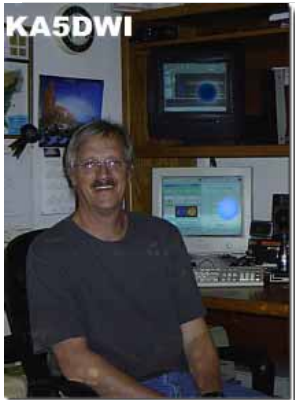


## Chairman's Corner

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The Chairman's Corner  
By Art Jackson KA5DWI



**My Final Article as Chairman - I am still trying to leave a legacy. I did not know the road would be this interesting.**

Trying to run a Ham Radio club can have its drawbacks. It also has lots of benefits.

I have been on 2-Meter Sideband for more than 25 years now. I have been a fairly active Ham for the most part despite interruptions, interference, and tribulations in my personal life. Nothing else in this hobby has been more exciting and fun than to experience the wonders of operating here on 2-Meter Sideband. You get the best of all worlds here.

After an inactive period from 1995 till 2001, I was ready to get back on and get back in the swing of things. I soon found out that a movement was afloat to rejuvenate SWOT. The timing was perfect for me. I found the SideWindersOnTwo Yahoo Group Page and started conversing with some old friends and started making new ones. I started to let everyone know what was happening on the bands (Propagation research is my favorite thing to do) and putting my writing skills towards sharing and informing others what makes this band click. That would get me further into my involvement in SWOT.

After a long article in the SWOT Bulletin about the 2001 Central States VHF Conference, I was asked and accepted the job of our Bulletin Editor. That job would last almost four years. Doing a bulletin is fun, but trying to get others to do articles was like pulling teeth. Even with contributions from others, it took about 15 work hours each month to put it together. Once again I tried to make it informative and interesting to bring in new members and rejuvenate the old ones. I hardly got a

"thank you" for doing it, except for strong support and appreciation from our then Chairman, John Petersen KM5ES.

I did not know John Petersen, KM5ES until my new re-involvement with SWOT. We became good friends. He was very sincere, highly opinionated, and truly loved 2-Meter Weak-signal. He was fun to work with and I admired his enthusiasm. Unfortunately, I also observed his frustration with getting others to be more involved and connected to our organization. In early 2003, he had his fill of trying to run this club and no longer wanted to be its figure-head. No one else seemed to want to step forward either. So I was nominated to be the new Chairman. I told John I would do it only if he would be Vice-Chairman and our Webmaster.

In 2002, after a year or so of enjoying early retirement (actually walked away) from a business that became impossible to work in, I began my pursuit of an unaccomplished lifetime dream towards getting a college degree and then using it in the Education field. College, SWOT, and Ham radio failed to mix very well. It was difficult to write a bulletin, handle affairs for the club and enjoy 2 Meter Sideband. I was blessed to get help from Jim McMasters, KM5PO. He graciously assumed the responsibility of putting together the SWOT Bulletin in March 2005. In addition, he had become our Saturday morning SWOT NCS for a Net that had existed for almost 30 years. That pressure was off and I could at least try to represent SWOT as best I could.

College was still a drag on me, and it was tough making Hamfests and Hamventions. I could never escape the 15-page research papers, Chemistry homework intended for Science geniuses, and Multi-Variable Calculus. I could only make our annual convention here in DFW or a few others during a break at college. I really felt that I was not representing the club well and I had little time to discuss our purpose to Ham radio.

[Visit the Sidewinders on Two Website!](#)



In early 2006, one of the most unusual situations I have ever experienced occurred. It made me wonder whether this job was worth it when a Yahoo Group member (Not a SWOT member) proceeded to make threats at the club, members, and me personally for no good reason. I never expected that someone in our fraternity would do that to someone else, but not everyone is like us are they? Most of us are at least decent and honest people, and do not take things so seriously to do these types of actions. Ham radio would collapse if most of its participants had only monetary and self-interests. This hobby is about sharing, Elmering, and not bragging about what we think is best for everyone.

In May 2007, John Petersen KM5ES suddenly passed away. John was running the SWOT Homepage and a new void had occurred by his unexpected death. So I picked up the new responsibility as a Webmaster. I have enjoyed the job. I have done everything I could to keep the Homepage up to date. Once again, it is a thankless job. It is also difficult to keep it within the best interests of SWOT, other interested parties, and not in your own interests. I hope that everyone enjoys it. A new 2-Meter Sideband enthusiast can learn much from the site. I have tried to share with all how to enjoy the wonders of the band, make the most out of it, and also keep us up to date to SWOT news.

So this brings us to today....

A few weeks ago our Secretary/Treasurer Howard Hallman, WD5DJT expressed his desire to turn over his duties to someone else. Howard has done this job for well over 20 years. In all actuality, his had run this club alone for many years during the 80's and 90's. My immediate thoughts were on his replacement. Whoever the individual was to be selected needed to have tenure, involvement, and understanding to how a club like this works, plus have some fiscal responsibility. Also, an appreciation to its historical significance and contribution was highly important.

After contemplating a while on a replacement, the only person I could think of was me.

With my current personal schedule, I cannot do multiple jobs. Chairman was difficult enough in the scheme of things. With the help of several key members of SWOT, we have created an Executive Committee approach to manage and promote SWOT. The committee members are:

**The head of the committee Jimmy Johnson - KD5ZVE**, Claremore, Oklahoma, SWOT# 3458, Eastern Oklahoma SWOT NCS and our current Net Manager  
**Myself, KA5DWI**  
**Jim McMasters - KM5PO**, Arlington, Texas, SWOT# 3436, current SWOT Bulletin Editor  
**Larry Hogue - W6OMF**, Vacaville California, SWOT# 155, NORCAL Chapter NCS and Spokesperson  
**Don Simonton - K5LOW**, Tyler, Texas, SWOT# 3194, Former SWOT NCS, Vice Chairman, and Net Manager  
**Randon Porter - WA5BEG**, Arlington, Texas, SWOT# 3111, Recently retired and loyal member of SWOT  
**Also, Tom Childers, N5GE** of Arlington, Texas, SWOT# 3537 will be handed over the reigns of the Webpage

The club is in fine hands. Jimmy will do an outstanding job and this will give me the chance to concentrate on my future career issues, work on ways to contact old members, and contribute more to the strength of SWOT.

I thank you all for the years of support and help in my old role and I look forward to working with each of you in my new one. A new chapter in SWOT now begins.

73's, Art Jackson KA5DWI

*SWOT Time Machine*



## A Blast from the Past

*from Sam, K5SW,  
Muskogee, Oklahoma*

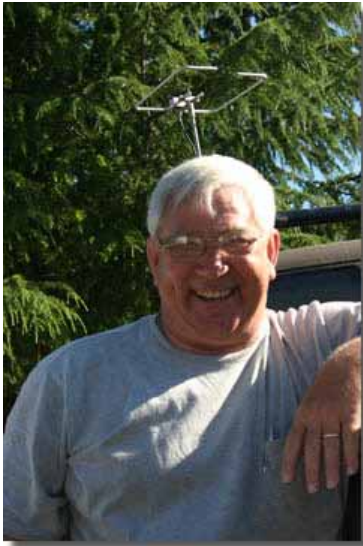
Hi Jim, Back in the 60's Al Burson K5WXZ on Bandera Lane in Garland [TX] was on nightly wid NBFM (copied it like AM) & cw. He ran abt 300 wts to 4 yagi's on a 60' windmill tower @ abt 10:30 local he ran with a Moline, IL stn (forgot the call) & a Peoria IL stn W9MAL & during the summer season I think they made it every night wid some sort of info being exchanged. When Al lived in Shilo, Oh. in the 50's his call was W8WXV & he was one end of the 1st e skip qso on 144 mhz in 1950 working W5VY in San Antonio area. At that time he had a 829b @ 90 wts to a corner reflector ant.

Hopefully others in todays time will pursue that kind of nightly operation. That was before 55B & sigs were AM or CW, mainly xtal controlled.

In the 60's I ran a plate modulated pr of 6146's (Heath Seneca) on AM/CW along wid Al & others & did well with it. In '65 the BIG Leonids shower allowed me to work stuff like W3, W2, W4 & be hrd in CT using the xtal controlled rig. In '64 made my 1st M/S contact wid a Florida stn wid it & abt same time worked NC on e skip wid the Seneca, as well as AU contacts. Lots of fond memories.

In the 60's from my area I heard/worked many active stns in Ardmore, & Watonga, Ok, Dallas Tx, Gurdon, Ar, Shreveport, Memphis & Rex in Marks, Ms., Wichita, Ks etc that were active-before repeaters took ops from low end.

## From Larry, W6OMF and the California SWOT world.



A great turn out at the annual M<sup>2</sup> SWAP, BBQ, and grip N grin. The count at the top of the hour was 217. with 185 for lunch. Wyatt and Sue took on the drawings during lunch and many went away with great antennas and house gifts. Even I went away with a couple things. 85 degrees and a great time was had by all.



The two great guys from Yaesu were: Dennis Motschenbacher & Jerry Darby Thanks so very much for coming and sharing the great equipment...



Sue the great "Raffle Girl" (SWOT# 162) with unknown ticket purchaser M<sup>2</sup> 2008



Left to right  
Pat, N6RMJ, SWOT #2827  
Gordy, WA6ZKY, SWOT #3397  
Larry, W6OMF, SWOT #155

## Guest Editorial

by Harry Schools - K3HS #2146

# My Perspective on SWOT

Much has been written about SWOT's future, volunteerism and the promotion of 2M SSB operation in the last few issues of the SWOT Bulletin. The SWOT organization is in a very similar situation as that of Ten-Ten International, of which I am a member. Upon receiving my Spring 2008 issue of the 10-10 Bulletin, I was startled to see a few interesting facts on the front page.

Since it's inception, Ten-Ten Int'l has issued 74,941 numbers. After you subtract 11,597 known silent keys, 4,228 hams that are no longer active and can't be confirmed as silent keys, 448 club stations and other trivial categories, they estimate that there are still 56,732 hams still out there with a 10-10 number. Here's the kicker. Of that number, only 4,878 hams are "active paid members." That's only 8.5% !! This clearly shows that signing up hams and issuing them a membership number is one thing. Retaining them is another. Like its name, 10-10 is an "international" club that has an extensive chapter program, awards program, contests and numerous nets. They publish a very nice quarterly bulletin and set up booths at most of the major hamfests both here and abroad to drum up new members and increase activity. Yet, they have only managed to retain a paid-up active base of only 4,878 members. I have used 10-10 International for illustrative purposes because there are those who think the sky is falling when it comes to SWOT. It is not. I simply wanted to show that even a large international club with all the trimmings is struggling with the very same core issues - promoting their band, signing up new members and increasing the number of nets and operating activities. This, mind you, when there are thousands upon thousands more 10M SSB operators worldwide than 2M SSB operators in North America.

Let's get back to SWOT. Although the SWOT membership roster shows a handful of DX operators, it is essentially a North American club. The latest figures show 3,538 membership numbers being issued since SWOT's inception. For comparative purposes, if we use 10-10's "active paid member" rate of 8.5%, then SWOT would have about 301

active dues paying members. Do they? Is it more? Is it less? Do you feel better now or worse? Still not sure? Let's look at more numbers.

SWOT's greatest growth occurred from its inception on March 28, 1976 until 1984 when membership number #2700 was issued. That's an average of 337 new members per year over that 8-year period. Between 1984 and 2008, an additional 838 hams joined SWOT for an average of only 35 new members per year over this 24-year period. I know why and how this happened, but it's ancient history and not important at this moment. Getting back to more numbers, I looked at the QTHs of the last 300 members to join SWOT (#3238 - #3538). The top three states were Texas with 97, California with 95 and Oklahoma with 35 - a total of 227 new members from these three states alone which is 76% of the last 300 who joined. When you consider that 7 of the 10 current SWOT nets are in these very same states, it should come as no surprise. Yet, in the legendary Northeast Corridor between Washington, DC and Boston with all the supposed VHF activity (where there are no active SWOT nets), only 3 new members appeared - one each from New Hampshire, New Jersey and Maryland. It's not rocket science folks!

Anyone reading this may ask, "Who is this guy? I've never heard of him." Well, let's just say that I know a thing or two about promoting VHF. It's not that I am blowing my own horn or anything - it's just that I've personally been through this kind of stuff before. If I may, let me digress..

I began operating on 2M SSB back in 1979 as DA2AL while serving with the USAF in West Germany. Back then and perhaps even today, one could call CQ on 2M SSB at 3:00 AM local time and someone would answer. Often times I would generate a small pile-up because my "DA2" prefix indicated that I was an American serviceman. When I returned home and set up my station - an IC-211 at 10 watts and a 19 element Cushcraft Boomer at 40 feet, I was shocked to find that 2M SSB here in the States was primarily a band with activity from about 6:00 PM to 11:00 PM daily. CQ's at 3:00 AM local time would yield nothing. Likewise for CQ's at 3:00 PM. It was very hard for me to get used to listening to receiver white noise for hours on end, even here in the famous Northeast Corridor. As always, everyone came out of the woodwork during contests and band openings.

Once I got settled at home, gained employment and had my 2M SSB station on the air, I gave several talks at radio club meetings in the Philly area on my VHF hilltopping adventures and my operations on 2M SSB as DA2AL, DA2AL/LX and WB3BIS/HB0. As a result of my talks and slide show presentations, several local hams became interested and by 1982 we had as many as 15 very active operators in the Philly area. It was about this time that we all joined SWOT and started the Delaware Valley SWOT Net.

When I received my membership roster from Len Hoops W5JTA, I was shocked to find that a very large VHF club in the area only had about 5 of its members in SWOT. Rarely, if ever, did any of them check into our SWOT net. When I questioned them as to why they weren't members of SWOT, their answers indicated that they only had allegiance to their local club and that SWOT could do nothing for them. Several of them indicated they were only interested in the (then) three major VHF Contests and any major band openings that may occur. They had no interest in newsletters, nets (other than their club nets) or casual operating. I simply couldn't understand how a serious VHF'er (especially one who joins a VHF Contest Club), didn't care to take part in a national organization, whether it be SWOT or SMIRK. Some of the fellas I periodically chatted with on 2M SSB from New York and New England stated the same thing to me, that most of the guys in their local/regional VHF clubs had no desire to join a national organization. They were as dumbfounded as I.

As time went by it was difficult for us to maintain the Delaware Valley SWOT net. Our numbers dropped from as many as 20 check-ins down to 2 or 3. What happened? By now this was 1986 or so and about half of our group discovered computers and (then) packet radio and were never heard from again. Others tired of 2M and either migrated down to 6M where there's more DX or up to 440 MHz during the UHF repeater craze. The group slowly disbanded over this five year period.

As a matter of fact, I became disillusioned and vacated 2M myself. I migrated to 6M and heavily promoted the band by self-publishing three newsletters - The International 6M Digest, the KA3B 6M Report and the 50 MHz DX Bulletin. I was one of the catalysts in promoting 6M back in the 1980s when some of the Europeans were just getting full access to 50 MHz when their Band I TV was being eliminated. I provided

transceivers and antennas to DX stations so they could get on the air and shipped several beacon transmitters worldwide. I operated on several 6M DXpeditions as FP/KA3B, C6A/KA3B, FS/KA3B, VP5/KA3B, CP6/KA3B and ZF2NV/ZF8 to spark interest in DX. During band openings and major contests I would make a 30 minute trek down I-95 to operate from AC3T in Delaware to provide this scarce State for those trying to complete their WAS Award. The point is this - I know what it takes to create interest but the problem has always been how to maintain it.

I tired of 6M because virtually no one in the Philly area would use the band for "routine" communications - it was all band opening/contest-related activity. When I did raise someone locally on a CQ, all it seems that they were interested in was my grid square. I had enough of it and sold all of my 6M equipment. The internet was making inroads at the time in the late 1980s and early 1990s and I ceased publication of all my periodicals. I've never looked back. Yeah, it's interesting to see what people are working these days on 6M, but for me personally, I wasn't able to engage locals or even someone on common single-hop e-skip with intelligent conversation - it was all grid squares and nothing else.

That is part of the problem with 2M SSB. With a few exceptions, most hams consider it a DX band. Hams, for the most part, do not use it for "routine" communications. I was speaking on 2M SSB several months back with Dave W2KV in New Jersey. Dave has a big signal and easily works out to a range of several hundred miles with no problem. He told me that it's frustrating at times to call CQ after CQ with few responses (and this is in the legendary Northeast VHF Corridor). Back in the hey-day of 2M SSB (late 1970s / early 1980s) when 2M all-mode rigs were being manufactured by the big three - Yaesu, Icom and Kenwood, we had quite a large contingent on the band here in the Northeast Corridor. The key was this - people were using the band for routine communication and having nice, long ragchews, rather than going to FM. In the process we attracted many curiosity seekers who just happened to "check out sideband" to see what was happening. When these curiosity seekers heard the activity and witnessed the increased coverage (even over a decent repeater), they were hooked.

When you look at VHF/UHF in today's world, it's entirely different from 1976

when SWOT was formed. Back in 1976 a very small number of hams had any CW/SSB or even FM capability on 220 MHz or above - 144 MHz was their limit. Just look at all the VHF box scores back then with the band designators of A, B or AB. It is my belief that in the year 2008 we have fewer "active" hams than we had in 1976. Couple this with the jump in technology over the last 30 years, you now have fewer "active" hams spread all over the VHF/UHF/microwave spectrum doing a myriad of things when in 1976, 90% of the active VHF'ers were relegated to only two bands - 6M and 2M. This was about the same time that SMIRK (the Six Meter International Radio Klub) was formed in Texas along with SWOT.

When SWOT was formed on March 28, 1976, it was done so (in part) to take advantage of the newer VHF equipment being marketed by the big three - Kenwood, Yaesu and Icom. During the 1960's and early 1970's there was an explosive growth of 2M FM activity and ham magazines were filled with ads for both crystal controlled and synthesized gear. The weak signal 2M operator, with very little commercial equipment available, was largely forgotten. When the big three made available all-mode radios such as the TS-700, FT-221 and IC-201, weak signal 2M capability became readily available for the casual 2M operator. Taking advantage of these new multi-mode 2M transceivers, SWOT was formed to promote the DX capability of 2M SSB and to have a unified front in protecting the weak signal sub-band from FM encroachment. It was the right organization at the right time. But like everything else in our hobby, much has changed.

But if you think 2M SSB activity is lacking, have you listened to 2M FM lately? How about 440 FM? Other than a small spike in activity around the morning and afternoon drive-times, it's deader than a door nail. With all that being said, I have come to the following observations and conclusions:

1. There are so many operational bands/modes and areas of interest in today's world of amateur radio, that a large scale growth of SWOT's membership (as we saw during the 70s/80s) is highly unlikely. However, there are hundreds upon hundreds of potential members who are current members of regional and/or local VHF clubs who do not belong to SWOT. I still can't understand why someone who is interested enough in VHF work to join a local club doesn't feel the need to support a national VHF organi-

zation. What is the local club providing to this person that SWOT is incapable of providing? Are they aware of SWOT?

2. I was fortunate to be able to operate on 2M SSB in Europe. It's an entirely different experience from what we have here in North America. Their mindset is different from ours. Is it cultural? I still don't know, but they monitor the calling frequency faithfully and engage people in actual conversations rather than the typical hello, my grid square is, goodbye. (Back in the 1970's we had grid squares in Europe called the QTH Kenner System which was replaced by the current worldwide Maidenhead Locator System in 1983). Perhaps we can learn something from them.

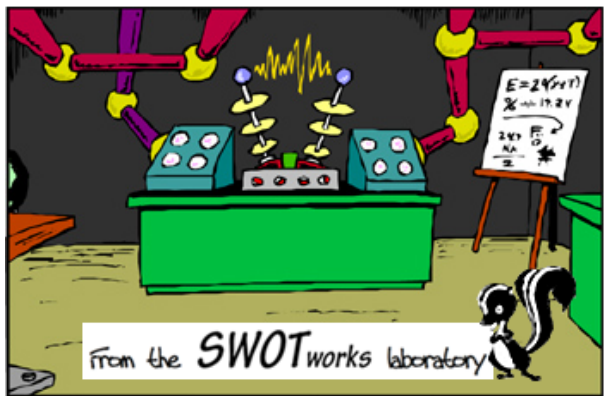
3. As a former back-up Net Control Station, it's no secret that a net has to be more than just check-ins. You want people to come back, right? I always put together a "program" prior to the net - a list of 2M-related subjects concerning everything from new equipment, recent propagation, club news, whatever. Our old Delaware Valley SWOT Net typically lasted well over an hour and when the net was officially closed, many of us were still in there yakking until midnight or so.

4. Getting back to the Europeans - they were avid QSL'ers and award chasers. As far as awards are concerned, hams love to hang them in their shack and any operational award or certificate gives them a sense of accomplishment. I can tell you from experience as an award custodian that if you make your awards and certificates professional-looking and attractive, hams will want them. I know it costs a little money to do things right, but hams typically want something that they are proud of and looks good on their wall. Computer-generated certificates are convenient, but most of the ones I've seen are cheesy-looking. Would you frame a cheesy-looking certificate? I didn't think so. Perhaps SWOT's award program can be re-vamped to generate interest.

5. SWOT's website and newsletter are outstanding. So what's the problem? Well, from the club officer's standpoint (as with most other clubs) you have 1% of the people doing 99% of the work and they get little in return as far as input from club members concerning club business or articles for the SWOT Bulletin. Yet, the SWOT officers continue to provide us with excellent service. Why? Because they're interested in the same thing we are - 2M weak signal operation and they care about us - the 2M weak signal operators. Do them a favor. Send a photo. Write a nostalgic article about the good ole days on 2M.

Have an idea for a new award? Send it along. Do something. Anything. It's not that hard. When I began publishing my 6M periodicals back in the mid-80s, my newsletters had everything from DX news, operator profiles, beacon news, new equipment news, nostalgia, award standings, you name it, I had it...and I did it all by myself using an electric typewriter along with a lot of cutting and pasting. What...no computer? Of course not! I am an old fashioned guy and do things the old

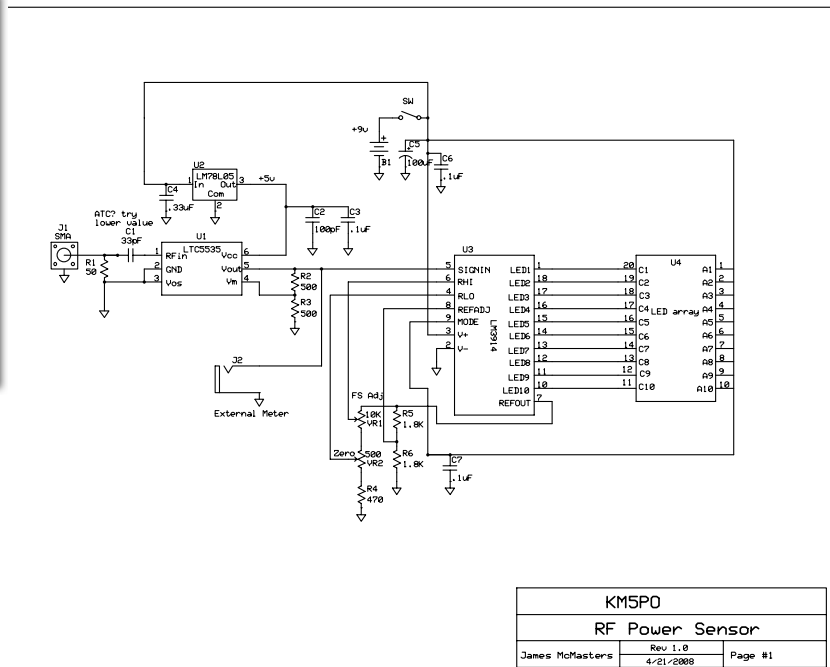
fashioned way. I did this while working an average of 10 hours a day as a Philadelphia Police officer. Why did I do it? Because I wanted to give back to this great hobby and at the same time provide my fellow VHFers with a service. I am quite sure your SWOT officers feel the same about 2M and you. Give them a little help. They deserve it.



## Diodes and RF sensing Part three By KM5PO-Jim

In our first few segments, we constructed various diode based RF detectors (see SWOT bulletins for Jan/Feb & Mar/Apr 2008 at <http://www.swotrc.net>). We learned that they are non-linear devices that while useful for basic RF detection, leave something to be desired when it comes to making true measurements. Indeed, it's not really possible to get much of an instrument from two or three discrete parts but still, the basic RF detector is a handy thing to have around and makes a nice addition to the homebrew project here and there when all you want is a relative indication of RF output.

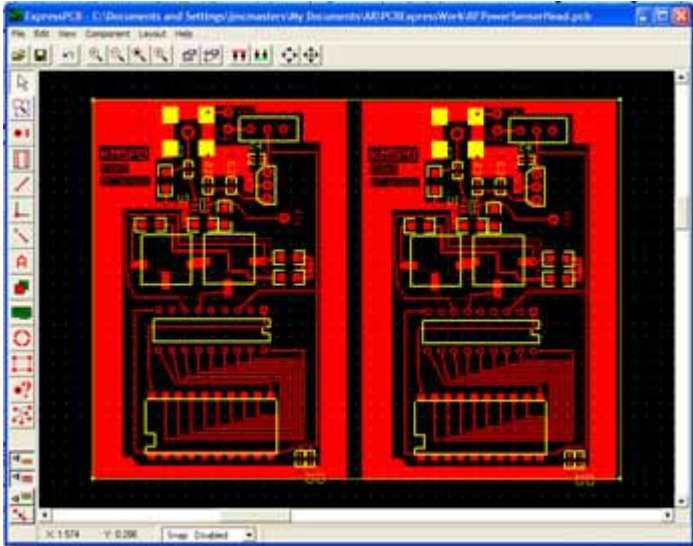
In this edition of our series we will take our development to the next level. A company named Linear Technology makes a line of RF detectors that are complete miniature systems in themselves. Based around a pair of Schottky diodes, the LTC5535 chip is full of features such as a temperature compensated detection mechanism, built in amplifier with externally adjustable gain, fairly wide power range (-32 dBm to 10 dBm or .0006 to 10 mW), and many other things. It's a tiny



item, measuring on the millimeter scale. By setting the gain of the chip at a certain level, it is possible to drive a resistive network or better yet an LED driver chip that can then manipulate a bank of LED's. I wanted however, to build these "lights and whistles" out of individual parts as an exercise but I gave in to using 'store bought' finished parts (integrated circuits) as I never seem to have enough time anymore.

For our past experiments, the PCB's have been created by using a simple CAD program that runs on the PC. I've used DesignCAD or TurboCAD since the Windows 3.1 days to do simple things that I like to call "DC doorbell electronics" circuits level. To put this new RF sensor package together, I thought I would introduce you to something more functional than a CAD program. I use two PCB creation tools here, ExpressPCB and Eagle. We will save Eagle until later. ExpressPCB is available free and they hope that when you create your new snazzy printed circuit board on the computer

screen, that you'll click a button, put in your credit card number and presto, in about 3 days the new circuit boards arrive at your QTH. I've never used this feature of their service but I like their program. It's easy and intuitive to use for both a



ExpressPCB used to layout PCB. Yellow outlines show approx parts placement.

way to create the schematic itself and then to layout the PCB. A nice feature is to link the two files together (schematic and PCB) and watch the program connect up all the parts.

The 'printed' output from ExpressPCB is fine to use as a 'positive', which I print on to Laser Printer Transparency Film. It helps to make this 'printed' positive as dark as possible since it will be used in the exposing of pre-sensitized Datak (or others) copper boards. Once the board is exposed it is developed which will wash away all the exposed areas leaving the 'resist' areas that will protect the underlying copper from being removed in the

Printed Circuit Board materials	Supplier
Presensitized 3" x 4" boards	Datak 14-034 (Jameco #156751)
Developer for above boards	Datak 12-404 (Jameco #156734)
Laser Printer Transparency Film	Universal #65125 or equivalent
Muriatic Acid	Hardware store
Hydrogen Peroxide	Drugstore or Foodstore in medicine section
100 watt lightbulb with socket and AC cord	Hardware store
Plastic containers to develop and etch	Mom's pantry

etching step. I use one of the downstairs bathroom sinks (the bathroom closest to the shack..) as my PCB creation spot. A 100 watt lightbulb positioned 12" over the



Materials required. Transparency Film on the left, Presensitized board on right.

parts being exposed is about right when exposed for 11 or 12 minutes. The Datak boards I use aren't picky about light and usually one of the kids will visit this bathroom right in the middle of an exposure taking place. They all get used to this type of thing around my house.

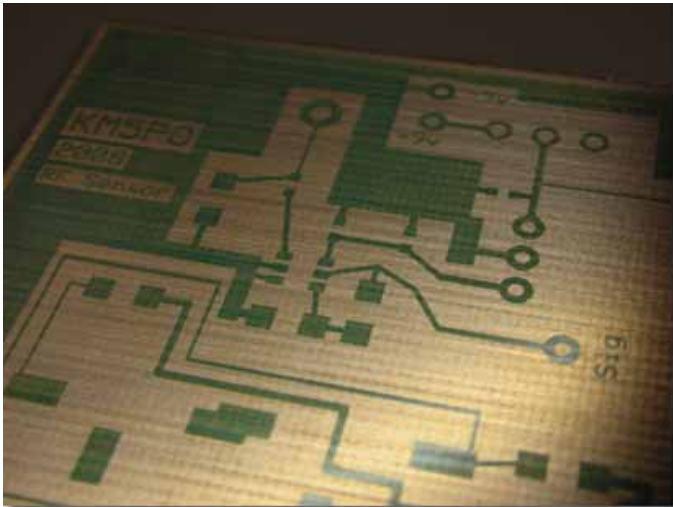
Once the boards are developed and rinsed, it's time for the etching. I mix the chemicals (2 parts Hydrogen Peroxide and 1 part Muriatic Acid) and perform the etching outside on the back porch since the fumes are not meant to be inside the house. Once the PCB board is placed in the chemicals, I keep a steady motion rocking the plastic tray back and forth containing the chemicals and board. The fluid mixture will turn green as the work is performed and before long you will see the fiberglass board appearing from below the disappearing copper. When the etching is complete, the board is removed and rinsed well. I then proceed to drill any holes required in the board with a Dremel drill press. The board is now ready for a final cleaning (Acetone) and parts to be soldered in place.



PCB lab (bathroom sink near the shack!)

It's important to note that this design was done with a single sided board. There are





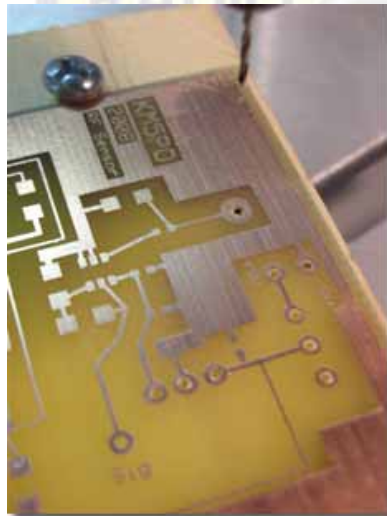
Developed board shows green resist areas and lots of copper still yet to be removed by the etching process.

techniques for creating a double sided board at home, but for me, the effort is just too high. In the future I'll show you how to lay out a double sided board and send it off to a cheap board manufacturer. But for this project, I had to wire a few signal and power paths with actual wires (see photos) because there was no other way to connect the parts since there was

already some copper trace blocking the path. This is where the double sided board (or even more layers - traces contained inside the board) are really required.

With all the parts installed on the board, I fashioned a few simple dipole antennas out of SMA terminated rigid miniature coax and fired it up. It worked on the first power up and

except for fiddling with the two pots to set the rig's sensitivity and range, I was good to go. I first went around the house demonstrating how it could detect RF coming from a cell phone, one of the wireless routers in the living room, and of course the kitchen microwave oven. To my amazement, it registered full scale

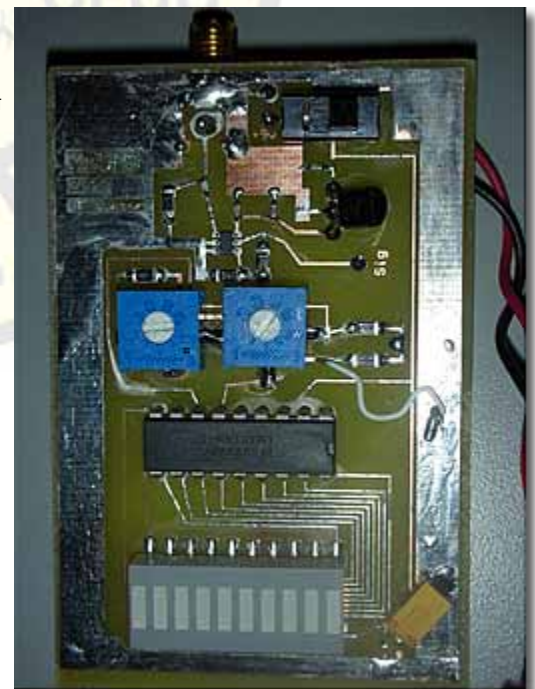


Freshly etched board (see fiberglass) is now drilled with Dremel drill press or equivalent.

readings from the microwave at a dx of more than 20 feet away.

Back to the shack I put the sensor through the paces checking it's frequency response and dynamic range (see graphs) and it was not long before a real use presented itself. I had acquired a few surplus 10 gig microwave oscillator bricks and wanted to check them out. The thought of dragging out the power meter had kept me from doing this so with the new RF sensor in hand, I took one of the bricks, placed a 10 gig plastic horn on it's output and applied DC power to it (see picture). It only took a few seconds to find the sweet spot where max output was pouring out of the horn by fiddling with the horn's direction while pointing it at the RF sensor. But the really cool thing is that the surplus brick really operates about 200 MHz higher than our ham band but has a frequency adjustment. I tuned the frequency adjustment and watched the RF sensor. As I moved the frequency closer to the ham band (where the plastic horn really resonates) guess what happened? Yep, more output was produced and therefore the RF sensor registered more LED's until it went full scale. I then moved the sensor farther away from the horn and kept peaking the brick output.

I've had fun discovering new uses for the little rig including putting it into service first rather than exposing more delicate equipment. Since it measures at such small levels, I've gotten creative with several means of attenuation.



All parts mounted. The driver chip (18 pin/black) has legs that pass through board. The LED array (bottom) has it's legs spread outward turning it into a surface mounted part.

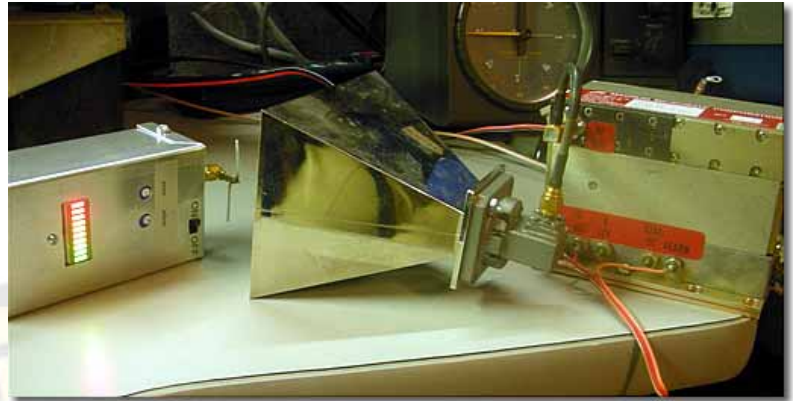


The downside to a single sided board. These wires were required to join pins where traces could not cross.

I found a good source of attenuators can be found within old broken down signal generators. If you are looking over this type of gear at hamfests, etc. simply look for controls on the front panel indicating a

Until then, adios friends and see you on the air!

-Jim, KM5PO



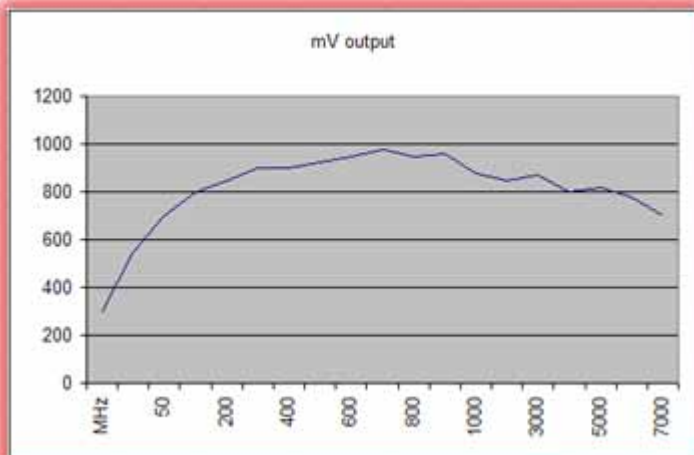
A 'condition unknown' microwave oscillator is tested for output by positioning RF Sensor in front of plastic feed horn.

calibrated attenuation setting. A recent good deal from Bob, W5FKN netted me a 2Kv secondary HV transformer, a 50 dB attenuator good up into the low GHz, a 100 KHz marker generator still working, and enough variable caps and coils to keep my teenagers busy for a few hours fiddling with a grid dip meter!

Projects like these that we've been playing with for the last few months will keep you on the learning curve and help to satisfy that craving curiosity most hams have to know better how things work. Most of us love to tinker with things and this indeed may be the part of the hobby I like the best. Usually it results in making less than truly useful equipmet but in the case of our RF Sensor, this rig really delivers something we can use. If you're interested in building one of these, standby for the next version coming soon which we will describe in the next issue of the SWOT bulletin. It promises to be more in line with two meter usage and easier to build.



*DXing the microwave oven:* Plenty of RF leakage outside the kitchen microwave oven! I was able to achieve full scale readings at a distance of over 20 feet using the 2.3 GHz cut dipole shown here. Got one bar at 32 feet !!



## SWOT Net Reports

Here are the net reports for  
March & April 2008

### Northern California W6OMF (Sunday)

March:

94 different stations  
checked in for the month of  
March!

Week one had 63  
Week two had 53  
Week three had 66  
Week four had 69  
Week five had 49

18 members checked in once  
16 members checked in twice  
13 members checked in three  
times  
25 members checked in four  
times  
22 members checked in all  
five times

11 different grids. Thanks  
to all for the effort.

April:

Week one had 61  
Week two had 60  
Week three had 64  
Week four had 57

Checking in once 18  
Checking in twice 19  
Checking in three times 22  
Checking in all four times  
30

89 different stations  
11 different grids

### North California KG6WLW CM87 N.Cal/Bay Area (Tuesday 8pm)

Date Check-ins

March (4 dates):

03/05 24 check-ins  
03/12 26 check-ins  
03/19 33 check-ins  
03/26 30 check-ins

4x check-ins = 14  
3x check-ins = 6  
2x check-ins = 10  
1x check-ins = 12

SWOT check-ins = 7  
Total 45 different stations

Total states = 1  
Total grids = 6

April (5 dates):

04/02 21 checkins  
04/09 23 checkins  
04/16 27 checkins  
04/23 26 checkins  
04/30 31 checkins

5x check-ins = 10  
4x check-ins = 9  
3x check-ins = 9  
2x check-ins = 4  
1x check-ins = 5

SWOT check-ins = 6  
Total 38 different stations  
Total states = 1  
Total grids = 6

### NORCAL W6DWT (Thursday 8pm)

March

Check-ins 32,22,27,26  
SWOT 12,9,11,8  
States 1,1,2,2

Grids CM89, CM99, CM88,  
CM98, CM87, CM97, CN82

### Northeast Missouri NOPB (Monday 8pm)

Date Check-ins/Grids/  
States/SWOT

03/03 29 - 20 - 09 - 06  
03/10 24 - 16 - 07 - 04  
03/17 28 - 18 - 08 - 07  
03/24 28 - 22 - 10 - 04  
03/31 06 - 05 - 02 - 02\*

\* 3-31 net shut down at 8pm  
power company shut off power  
for wind damage repairs.

### North Texas W5FKN (KM5PO sub) (Wednesday 9pm)

Date Check-ins/SWOT/Grids/  
States

03/05 20 - 11 - 13 - 03  
03/12 29 - 10 - 14 - 04  
03/19 27 - 10 - 14 - 04  
03/26 21 - 09 - 16 - 03

04/02 31 - 14 - 19 - 04  
04/09 no net  
04/16 no net  
04/23 no net  
04/30 14 - 06 - 12 - 03

### Southeast Ohio AB8XG KD8DJE Sub) (Tuesday 9pm)

Date CheckIns/States/Grids/  
SWOT

03/04 10 - 02 - 03 - 03  
03/11 14 - 01 - 03 - 05  
03/18 11 - 02 - 03 - 05  
03/25 13 - 02 - 02 - 07

04/01 14 - 02 - 02 - 09  
04/08 16 - 02 - 02 - 06  
04/15 15 - 02 - 02 - 09  
04/22 14 - 02 - 02 - 08  
04/29 16 - 02 - 02 - 09

### E. Oklahoma KD5ZVE (Thursday 8pm)

Date CheckIns/Grids/States/  
SWOT

03/06 15 - 09 - 04 - 10  
03/13 no net, bad wx  
03/20 18 - 10 - 04 - 09  
03/27 10 - 09 - 04 - 06

04/03 no net, bad wx  
04/10 16 - 08 - 04 - 06  
04/17 no net, bad wx  
04/24 22 - 10 - 04 - 10

### Daytona Beach W2RAC/W1LVL (Wednesday 8pm)

Date Check-ins

No Data

### E. Texas Piney Woods KM5PO (K5LOW -N5TIF sub) (Saturday 7am)

Date Check-ins/Grids/SWOT/  
States

03/01 23 - 13 - 12 - 04  
03/08 19 - 10 - 11 - 03  
03/15 18 - 09 - 10 - 03  
03/22 14 - 05 - 05 - 03  
03/29 15 - 06 - 07 - 03

04/05 14 - 06 - 05 - 03  
04/12 17 - 09 - 11 - 04  
04/19 18 - 08 - 10 - 03  
04/26 21 - 10 - 11 - 04

### Southern California WB6NOA

(Sunday 7:30pm)

Southern California SWOT net  
is Sunday evening, 144.240-  
7:30pm. At 7:50 we move up  
to 144.250 and say hi to  
Larry W6OMF in the Bay area.

-Gordon West WB6NOA

## Event and Contest Calendar:

June 7 9:30am NORCAL SWOT semi annual gathering. Bakers Square, W. Sacramento, CA

June 13-14 Hamcom, Plano, TX <http://www.hamcom.org>

June 14-16 ARRL June VHF contest

June 28-29 ARRL Field Day

July 24-27 CSVHFS conference Wichita, KS

Aug 2-3 ARRL UHF Contest

Aug 16-17 ARRL 10 GHz and Up Contest

Sep 13-15 ARRL September VHF QSO Party

Sep 20-21 ARRL 10 GHz and Up Contest

### What to expect May-July

#### Meteors:

Omicron Cetids May 25, 7 zHR

Chi Scorpiids Jun 3-6, ? zHR

Arietids Jun 8 peak, 60 zHR

Zeta Perseids Jun 13, 30 zHR

June Lyrids Jun 15/16, 8 zHR

Phi Sagittariids Jun 18/19, 5 zHR

Ophiuchids Jun 20/21, 6 zHR

Beta Taurids Jun 29, 25 zHR

Alpha Lyrids July 14, 25 zHR

Delta Aquirids July 28/29, 25 zHR

Full Meteors calendar:

[W8WN](#)

[Gary Kronk](#)

#### Aurora:

Watch:

<http://umtof.umd.edu/pm/latest2day.gif>

#### Tropo:

Always keep an eye on: the [Hepburn Forecast](#). the [APRS Real time VHF propagation map](#). the [Presence of radar reflectivity \(false echos\) HERE](#)

the [Green Page \(144 Mhz Propagation Logger\)](#)

the [Surface Map](#) (there are many choices)

[www.spaceweather.com](http://www.spaceweather.com)

**From Howard Hallman, SWOT Secretary.  
Membership updates and new members**

SWOT#	Call	Name	City	State	Grid
3438	WA5THZ	Chuck	Dallas	TX	EM12
3352	K6DME	Ruffner	Rio Vista	CA	CM98
3415	KF6SML	Mark	Linden	CA	CM98
2146	K3HS	Harry	Philadelphia	PA	FM29
3532	AB8XG	Kenny	Albany	OH	EM89
3543	KD8EZF	Eric	Rutland	OH	EM89
3544	WB8BCO	Timothy	Athens	OH	EM89



Accurately detect tropo by observing "false" echoes on National Weather Service maps such as this one which you can link to at [http://radar.weather.gov/Conus/RadarImg/latest\\_Small.gif](http://radar.weather.gov/Conus/RadarImg/latest_Small.gif) Watch for light blue and gray areas turning darker.

## *SWOT and Selected 2-Meter Nets*

Help improve our listing of nets! If you find errors or omissions or know of other two meter nets being conducted, please send email to either the bulletin editor: [km5po@arrl.net](mailto:km5po@arrl.net) or the SWOT Net Manager- Jimmy Johnson, [jjohn357@swbell.net](mailto:jjohn357@swbell.net)

<b>Day</b>	<b>Local Time</b>	<b>Area</b>	<b>Net</b>	<b>Frequency</b>	<b>Net Control Station</b>
<b>SUN</b>	<b>8:00 pm</b>	<b>Vacaville, CA</b>	<b>NORCAL</b>	<b>144.250</b>	<b>W6OMF Larry</b>
<b>SUN</b>	<b>7:30 pm</b>	<b>Costa Mesa, CA</b>	<b>South California</b>	<b>144.240</b>	<b>WB6NOA Gordon</b>
SUN	8:30 am	Tucson, AZ	Arizona	144.250	N7SQN Al
SUN	8:30 pm	Zebulon, NC		144.220	N1GMV
SUN	9:30 pm	Holland, MI	Michagan SWAM	144.155	K8NFT
MON	7:30 pm	Albuquerque, NM	New Mexico	144.200	N5XZM Bobby
MON	8:00 pm	Colorado	Rocky Mt. VHF +	144.220	N0VSB W6OAL
<b>MON</b>	<b>8:00 pm</b>	<b>Midwestern United States</b>	<b>Northeast Missouri SWOT</b>	<b>144.250</b>	<b>NOPB Phil</b>
MON	9:00 pm	Tidewater, VA		144.230	
<b>TUE</b>	<b>8:00 pm</b>	<b>Bay Area, North California, West Nevada</b>	<b>Northern California SWOT</b>	<b>144.250</b>	<b>KG6WLV John</b>
<b>TUE</b>	<b>9:00 pm</b>	<b>Greater Ohio area</b>	<b>Southeast Ohio SWOT</b>	<b>144.250</b>	<b>AB8XG Kenny KD8DJE Russell</b>
<b>WED</b>	<b>8:00 pm</b>	<b>Florida</b>	<b>Daytona Beach SWOT</b>	<b>144.250</b>	<b>W2RAC Richard W1LVL George</b>
<b>WED</b>	<b>9:00 pm</b>	<b>Texas, Okla, Ark, Louisiana</b>	<b>North Texas SWOT</b>	<b>144.250</b>	<b>W5FKN Bob</b>
<b>THU</b>	<b>8:00 pm</b>	<b>Bay Area, North California, West Nevada</b>	<b>Northern California SWOT</b>	<b>144.250</b>	<b>W6DWI Robin</b>
<b>THU</b>	<b>8:00 pm</b>	<b>Oklahoma, Texas, Ark, Missouri, Kansas</b>	<b>Eastern Oklahoma SWOT</b>	<b>144.250</b>	<b>KD5ZVE Jimmy</b>
<b>SAT</b>	<b>7:00 am</b>	<b>Texas, Okla, Ark, Louisiana</b>	<b>Piney Woods SWOT</b>	<b>144.250</b>	<b>KM5PO Jim</b>

*SWOT Nets are highlighted*

## SIDEWINDERS ON TWO ENROLLMENT OR RENEWAL FORM

NOTE: Though your membership and number are good for life you must renew annually to receive the newsletter and stay on the active list..

Enclosed find check/MO. to: **Howard Hallman WD5DJT, Sec.Treas.**

**NOTE: do not make checks out to SWOT. Make checks out to Howard Hallman**

**3230 Springfield Lancaster, TX  
75134-1214**

**New member:**  \$6 - receive bulletin by email  
 \$12 - receive bulletin by US post office

I have worked the following SWOT members:

Call: \_\_\_\_\_ SWOT No. \_\_\_\_\_ Call: \_\_\_\_\_ SWOT No. \_\_\_\_\_

**Renewing:**  \$6 - receive bulletin by email  
 \$12 - receive bulletin by US post office

My SWOT No. is \_\_\_\_\_

Name: \_\_\_\_\_ Call \_\_\_\_\_ Grid Square \_\_\_\_\_

Street address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ Zip Code \_\_\_\_\_

Telephone Nos. \_\_\_\_\_

Optional: I check into the following nets: \_\_\_\_\_

E-mail \_\_\_\_\_

Receive Newsletter By Email: YES \_\_\_\_\_ NO \_\_\_\_\_

Note: Send all forms to the Secretary-Treasurer at top of this form.

### SECRETARY - TREASURER :

Howard Hallman/WD5DJT  
3230 Springfield Ave.  
Lancaster, TX 75134-1214  
Phone: (972)-224-5964  
Email: [wd5djt@swbell.net](mailto:wd5djt@swbell.net)  
Webpage: <http://home.swbell.net/wd5djt>

### CHAIRMAN: Art Jackson/KA5DWI

Email: [ka5dwi@sbcglobal.net](mailto:ka5dwi@sbcglobal.net)  
Phone: (817)-485-4977

### SWOT NET MANAGER:

Jimmy Johnson/KD5ZVE  
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Phone: (817)-563-2720  
Webpage: <http://www.james-randall.com>

### S.W.O.T. GENERAL INFORMATION

Send renewals and new applications for membership to Howard Hallman WD5DJT (See address above). Please make all checks payable to Howard Hallman Include your SWOT # for your renewals.

Send your SWOT "Members Worked" from your log to, SWOT Awards manager, Wade Massey, 1016 Weiss Ave, Princeton TX., 75407 \$1.00 fee for certificate and your certificate number would be appreciated, also SASE.

E-Mail all articles and reports to the Editors' email address listed above or you can mail them to Jim McMasters KM5PO, 2805 Shady Lane South, Arlington, Texas 76601.

### MERCHANDISE:

Decals and listings available for \$1.00 each for shipping and handling from the Secretary/Treasurer.

SWOT Patches are available at a price of \$4.00 Each + \$.50 for mailing

Badges are available from "The Sign Man", Rick Pourciau NV5A, [http://](http://www.thesignman.com/menu.html)

[www.thesignman.com/menu.html](http://www.thesignman.com/menu.html)

