posted and good ideas swapped.

You may join the Discussion list from within the SPA web site at:

www.seniorpattern.com

or you can key in your' requests as follows: to remove from listing or add yourself send to:

Discussion-request@seniorpattern.com

in body of message just type:

Join Discussion "your name" <your e-mail address>

or

Leave discussion "your name" <your e-mail address>



JUDGING-101

by

Keith Watson—SPA 10

Hope everyone had a Merry Christmas and Happy New Year. I was hoping for a new JR but wound up with a can of peanuts instead. We're gonna have a great year of SPA flying because the conditions in Cullman in Oct. should have appeased the weather gods for at least one season.

Some of the basic Novice maneuvers are hard to get a handle on to distinguish between one flight and the next. The sequence at the beginning is intended to give the pilot an easy entry into the more challenging stuff coming up. Notice the position of the airplane in altitude and distance from the pilot going upwind as well as the smoothness in pitch and roll control. In the Procedure Turn, the bank angle may change due to the wind as the airplane (hopefully) finishes the 90 and 270 back to the same path as the Straight Flight Out.

The transition from the 90 to the 270 should be continuous. Obviously the wing will reach a level position but should not pause there. If the plane climbs or dives to reach the original altitude during the Straight Return, the altitude changed during the turn, which would be a downgrade on the turn and maybe on the return flight. Always depends on the severity or obviousness of the defect.

At the moment we haven't made any changes to patterns for 2006. Expert pilots beware, I'm going to politic for the FAI Rolling Circle when we do vote on changes.

Some tips for pilots:

On your trim pass, actually pay attention to the trim. It's easy to get into the habit of just making elevator and aileron corrections during this pass instead of making minute trim changes to make your job easier.

As the flight progresses, watch the trim between maneuvers. Your level entry and exit will be much easier if the trim is on the money. This is especially true with digital servos. You'll generally need a bit of down elevator trim about halfway through the flight as the nose gets lighter.

Turnarounds should be done the same way through the flight since this helps greatly on establishing level entries. Allow yourself enough time/space to start where you need to for centering. It's rare to see a maneuver started too early but late starts are common.

If you're in the ready box area, be aware of the pilot's need for concentration and keep the noise level low. While we're on the subject, do your part to keep things moving from ready box to flight line so the CD won't get gray hair. (Too late for Steve and me).

Looking forward to seeing everyone on the trail,

Keith



Looking forward to seeing road signs such as the one pictured above in just a couple of months, aren't you?

Pattern call sheets may be downloaded for free from the SPA webpage at:

www.seniorpattern.com

Senior Pattern Association Membership Application

Name _____ Date of Birth _____

Address _____ Phone () _____

City-State-Zip _____

AMA Number _____ Club affiliation _____

Membership Dues \$20.00 Make Check payable to Senior Pattern Association. Mail to:

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