



S.W.O.T. BULLETIN



OFFICIAL NEWSLETTER OF THE SIDEWINDERS ON TWO AMATEUR RADIO CLUB
SSB, CW AND DIGITAL OPERATIONS ON 144MHZ AND UP

BULLETIN # 282

AUGUST 2002

SECRETARY-TREASURER.

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S.W.O.T. GENERAL INFORMATION

- Send renewals and new applications for membership to Howard Hallman WD5DJT. Please make all checks payable to SIDEWINDERS ON TWO. And all I need is your SWOT # for your renewals if you want save your bulletin!!!
(See address above)
- 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.
- Send all applications for County Awards and County Awards correspondence to the SWOT VUCA Awards Manager, Len Parsons W5AL, 11361 Tascosa Rd. FM 1061., Amarillo, TX. 79124
- E-Mail all articles and reports to the Editors' Web addresses listed above or you can mail them to KA5DWI, 6516 Simmons Rd, NRH, TX 76180-4243.
- **MERCHANDISE:**
Decals and listings available for \$1.00 each for shipping and handling from the Secretary/Treasurer.
SWOT PATCHES ARE AVAILABLE AT PRICE OF \$4.00 EACH + \$.50 FOR MAILING
Badges are available from "The Sign Man", Rick Pourciau NV5A, <http://www.thesignman.com/menu.html>

ON THE WORLDWIDE WEB

www.swotvhf.org the SWOT Homepage is here !!!!! Stayed tuned for its development.

The Yahoo Page is still there at: <http://groups.yahoo.com/group/sidewindersontwo>

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The Chairman's Corner

By John Petersen "KM5ES"

Well August is here and boy is it hot. I have been getting the Website for SWOT ready to go here. In the vote for the SWOT Website the domain name of "swotvhf.org" won hands down.

Now for the goodies.....

I am working on putting several facets of weak signal stuff on the Website and there will be parts of the site that will be for members only. Many thanks to all whom have donated toward the Website. If you would like to donate toward the new site, send Howard your donation and make sure you earmark it for the Website.

As far as contesting goes, I am getting ready for the September VHF contest and plan on being home during that time frame. I usually go to the Queen Wilhelmenia Hamfest on the Talimena Drive, but this year I have decided to work the contest. Also I am looking forward to next year to the Central States VHF Conference being in Tulsa, Oklahoma.

I would also like to remind everyone to continue to support your local SWOT Nets.

I have started one on Saturday Night at 9:00 PM from EM25 called the SWOT Hoot Owl Net. I hope this will increase 2 Meter activity and membership in SWOT.

Until next month 73 and good DX from the Sooner state.

John Petersen KM5ES #3331
SWOT Chairman

From the Editor's Desk

By Art Jackson "KA5DWI"

Well my faith in Weak Signal operations has returned this month.

First of all, the terrible E Skip Drought of 2002 came to an end on August 2nd. We had a very pleasant "E" opening, the only one down here in DFW this year. At least I got one new grid out West. More later in the propagation reports section.

Second, thank you all for voting on the name of the SWOT Website. All the suggestions were good ones. John and Lee are working hard on getting it set up and we all look forward to future developments.

Last but not least, thank you all for the contributions to the Bulletin this month. It makes it much easier to put this together when I get your help. I got so much that I was not be able to get it all in this month's bulletin. I will always promise to get it in the following month's newsletter if we fail to get it in the current one. Keep those cards, letters and Emails a coming as I will be on vacation a bit this next month.

Thanks to Don NL7CO, Larry W6OMF and his relays from California, Dave W6OAL, Lee N5TIF and John KM5ES for their contributions this month.

Enjoy and 73's
Art Jackson KA5DWI, SWOT#2497

Meet the Members, Officers and Net Control Operators for SWOT

Each month we will highlight an Officer, Net Control Operator or other well-known member of SWOT. This month we highlight Jerry Casey, N5OSK.

Jerry has been active in SWOT since back in the late 1980's and has served as the NCS for the Eastern Oklahoma SWOT Net from 1991 to 1993. Jerry's SWOT number is 2959.

Jerry, along with his father Willis lives north of Eufaula in Lakewood Estates about 1/2 mile from Lake Eufaula.

Jerry took his Novice and Technician license together. He became active 2 Meter SSB back in 1988 with his original callsign, KB5HDS. The guys in the area called Jerry the **Heavy Duty Station** for the HDS in his callsign.

He first started out on 2 Meters with a Kenwood TR-751a mobile rig, then upgraded to a Yaesu FT-736R with all the modules. Jerry loaded his 2 Meter

station with stacked 42-18 Cushcraft antennas on a 70 foot tower.

Jerry, like many of us, has had lulls in operating ham radio. He sold all of his station and donated his tower to the local amateur radio club for a repeater tower.

In 1993, Jerry decided to get back into VHF. In October of that year, he upgraded to General class and got on HF. Jerry has been active in Slow Scan TV on 20 meters. He bought another FT-736R and amplifier into a single Cushcraft 13-B2 along with a 6 meter and 222 MHz antennas.

In December 2000 on Christmas Night, Jerry lost his array in Oklahoma's worst ice storm in over 100 years. Still, better towers and things were to come.

In April 2001 Jerry replaced his tower with a 60 ft one with a Hazer. He has stacked two 13B2's CC's, as well as 50, 432 and 222 MHz yagis. In July 2001 he got into HSCW Meteor Scatter and also was one of the Beta testers for the first release of WSJT.

Jerry has been very active in MS contacts and also the new Tropo/EME mode called JT44. He recently has worked Germany, Great Britain, Sweden, Scotland and Russia on 2 meter EME during moon rises and moonsets.

As this is being printed, Jerry is installing a new tower with 4-M2 2MXPCO's with Az/El control on a 70 ft crank up tower.

Although he is active on MS and EME Jerry still finds time to check into the local SWOT nets and work the VHF contests.

CM98 Sub Square Contest

By Larry Hogue, W6OMF

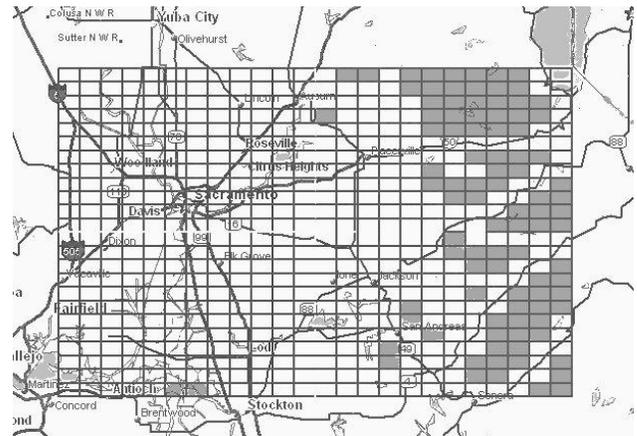
Would you believe $24 \times 24 = 576$ Sub Squares within a Grid. That was the challenge and between 1 Dec 2001 and 1 Jun 2002 the locals in Northern California went to the task and started collecting Sub Squares.

We began to work several mobiles, but one stuck out as a serious rover for the Sub Squares. John,

KC6SEH took to the challenge and you only needed to look at his truck to know he was in it for the long haul.



John's travel took him to several interesting places dealing with the winter snow in the high Sierras... His Lovely Bride would help by driving the truck while John would switch between the three bands he participated in: 50MHz, 144MHz and 432MHz. He was in for full-scale attack on the CM98 grid. See the second picture for those sub Squares he worked and his stats for the chasing.



Areas not shaded represent those he was able to cover.

His Claim to fame are total contacts of 3357, Total mileage 5842, with 475 grids confirmed on 144 MHz and 473 grids on 50 MHz and 432 MHz.

Other winners in the fixed Category are KA6CHJ, Paul with 452 sub squares grids on 144 MHz (1st place) and 442 sub squares grids on 432 MHz (1st place). Bob, K6HEW with a claimed score of 156 sub squares grids on 50 MHz (2nd place), 180 sub squares grids on 144 MHz (2nd Place), and 152 sub

squares grids on 432 MHz (2nd place) and Ken, W6IZU with 50 MHz sub squares grids of 394 (1st place), 144 MHz sub squares of 419 (2nd place) and 432 MHz sub squares grids of 352 (2nd place).



Our winner John, KC6SEH and Myself, W6OMF...

To Amp or Not to Amp – With Apologies to William Shakespeare

By Donald Ross, NL7CO

This is the real question asked by serious VHF-ers at some point in their life and one that I recently had to wrestle with.

Most VHF operators on 2m are operating in the 175-watt solid-state brick neighborhood and have made noises about upgrading to a "real" amplifier at one time or another, but most never go beyond the "someday" stage.

Lets look at the requirements to do so.

Option #1 - Go for the "he who runs the most watts wins" title and get the legal limit of 1500 watts. If you don't like to home brew equipment, this can be pretty expensive as the only way to pick up this roughly 10db of gain over the 175 watts commercially is to go with the Henry 3002A which lists at \$3700.00. Or the still in development, Alpha-2, which will have a similar price tag. You're also going to need 30 amps of 220 volts to power it and

100 watts of RF power to drive it. So if you don't have those requirements met, you're going to be spending a little more.

Option #2 - Ok, I'm not going to win the most wattage contest, but what is a kilowatt going to cost me? How much money for 7db? There are several commercial amplifiers in this range with the most popular being Command Technologies Commander II at roughly \$2000 and the Henry 2002A for a similar price. Again, you're going to need 220 volts, but the amperage is down to a more reasonable requirement of 15 amps. You can run both of these amplifiers on 110 volts, but the amperage required doubles and the power out is cut by half.

Option #3 - A high power TE Systems solid-state amp putting out 375+ watts on 2m is going to get you another 3db and cost you about \$600.00 and require a serious power supply (55+ amps at 12 volts) and will accept up to 20 watts of RF. It has a built in preamp and does not require hard keying relays like the other two options.

As you can see, its going to run you roughly \$300.00 for each 3db of gain that you buy in power. There is a fourth option, but it brings more questions and another serious evaluation of your station.

Option #4 - improve your antenna system. Can you honestly say that you can't work everyone you hear, or are you always calling someone and asking them "Hey, who you working?" Do you see your call on the propagation logger with some comment about "I hear him, but he doesn't seem to be able to hear my 1500 watts"? Going to a longer wavelength antenna is often the cheapest, and most gratifying, solution to your problem. If you're running that "typical" VHF station, you probably have 7-9 elements up in the air on a moderately sized boom for about 10db of gain. Changing that antenna out for something like the excellent M2 2M18XXX will cost you about \$225.00 and net you at least 3db of gain - both transmitting and receiving. You should also look at putting in some low loss coax and maybe a mast mount preamplifier to increase your ears to the point that you can no longer work everybody that you can hear, and then start the analysis all over again.

In my case, I can work everyone that I can hear and there may even be some that can hear me that I don't know about. What I need to do is improve my "ears" until I get to the point that I can't work everyone I hear and then go back and reevaluate the station again.

In my situation (375 watts to an M2 2M18XXX), my plan is to:

- * Replace my transmission lines of Beldon 9913F with 7/8 hard line - no cost since I already have it in the garage (+1.3 db)
- * Add a second M2 2M18XXX to the stack - \$210.00 since I have the power divider and phasing harnesses already (+3 db)
- * Add an SSB Electronics MHP-145 mast mount Preamp - this is the expensive item in the mix at \$475.00 (+5 db over my current preamp)

As you can see, I'm going to add almost 9db to my station for a total cost of approximately \$700.00 as opposed to the \$3700.00 for the 6db gain for the big Henry amplifier. And you should also note that all of the components being added are capable of handling that new Alpha 2 when I need to get me some "serious smoke" to compete with that "Beast to the East" - KM5ES!

Remember –
You can't work 'em if you can't hear 'em.

Until next time ...
NL7CO/EM04

Power Divider/Power Splitter

By: Dave Clingerman, W6OAL

A two - way power splitter to match two 50 ohm antennas to a 50 ohm transmission line is a quarter wave section of coaxial line that has a 35 ohm impedance.

When you parallel two 50 ohm antennas the resultant is 25 ohms. To match this to a 50 ohm transmission line the quarter wavelength matching section has to have an impedance that is the geometric mean of the two impedances to be matched (25 and 50 ohms). The geometric mean is the square root of the product of the two impedances (25 and 50 ohms) or 35.36

ohms. The dimensions of the coaxial section is calculated by $Z_0 = 138 \log D/d$ if the quarter wavelength section is made of round material. If it is a round tube inside a square outer conductor the equation is $Z_0 = 138 \log (1.08 D/d)$. When a 'power splitter' as described above is used the feed line to the antennas can be any length as long as they are equal in length.

There's no "space age" wizardry to power splitters or any of the other basic building blocks we use in Ham Radio or Electronics in general. By the way, coaxial adapters are for the most part lossless and that loss not measurable (at least with the equipment that most Hams can afford) until they are used above 500 MHz.

Yes, two 50 ohm antennas can be matched in this manner. But, the 75 ohm lengths need to be $3/4$ and $1/4$ wavelengths at the band of operation, with the "T" between them.

Sure you can build your own. Remember though, with this arrangement, to reverse one of the feeds on the driven element on the two antennas involved. The $3/4$, $1/4$ arrangement is to allow sufficient coax to allow the antennas to be spaced properly to provide the gain of using a pair of antennas rather than just one. Just like a four-way splitter/combiner can be made out of a half wavelength of 50 ohm transmission line with a pair of coax connectors at each end and one in the middle of the half wavelength section.

Olde Antenna Lab of Denver
Dr. D.A. Clingerman, Sc.D. (CEO)

Technical Tip – Solving TVI on 2 Meters

By Mike Staal, K6MYC
C/O Larry Hogue, W6OMF

Having severe TVI problems while operating on 2-Meters. And, you have had little or no success with high-pass filters.

Mike, K6MYC has an easy, simple and inconspicuous solution.

Try just a $1/4$ wave open stub tuned to 2 Meters to the input to the TV. This can be done with 75 ohm Coax or 300 ohm Twinlead.

In my case it took a completely white screen TV when transmitting to no interference at all when trimmed to trap out my 2 Meter EME signal. Even the FCC guys doing the tests were amazed.

Remember, a 1/4 wave open, reflects a dead short (RF wise) at the TV terminals.

73, Mike

From the editor:

If you have a tip to share with everyone, email it to me and we will put it in the Bulletin

On the World Wide Web

A few sites Weak Signal operators may be interested in. Send in your favorite sites, they will be listed here. Software updates are highlighted this month.

From Lee Kemp, N5TIF:

Check this out. It's cool.

<http://www.qsl.net/k4sso/TigerMap.htm>

Draw a map of any grid square.

Query form for Tiger Map.

If you don't want to be late off the blocks at 0000Z and you can't trust that PC clock to be and stay accurate, a recent flurry of emails on the CQ-Contest reflector (cq-contest@contesting.com) turned up some good information for synchronizing your clock to standard time.

<http://www.radiocontrolledclock.com/>

is a site that sells clocks which lock onto WWVB VLF transmissions.

You might also try using a GPS receiver that outputs NEMA standard data over an RS-232 interface.

Tardis 200 - a shareware atomic clock program that works with Internet time standards or GPS receivers is available at:

<http://www.kaska.demon.co.uk/tardis.htm>.

TAPR also supports the MostAccurate Clock (TOC) project at:

<http://www.tapr.org/tapr/html/tac2.html>

From Joe Taylor, K1JT:

Were you fortunate enough to hear the talk on WSJT given by Andy Flowers, K0SM, at the 2002 Central States VHF Conference?

If not, you can get an idea of how good it was -- and perhaps learn some things you didn't know about WSJT -- by downloading and viewing Andy's presentation.

The file is about 2.8 MB in length, and you will need Microsoft Power Point, or at least a Power Point viewer, to make use of it.

Andy has said that anyone is welcome to make use of the presentation; you might want to use it as is, or perhaps modify it for use in giving a talk at your local club, etc.

The file is available on the WSJT web page at:

<http://pulsar.princeton.edu/~joe/K1JT>

WSJT has been updated to Version 2.2.2

<http://pulsar.princeton.edu/~joe/K1JT/upd222.EXE>

DX Reports July16-August 15

By Art Jackson KA5DWI

Each month we will attempt to let you all know what has been going on 2 Meters and give you an idea what you can expect in the next month.

Please Mail or email your DX reports to me and we will get them in the newsletter.

DX Reports

All dates are based on UTC.

Meteors:

Reports of good Perseids pings began as early as Aug 8. A couple hams have stated that this wasn't a great shower. Despite the crumbling, many completed skeds occurred. Monitoring the WSJT random frequency 144.140, your editor copied FSK441 signals from the Midwest consistently during the Aug 12 AM period.

Moon:

The number of hams using WSJT JT44 continues to increase. Successful contacts throughout.

Aurora:

Two openings. 07/21 a brief opening occurred. On 08/01 openings began in the Midwest and western states. This active period may have triggered a later E opening.

E Propagation:

The season wasn't a total loss!

On August 1 UTC, an Aurora had started up. Several in the Midwest and Western states enjoyed the opening well into August 2.

During the late afternoon, Aurora was fairly good in the Midwest. In the southern states, we had been seeing E's towards the east. Just as the aurora began to disappear, the E's in the south suddenly shifted towards the west.

This time the MUF began to increase. As your editor was chatting with Lee, N5TIF and John, KM5ES, just before 0001 UTC August 3, TV channels 2 thru 6 were getting covered with stations. Once you see Channel 6 signals to the west, you need to get ready. 6 Meters was fairly intense, just not many on. After watching Arizona Channel 6, I figured something could happen.

Sure enough, out of the blue I hear a QSO on 144.200 and its Ed, AA7A in DM43. The fun had begun as I quickly worked him. About 2 minutes later, W6CRO in DM03 appeared.

Results KA5DWI -EM12:

0123	AA7A	DM43
0126	W6CRO	DM03
0147	K7JE	DM33
0159	N6CA	DM03
0201	K6ODV	DM13
0203	KC6UIX	DM14
0228	AF6O	DM14

Note: AA7A and W6CRO were in and out the entire opening.

From Lee, N5TIF EM12:

Here's my recap of the events of 8/2/02. First someone had the job of calling me when Es happen I wonder who it was.

All right here we go:

01:23	W6CRO	DM03
01:24	AA7A	DM43
01:42	N6EQ	DM13
01:49	WA7DI	DM33
01:56	K6ODV	DM13
01:59	K7JE	DM33
02:04	KC6UIX	DM14
02:05	N6CA	DM03

Stations heard but not worked were AF6O & W7???

That's it. Wish there was more but then that would be greedy.

Editor: He meant me....He didn't miss a thing

For the Lawton, OK EM04 guys:

DM33	K7JE	0152	KD5OMJ, NL7CO
DM43	AA7A	0125	KD5OMJ, NL7CO
			NX7U 0223 KD5OMJ, NL7CO
DM62	????	0347	WH6LR

KM5ES and K5SW, EM25 also worked AA7A.

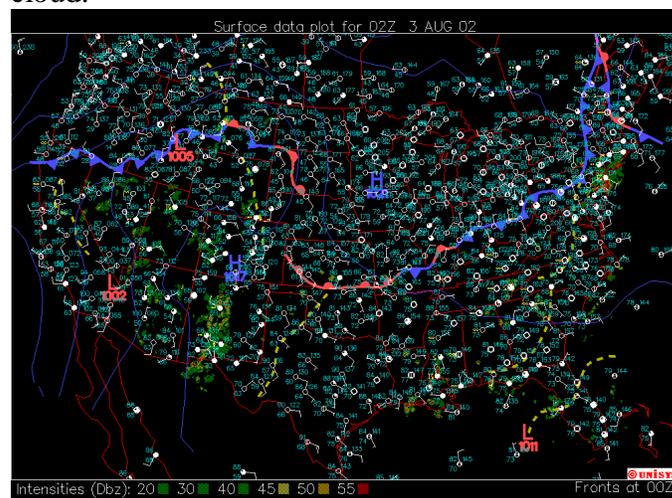
Interesting Tidbits:

This closely resembled the last 2 Meter E opening last year on 08/18. Aurora, followed by E's to the east, quick shift in direction and raising of MUF to 2 Meters.

Howard, WD5DJT reported many of the signals stronger to the north. Good indication of FAI mixed. The signals had at times an aurora like sound.

Old Theories:

The old thunderstorm theory could be argued for this one. A line of monsoon T-storms were right over central New Mexico the center point of the E cloud.



Final "E" opening:

On Aug 04, N. Mississippi and Tennessee worked the Cayman Is on 2 Meters.

Tropo:

Excellent conditions continued for the entire Central Plains, Midwest and Great Lake states.

- 07/16 Central Plains to Westside of Great Lakes, Hawaii to California coast
- 07/17 KS into MN, and LA
- 07/20 OH to GA, Canadian Central Plains to Great Lake states, Across the Great Lakes
- 07/22 Coastal enhancement Atlantic coast, Across the Eastern Great Lakes
- 07/23 E.KS to N.MI, Westside of Appalachian Mts.
- 07/26 Hawaii to California coast.
- 07/27 NE Atlantic coastal enhancement, Across Eastern Great Lakes
- 07/30 Central Plains to Westside of Great Lakes
- 07/31 Additional Central Plains to Westside of Great Lakes
- 08/01 Texas
- 08/03 IA to Ontario, Across Great Lakes
- 08/04 Great Lake States
- 08/06 Midwestern states around Great Lakes
- 08/07 Best opening.
Area from OK to MS to OH to MN, everything within area reported very good conditions. IA to MS, TN to MN noted.
- 08/08 Continued Hot. MN to Central LA and Western NC. Overall area move east.
- 08/09 Band Died
- 08/12 Coastal Enhancement Atlantic coast
- 08/13 Mid Atlantic states, Coastal Enhancement Atlantic coast to Newfoundland

Sources: *DX World 144 Propagation Logger* and *SWOT Group Page*

What to expect August 16- September 15: **Propagation begins to change.**

Meteors:

The Perseids are ending early. Could be a good time to get the station ready for November. Meteor activity still remains high although no major showers occur. Many minor showers are around. Look for better activity 08/16, 08/21, 08/25, 09/01, 09/06 & 9/09 as a few minor showers peak.

Aurora:

Once again we thought that the solar cycle was declining. We were wrong again. Flares continue to occur in several large groups. The potential source of CME's remain polar coronal holes. Be sure to monitor *Spaceweather.Com* for possible events.

Tropo:

By late August, most Tropo in the Midwest and southern states will be a result of stalling frontal

systems. Look for fronts coming out Canada stalling as they approach the Gulf States.

Once again, the Pacific is treated to occasional openings to Hawaii and the Bermuda High influences the Atlantic coast.

All tropo conditions result from an upper air high-pressure system capping the upper atmosphere.

E-Layer Propagation:

"E" season is all but over. It was not a good one this year. Still anything can occur. Keep an eye for activity beginning on 10 and 6 Meters.

Moon:

Good days: 09/03, 09/08-10

Best days: 09/04-07 (Make use if the sun doesn't misbehave!)

Bad days: 08/18

Based on low sky noise and path loss readings (DEGR) less than 3dB. Bad days are those with a 10db plus reading.

Lunar, Solar and Astronomical Events

Lunar: Apogee – 08/26

Perigee – 09/07

New Moon – 09/06, Full Moon – 08/22

Solar: Overhead 08/16: - 13.7°N, 09/15: - 3.3°N

USAF Predicted Solar Flux Average:

08/16-09/15: 204 (Increasing by 18!)

Last month's prediction was short 40!

Meteors:

All Showers: 08/16-08/31, 28 Active, 9 Peak

09/01-09/15, 29 Active, 9 Peak

Major showers: None

More meteor info at:

<http://comets.amsmeteors.org/meteors/calendar.html>

Event & Contest Calender 2002

August	17-18	ARRL 10GHz Cumulative Ct
September	14-16	ARRL VHF QSO Party
September	21-22	ARRL 10GHz Cumulative Ct
October	26-27	ARRL EME Contest
November	23-24	ARRL EME Contest

SWOT NET ANNOUNCEMENTS

Are you a late night person???

SWOT Hoot Owl Net starts at 9:00PM Central time Saturday from Eastern Oklahoma, EM25.
 John KM5ES is Net Control Operator.
 The Net will be on 144.250 .
 John starts looking towards the south then moves clockwise.

SWOT NET REPORTS

Here are the net reports for June and July. The first figure listed for each date is the number of check-ins and the second is the number of grids.

Northern California (Sunday):

Month of July

07/07/02...No Net 07/14/02...65
 07/21/02...68 07/28/02...67
 100 stations/ 15 grids

Central Louisiana (Tuesday)

07/16/02...9/8 07/22/02...No Net
 07/29/02...No Net 08/06/02... 5/5

Northern Missouri (Tuesday)

07/16/02...11/4 07/23/02...27/13
 07/30/02...26/13 08/06/02...40/13

North Texas (Wednesday)

07/17/02...34/13 07/24/02...33/17
 07/31/02...42/14 08/07/02...35/15

SW Oklahoma (Thursday)

07/18/02...No Report 07/25/02...No Report
 07/31/02...12/6 08/07/02...No Net

Eastern Oklahoma (Monday)

07/15/02...N/A 07/22/02...27/8
 07/29/02...38/11 08/05/02...33/11

East Texas (Saturday)

07/20/02...17/8 07/27/02...20/11
 08/03/02...15/7 08/10/02 19/8

Hoot Owl Oklahoma (Saturday)

08/03/02...9/6 08/10/02...12/7

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: New member---\$12.00 _____ Renewal----\$12.00 _____

Howard Hallman WD5DJT, Sec.Treas.

3230 Springfield Lancaster, TX 75134-1214

New Member. I have worked the following members:

Call: _____ SWOT No. _____ Call: _____ SWOT No. _____

Renewing: My SWOT No. is _____

Name: _____ Call _____ Grid Square _____

Street address _____

City _____ State _____ Zip Code _____

Telephone Nos. _____ E-mail _____

Day	Local Time	Area	Net	Frequency	Net Control Station
SUN	8:30A	TUCSON AZ	ARIZONA	144.250	N7SQN AL
SUN	8:00P	VACAVILLE CA	NORTHERN CALIFORNIA	144.250	W6OMF LARRY
SUN	9:30P	HOLLAND MI	MI SWAM	144.155	K8NFT
MON	7:30P	ALBUQUERQUE	NEW MEXICO	144.200	N5XZM BOBBY
MON	8:00P	WOODLAND PK	COLORADO	144.220	W2CRS WBODOM
MON	9:00P	OKLAHOMA	OKLAHOMA	144.250	WD5GVP ED
MON	8:00P	SANDUSKY	E. MICHIGAN	144.250	W8IDT BART
TUE	8:00P	CA.NO CTYS	NORCAL	144.250	KF6BXH BILL
TUE	8:00P	EM31 LA.	CENTRAL LOUISIANA	144.250	K5MQ DAVE
TUE	9:00P	N. CENTRAL MO.	N. CENTRAL MO.	144.250	N0PB PHIL KB0PE DAVE
WED	8:00P	IA-MO-IL	TRI STATE	144.250	WZ9D N9CXO
WED	9:00P	NO TEXAS	NORTH TEXAS	144.250	W5FKN BOB
THU	8:00P	CA SO CTYS	NORCAL	144.250	KC6CHJ PAUL
THU	7:30P	LAWTON OK	SOUTHWEST OKLAHOMA	144.250	WH6LR JIM
THU	9:00P	TENNESSE	UPPER CUMBERLAND	144.225	N2BR BOBBY
SAT	7:00A	EAST TEXAS	PINEYWOODS	144.250	K5LOW DON
SAT	9:00P	E. OKLAHOMA	HOOT OWL	144.250	KM5ES JOHN