Pearl River County Amateur Radio Club

Promoting Amateur Radio In South Mississippi

# Pearl River County Amateur Radio Club

Promoting Amateur Radio and Public Safety in South Mississippi
Volume 13 July, 2008



# Field Day reviewed, plans for new events

POPLARVILLE - Field Day 2008 was judged a success, despite severe weather that brought operations to a standstill twice during the weekend, and plans are being made for ham radio participation at additional events this year.

While exact contest figures are not yet available, a cursory review of the contacts made showed an increase in the total number of contacts made, as well as bonus points earned.

Club members plan to attend the upcoming July 4 event at McNeill to promote amateur radio and sell raffle tickets.

**PRCARC members discuss upcoming events at the July regular club meeting held Tuesday, July at the EOC in Poplarville.**

## Repeater Roundup

| Location | Frequency | Offset | Tone |
|---|---|---|---|
| Poplarville | 145.210 | - | 136.5 |
| Millard | 145.150 | - | 136.5 |
| Hillsdale | 145.410 | - | 136.5 |
| McHenry | 147.165 | + | 136.5 |
| McHenry | 147.375 | + | 136.5 |
| Wiggins | 145.270 | - | 136.5 |
| Kiln | 145.330 | - | open |
| Stennis | 147.180 | - | 103.5 |
| Bay St. Louis | 29.640 | - | 136.6 |
| Bay St. Louis | 53.650 | - | 136.5 |
| Biloxi | 146.730 | - | 136.5 |
| Keesler AFB | 146.790 | - | open |
| Hattiesburg | 146.775 | - | 136.5 |
| Hattiesburg | 147.315 | + | 136.5 |
| Hattiesburg | 145.370 | - | 136.5 |
| Hattiesburg | 145.190 | - | 136.5 |
| Hattiesburg | 442.725 | + | open |
| Hattiesburg | 444.775 | + | 136.5 |
| Hattiesburg | 443.700 | + | 136.5 |
| Collins | 146.985 | - | 136.5 |
| McComb | 146.940 | - | 103.5 |
| McComb | 444.875 | + | 100.0 |
| Pine, La. | 145.430 | - | 107.2 |
| Slidell, La. | 147.270 | + | 114.8 |
| Slidell, La. | 444.425 | + | 114.8 |
| Slidell, La. | 443.950 | + | 114.8 |
| N.O., La. | 146.860 | - | 114.8 |
| Covington, La. | 146.715 | - | open |
| Hammond, La. | 147.000 | - | open |
| Hammond, La. | 145.130 | - | 107.2 |
| Hammond, La. | 145.010 | HMU | Digi |
| Hammond, La. | 444.250 | + | 107.2 |
| Hammond, La. | 53.090/52.090 | | open |

## Seen At The Meeting

Jack Beith
Charles Anderson
Roger Aubert
Peter Kahan
Larry Wagoner
Janice Wagoner
Ralph Miller

## Net Assignments

Remember our net is held at 7:30 p.m. each Thursday on the 145.210 repeater (offset negative - tone 136.5)

| | |
|---|---|
| July 3 | Peter Kahan |
| July 10 | Roger Aubert |
| July 17 | Larry Wagoner |
| July 24 | Bobby Graves |
| July 31 | Jim Searcy |

# Summer To Bring Active 6-Meters

**A special report from the ARRL ...**

Tired of the lousy conditions on the HF bands? Come join the crowd on the "Magic Band." Each summer regardless of where the sunspot cycle is, sporadic E - or E- skip - blooms on 6 meters and sometimes even on the bands above that. What often appears to be a dead band jumps to life with signals - some relatively close, only hundreds of miles away - but some representing worldwide DX on 6 meters.

This year is no different. After a slow start, the 6 meter band came into its own in May and has been open in some direction from almost every location in the US almost every day. Sporadic E peaks around the summer solstice, on or around June 21, with a minor peak around the winter solstice, on or around December 21.

Each summer season has unique characteristics that are not predictable, but make the band so fascinating to follow. This year, the emphasis has been on paths to the

west and northwest, extending much further east and south than normal. According to VHF expert and conductor of QST's "World Above 50 MHz" column Gene Zimmerman, W3ZZ, there have been several strong openings from Hawaii to the mainland that have included many areas other than the West Coast. Stations in the Mid-Atlantic, the Southeast and the Midwest have had good shots at KH6 in both May and June.

Zimmerman said that summer has brought a nice surprise: "The highlight of this season has been repeated openings to Japan that have mostly bypassed the West Coast and settled in the Southwest, the Southeast (especially Florida) and the Midwest; Japanese stations have even been heard, but not worked, on the East Coast. The latter is a very rare occurrence indeed."

Calling conditions to the Caribbean "outstanding," Zimmerman said that stations in that part of the world have been working the US and Canada, as well as many stations in Europe. "Ted Jimenez, HI3TEJ, in the Dominican Republic has even worked Japan, a tough path even on 10 meters. Inside the US, stations up to 1500 miles away have been easy to get, and there have been lots of openings where the West Coast and the Pacific Northwest worked the East Coast and the Southeast."

Six meter operators should be alert for very short E-skip that indicates a rare increase in the maximum usable frequency (MUF) to a point where 2 meter E-skip - or very, very rarely 222 MHz E-skip - is possible.

Zimmerman said that conditions are likely to continue to be very good until the middle of July when the E-skip traditionally begins to wind down. "Most areas of the country have not had good conditions to Europe, so that may still be something to look forward to," he said. "Two DXpeditions to rare Caribbean countries are coming up later in June - to San Andres (HK0) and to St Barts (FJ). If you have an HF/VHF radio that covers 6 meters, put up a dipole or try your 80 meter antenna - it should work on 6 meters as well - and have some fun. You never know what you may work next."

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# TECH TALK

Tech Talk is a creation by WA5WRE that we hope will help develop some interest in the " hands on" end of Amateur Radio. It will consist of daily happenings in the shack, and in all of the Amateur community in Pearl River County. It will relate to construction projects, and helpful hints pertaining to the hobby.

# What to do about RFI?

Sitting here half-asleep from this weekend's activity, I thought I'd better get started on this month's article. I know that I had promised to do an article on using coax jumpers to fool an SWR meter, but since the Field Day, a lot of talk and confusion

has been heard on what is causing RF interference during operations.

Several things come into play, but in order to understand a little about what is going on, we must look at the overall picture.

Several things can show their ugly heads in times of need, especially when you are trying to communicate with someone and instead of hearing your contact, you hear your buddy sitting next to you. This is not a major issue in most situations, but if all you need to do is to communicate with someone sitting next to you, I wouldn't think you would need a radio.

It can be frustrating to say the least, and as far as making that needed contact, your "S" meter tries to bury itself into the next decade, and if you have on headphones, you get the wax cleaned out of your ears for free. There's no great mystery as to what is going on, and in my feeble way, I will try to explain some of the logic behind this unwanted interference.

We have a few things that come to mind, and here is a short list:

- Spurious Emission
- Spectral Splatter
- Harmonics
- Internal Noise

First, lets take "Spurious Emission". Spurious Emission is an emission on a frequency or frequencies which are outside the necessary bandwidth, the level of which may be reduced without affecting the corresponding transmission of information. Simply put, spurious emissions are signals that we transmit without needing or intending to.

Spurious emissions include harmonic emissions, parasitic emissions, inter-modulation products and frequency conversion products, but exclude out-of-band emissions.

Boy, is that a mouth-full. Basically, if your radio is in compliance with the specifications required by the manufacture, then when you are radiating RF, it should be within preset conditions within the parameters required by law and manufacturing companies.

For example - If you are transmitting on 7000 Khz, and I can hear you on 14000 Khz, you are creating what is known as a harmonic, and that is a no-no. This is usually caused by something in the transmitter going into what is known as "self-oscillation". Back in the old days when tubes were used in the output of transmitters, they had to be"neutralized", in order to prevent this.

Next, Spectral Splatter: (K5WNU will like this one) In radio electronics or acoustics, spectral splatter (also called switch noise) refers to spurious emissions that result from an abrupt change in the transmitted signal - usually when transmission is started or stopped.

For example, a device transmitting a sine wave produces a single peak in the frequency spectrum: however, if the device abruptly starts or stops transmitting this sine wave, it will emit noise at frequencies other than the frequency of the sine wave.

This noise is known as spectral splatter. When you are sending CW, you are

making and breaking a sine wave, or you not? This (and I don't like using this word) "interference" when in close proximity, creates "clicking" sounds on nearby frequencies other than the main carrier frequency. The "interference" can be eliminated to some extent, when we move Jack, his radio, antenna, and power source to his own location several feet away.

I don't think this will bother Jack either, for if you noticed at the Field Day, he was kinda antisocial. HeHe

Harmonics - Our kids are sometimes referred to as harmonics, but in reality, we hate and love harmonic emissions at the same time. We need them, because in the design and construction of Amateur gear, this is the way we get our different frequencies of operation.

Most should know, (but just in case there are a few that don't), if we are operating on 160 meters, and say for explanation purposes, the frequency is 1750 Khz, if we double this frequency, we now have 3500 Khz which is 80 meters, and if we double again, we have 7000 Khz which is 40 meters, and so on.

On the other hand, if we are listening on 7000 Khz, and can hear the conversation on 3500 Khz, we have a problem. This means the filters in the IF aren't doing their job, or the bandpass isn't working, and something isn't tuned properly. This is the main topic of discussion, and I will get back to it later.

Internal Noise - This demon has driven many a good technician to the wall. If you fix one thing that can cause it, there are fifty more to take its place. Back in the day, when everything made sense, and if it didn't glow in the dark, you weren't operating.

I am referring to tubes. They could create what was known as "thermal noise". Without getting too technical, "thermal noise" could be created by incorrect voltages to the tube, loose construction inside the tube, or what more commonly occurred, a cold solder joint. In example, if you had a loose microphone connection, it would create whining, popping, or clicking noise in another operators receiver. Since we have moved on beyond tubes today, it is not such a problem anymore.

Now, to the meat of the subject. I mentioned harmonics, and here lies the main problem. I was talking to Don King earlier. (Don is one of our newest club members. He provided the National Guard Communications Van you all saw at Field Day).

In our discussion, I made the comment that the radios today do not have the isolation, rejection, and suppression that the older equipment had. Have you ever wondered why a piece of communications equipment cost so much?? One of the reasons is that if the same requirements were needed or required in today's Amateur equipment, there would be none on the market, and if there was, we couldn't afford it.

Don spoke of a piece of equipment manufactured by a company known as SUNAIR. It goes through numerous inspections, and one of the last tests it has to endure is it is held at a height of 20 feet above concrete and dropped. If the radio is to

pass, it must still work, and the frequency cannot be shifted more than 20hz. Do you think your Icom, Yaesu, Kenwood, Alinco, etc., could pass such a test?? I think not.

In addition to the "shock test", the shielding, grounding, bypassing, and extensive use of feed-through capacitors, are what makes Military Equipment almost immune to interference.

While the communications van was on display, Lionel asked Don if stacking the pieces of equipment on top of each other creates interference. The answer is NO. The military engages in over-kill, and as a result, they have the best.

Most of the transmitters the Military uses have the ability to produce far more RF than they do. This does two things. The life of the PA's (power amplifier) is increased, and they use only the amount of RF needed to establish communications. (A lesson that most Amateur operators should learn.)

If your QSO can be held using 10 watts of power, why run 1500?? This kind of logic is one of the reasons that CB is what it is today - and besides - it is the LAW.

OK, now for the Tech Stuff: The FCC requires standards of all manufacturers, and for Amateur equipment operating in the 150khz to 30 Mhz range, they are:

Mandatory Requirements:

Minimum Level of Rejection -36dbm
Measurement Bandwidth 10Khz

Now that we know this, lets look at what we have to play with. Here are the radios that were used at this years Field Day:

| | | | |
|---|---|---|---|
| Alinco DX70TH: | Transmit Spurious Emission | -50db | Receive -70db |
| Yaesu FT-1000 | Transmit Spurious Emission | -50db | Receive -80db |
| Yaesu FT-897D | Transmit Spurious Emission | -70db | Receive -80db |
| Yaesu FT-840 | Transmit Spurious Emission | -40db | Receive -60db |
| Kenwood TS-850S | Transmit Spurious Emission | -40db | Receive -60db |

Well, surprise, surprise, these radios meet all the requirements, so what is the deal?? They have the filtering needed for image rejection and unwanted sidebands, the ability to reduce harmonics, and they didn't create any spurious emissions, so that leaves only one thing - shielding.

The radios were in such close proximity, that the metal case that the mainframe is made of cannot stop RF bleed-over, and that is what you had. To try and correct this problem next year, we should use independent stations, each with separate antennas and power sources.

In other words, we could have a 20 meter station in the first pavilion, along with its antenna and power supply. In the next, a 40 meter station and its antenna, and so on.

The key ingredient here is separation. And by separation - I mean in the neighborhood of 50 feet or better. I hope this helps, and I guess I will start on the "Jumper superstition" article for next month.

All in all, the Field Day in my opinion was a great turnout, considering the weather conditions. I had fun, the food was great, and the icing on the cake was scoring more points than Jack. HeHe

So take care, and I hope everyone has a great Fourth of July, and in all the celebrating, try and remember why there is a Fourth of July. Until then, 73's, and may you all have great DX ... Jim

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## Did you know ...

... The week of June 22 - 29, 2008, was declared Amateur Radio Week in Mississippi by Governor Haley Barber?

# Sell Those Tickets!

Remember to continue to sell your fishing trip tickets. Club Treasurer Roger Aubert reminds everyone that if we could all sell just one ticket per day we could easily meet our fund-raising goals for this year.

We hope to sell some tickets at the July 4 Celebration in McNeill this Friday. Come by and visit with other hams from the club, sell a few tickets and help promote this hobby of ours.

## Message received!

Larry, you guys did a good job in getting the message out. I live in Oklahoma now and really miss Mississippi. Makes me feel good to see the home boys again and wished I was back there with yall.
Keep up the good work.

Greg King - W5GEK

## 2008 SLIDELL HAMFEST

SATURDAY – JULY 19TH
8 A.M –2:30 P.M.
SLIDELL CITY AUDITORIUM
Admission $5 (includes 1 raffle ticket)
**TALK-IN 147.27/87 PL 114.8**
COMMERCIAL DEALERS FLEA MARKET
MFJ / Bamcom / MCM Computer / Cedar City / B Square / Houston Amateur Radio Supply
Signman
VE TESTING - QLF CONTEST - FORUMS

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