*Sonoma County Radio Amateurs, Inc.*

Club Station
W6LFJ

P.O. Box 116
Santa Rosa, CA 95402

Repeater Station
WB6PVS

FEB 83 VOL.8 #2



start a contact on one meteor burst, you may well be able to complete the contact on another burst a minute of two later, if you stay on the same frequency and beam heading. Don't expect to exchange much more than a signal report, however, as meteor scatter QSOs are extremely short.

E-skip enlivens the 1Ø meter band quite often. The E ionization layer is much lower than the F layer, and the maximum communication distance on a single hop is about 12ØØ miles, compared to twice that with F2 propagation. But multiple hop E-skip can provide some DX contacts, as well as injecting some life into a "dead" band.

Because the ionization regions in the E layer are much smaller than those in the F layer, the E-skip propagation is much more restricted in area. You might hear only one or two states or countries at a time, for example. E-skip signals can be very loud as well as very directional, but often you can work stations around the fringes. Say you work a few G stations but don't hear anything else. Try a call for EI, GM, GD, etc. People are always listening, and a direct call can pull them out of the woodwork. E-skip propagation is notoriously fickle, appearing and disappearing rapidly. Don't be surprised if your contact fades away in mid-sentence.

However your signal gets from here to there, you will probably want a QSL card to confirm the QSO. And you had better fill your card out properly if you expect a return QSL. Almost 25% of all QSLs I have received are not filled out properly, and yet there are only a half dozen pieces of information that need to be entered. And any QSL which is improperly filled out will delay the return QSL, or may even end up in the circular file! Let's look at the common mistakes and how to avoid them.

The callsign. A surprising number of QSLs arrive without the DX station's call in the appropriate place. If the callsign is anywhere but in the "confirming QSO with" or "Radio station" box, the QSL is invalid for awards. Don't confuse the QSL manager's call with that of the DX station.

The Date. Almost every country in the world except the United States uses the sequence Day Month Year for the date. 12/2/82 is February 12, not December 2. To remove all ambiguity from the date, use Roman numerals for the month, or English abbreviations: 12II82 or 12 Feb 82. Make sure you changed the date at 24ØØ UTC, which occurs in the middle of the evening before, local US time. I can't tell you how many cards arrive with the date one day off.

The Time. There is no excuse to use anything but UTC on DX QSLs. Local time is for local QSOs only. And if you try to convert your local-time log to UTC for the QSL card, sooner or later you will make a mistake. Keep your log in UTC, and a UTC clock in the shack.

OFFICERS FOR 1983

| | | |
|---|---|---|
| President | Al Bloom<br>838-4524 | NLAL |
| V Pres. | Spenser Barnes<br>526-1514 | WA6IXC |
| Sect. | Doug Bender<br>526-5131 | WAØJRB |
| Tres. | Bill Thomas<br>823-9429 | WD6DXW |
| Trailer Mgr. | Gene Piety<br>523-3081 | KH6PP |
| Activities | Al Schmidt<br>542-4793 | KD6NT |
| Rptr. Chair. | Terry La Duke<br>528-6412 | WA6RNF |
| Board Member At Large | Don Osborne<br>823-0565 | WA6ACX |
| Club Call | W6LFJ | |
| Rptr. Call | WB6PVS | |
| Short Skipp | Hank Davis<br>823-7885 | W6DIV |
| | Sarah Davis | N6FAX |
| | Chod Harris | VP2ML |
| | DX Watch | |
| Explorer Post 599 | Mike TerSarkissoff<br>823-8977 | N6DBZ |
| Club Badges | Jim Tomer<br>838-2234 | W6CYM |
| Club QSL Mgr. | Jim Tomer | |
| Public Relations | Van Gross<br>544-3485 | W6GFY |

After next Board Meeting there will be more names added to this list.

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Club meetings 1st. Wed. each month EOC. County Operations Room. 8pm.
Board meetings week following. Announced at Club Meeting as to Location.

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Pacific Dir. Bill Stevens-2074 Foxworthy Ave San Jose, CA. 95124 W6ZM
Vice Dir. Jettie B. Hill, W6RFF 22410 Janice Ave. Cupertino, CA 95014
Sonoma Co. EC Hank Davis W6DIV 823-7885
SF Section SCM Bob Smith Fort Bragg CA. 964-4931

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RACES- Radio Officer- Herb Sullivan 526-3307
K6QXB--Assn. RF, Lyle Meek, 526-3233, N6BLN
Co. Comm. OFFICER-Press Thomson, 527-2677 WB6PUE

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Lyle Meek, Assn. Radio Officer for Sonoma Co. has turned in his resignation. We wish him well in his new field of interest. Thanks Lyle N6BLN, You will be missed.

## PRESIDENT'S COLUMN

Did you know that "our" 13/73 repeater is owned not by the club but by the County of Sonoma? The local Civil Defense people authorized the purchase of an amateur repeater some years ago primarily as an emergency communications tool for RACES. The Radio Amateur Civil Emergency Service, sponsored by Civil Defense, is the emergency group that works closely with ARES (ARRL emergency corps) and other groups in time of natural disaster. It is also the only amateur group that would be on the air in time of nuclear war.

Any Emergency communication ALWAYS has priority on the repeater. If someone comes on freq. with a double break, "break emergency", MAYDAY, SOS, etc., all other communication should come to a screeching halt. RACES training drills also have priority over routine communications.

During normal times, casual operation on the machine is encouraged to keep the frequency active. While membership in SCRA or RACES is not required to operate on '73 I feel we all have a moral obligation to support RACES and Amateur emergency/public service efforts in general, not only in return for permission to use the repeater but because emergency preparedness is one of the primary reasons for the existence of ham radio. Also, most people find it rewarding to help their fellow man.

Training is very important in any emergency communications effort. If you read "post mortems" of past emergencies in old QST's it's amazing how similar they all sound. One of the biggest problems is always the untrained hams who "want to help" but have no idea what really needs to be done -- they end up just getting in the way.

There is an immense satisfaction to be gained from knowing that you and your station are ready to swing into service "when the big one hits." The next time a RACES training class is announced, sign up -- You don't have to be a member of RACES. There are a number of public service events throughout the year that the club helps out with -- these are excellent training as well. The moral: Get involved, you'll be glad you did!

-- N1AL

# Using the Amateur Radio Satellites, Part II
by Steve Lund, WA8LLY

In Part I where to listen for the Amateur Radio Satellites was explained. This article will inform you on when to listen for them. Determining when a satellite is within range requires new skills and is often a major stumbling block for novice satellite enthusiasts. The needed skills are not difficult to learn.

A satellite is generally described by its daily Reference Orbit, and its orbital period and longitude increment. The Reference Orbit is the first north bound orbit of each GMT day. It is described by the time the satellite crosses over the equator and the longitude at which this occurs. On the West Coast the Reference Orbit is not generally within hearing range so the orbital period and longitude increment are needed to calculate future orbits.

There are several sources for obtaining the Reference Orbits. The most accurate is the W1AW Bulletins. These are broadcast nightly at 6:30 and 8:30 PM PST on phone and at 8 PM on CW. If you can copy 18 wpm code, the QRM is much less on the CW Bulletins. The satellite bulletin is usually the last one transmitted. There are several AMSAT nets which also provide this information. The West Coast net meets at 8PM PST on Tuesday on 3850 KHz. The AMSAT International nets meet on Sunday on 21.280 MHz at 1800Z (10AM ) and 14.282 MHz at 1900Z.

I've found that many hams have difficulty in calculating future orbits from the Reference Orbit. This is generally caused by math errors in converting minutes to hours, etc. I have learned a few tricks that can be used with the standard four function calculator (pencil and paper are fine too) that will make such calculations easy.

Table 1
Reference Orbits

| | 5 February | | | 6 February | |
|---|---|---|---|---|---|
| | TIME (GMT) | EQUATOR CROSSING (DEGREES WEST) | | TIME (GMT) | EQUATOR CROSSING (DEGREES WEST) |
| AO8 | 0026 | 86 | AO8 | 0030 | 87 |
| RS8 | 0102 | 95 | RS6 | 0048 | 98 |
| RS6 | 0103 | 100 | RS8 | 0059 | 96 |
| RS7 | 0129 | 105 | RS7 | 0119 | 104 |
| RS5 | 0132 | 104 | RS5 | 0127 | 104 |

For example, Table 1 lists the Reference Orbits for 5-6 February. Table 2 gives what I call the period constant and longitude increment. The Reference Orbit for AO8 is 0026Z at 86 degrees W. To determine the next orbit time, add the period constant to the Reference Orbit time. If the time is nonsense, subtract 40 from it.

For example,

| Time | Longitude |
|---|---|
| 0026Z | 86 |
| + 183 | + 26 |
| 0209Z | 112 |

Thus the next orbit occurs at 0209Z at 112 Degrees West longitude. When is the next orbit?

| | |
|---|---|
| 0209Z | 112 |
| + 183 | + 26 |
| 0392 | 138 |
| - 40 | (subtract 40 as 0392Z is nonsense) |
| 0352Z | |

The correct time is 0352Z. The trick to remember is to subtract 40 from any nonsensical GMT time. You don't have to worry about minutes to hours conversions, etc. The RS satellites are even easier. For most purposes you can simply add 2 hours to the last equator crossing time and 30 degrees to the last equator crossing longitude. For instance on 5 February the next orbit for RS8 is at 0302Z at 125 degrees W.

Table 2
Satellite Orbital Information

| Satellite | Period Constant | Longitude Increment | Best north bound passes (degrees W) | Best south bound passes (degrees W) |
|---|---|---|---|---|
| AO8 | 183 | 26 | 95-125 | 285-315 |
| RS5 | 200 | 30 | 105-145 | 270-310 |
| RS6 | 199 | 30 | 105-145 | 270-310 |
| RS7 | 199 | 30 | 105-145 | 270-310 |
| RS8 | 200 | 30 | 105-145 | 270-310 |

Each satellite provides 4 to 6 usabbe orbits per day. Orbits with equator crossing longitudes shown in Table 2 will be nearly overhead and will provide the strongest signals. You should hear signals from the north bound passes approximately 5 minutes after the equator crossing time. The south bound passes take approximately 35 minutes to get in range.

If you're still confused,all is not lost. Project Oscar (PO Box 1136, Los Altos, CA, 94022) publishes a book for $10 which lists the equator crossing times and longitudes for all 1983 orbits of AO8 and RS5-8. This is a bargain and takes the work out of calculating orbits for those who don't have a computer.

Next month: Receivers and antennas

# W5YI REPORT
1982

THE YEAR OF RADIO UNREGULATION, FLEXIBILITY--

In 1982 "unadopted" was more the case as greater flexibility for the radio amateur and liberalization of the rules became the trend. We are in the midst of a personal radio revolution and it is obvious that the government's goal is to allow greater numbers to participate in leisure communications than ever before. This is interesting since none of the FCC rules recognize recreational communications at all. The goals of the Amateur Radio Service include technical, public service, and goodwill intent. Attempts to include hobby motives in the ARS rules have been soundly rejected by the amateur community. The goal of the Citizen's Radio Service is to provide convenient and low cost communications. Yet we all know (and hear) "it's just a hobby."

TURNING AMATEUR RADIO OVER TO THE AMATEURS...
WAS THE MAJOR AMATEUR RADIO STORY OF THE YEAR ..The FCC became very upset at Dick Bash who built a better licensing mousetrap. With all of the amateur radio test questions and answers known, the Commission decided that they couldn't properly administer the ham exams any longer. It also was very expensive to run what was fast becoming an exercise in licensing futility and funding is a serious FCC problem. The Commission was even forced to close many of its field offices and pare down its amateur exam program. There wasn't much they could do to stop the Bash books and seminars since answers to federal exams have existed in other fields for decades. The FCC embarked on a program to let the amateur community write, adminster and grade their own tests. Signed September 13, 1982.

WHAT'S IN STORE FOR1983?

1. A report and order approving additional HF phone privileges on 20 meters.
2. A Report and order deleting all logging in the Amateur Radio Service. It is at the NPRM stage now.
3. A Notice of Proposed Rulemaking changing power measurement procedures in the ARS.
4. Final ruling providing that volunteer adminstered Novice tests will not have to be mailed bach and corrected by the FCC.
5. Rulings on the ARRL petitions proposing implementation of the Volunteer Amateur Testing Program and 10 year term for Amateur Licenses.
6. Authorization of more digital codes in the Amateur Radio Service.
7. The No-Code Amateur License and 900 MHz PRCS staff effort had been completed and had been submitted for a spot on the Commissioner's Agends.

OPERATING AMATEUR RADIO ABOARD COMMERICAL SCHEDULED AIRLINES...

To the amateur radio operator with a portable radio transceiver desiring to use it from an aircraft, what this obviously means is:

1. Aboard a commerical flight (UAL, AA, EAL, etc.) you may not operate unless the airline has tested your rig, found it will not interfere with the aircraft systems, and issues permission to operate. The pilot does not have such authority and can be subjected to discipiinary action if he , or other crewmember, allows such use.
2. Aboard a general aviation aircraft, except inIFR conditions, the pilot may determine that you can operate your rig when not engaged in commerical flight.

FCC RECONSIDERATION ON MAINTAINING RULES COPIES DENIED

The FCC said that a comment period was not necessary since the changes were not substantive adding that the changes relieved licensees of a burden in not requiring them to have personal copies of the Rules. The original FCC decision stands, personal radio operators,(CB, Radio Control,amateurs), are no longer required to have a copy of Part 95 or 97 in their possession.

HAM SIG...is a Special Interest Group of American Mensa (the high IQpeople) of which Wayne Green is a member. Ham Sig is conducted by Chod Harris, WB2CHO,(VP2ML here) of Santa Rosa, California...an ex-ARRL staffer. Will have to talk to Chod of his new output.

---HOBBIES AND THE RADIO AMATEUR---

Most think Amateur Radio is a Hobby it's self. Not so according to our rules part 97, many of our Amateurs have Hobbies associated with Radio Communication.

One Amateur in our Community associates his Amateur Radio with his Hobby of Earth Quake watching. Places as far away as Iran-Greece-Kurile Islands-Kermadic Islands-Italy-sounds like DX?? No, Quakes. Howard Grebin WA6IAP has recorded on his seismograph.

Perhaps I had better start at the begining- Earth movement at a complete station would cover north and south plus east and west and vertical movements. This is too much for most Amateur Quake Watchers. Most have N-S--E-W- , Vertical is harder.

First a rotating drum is needed for either movement. Diameter can be large or small 12 inches seems about right--supported by a 2" thick walled tube through the long axis. The drum can be up to 3' long. Now this drum with tube is supported on a double set of balance wheels. You can turn the drum by a touch of your finger. It is rotated at one end of the tube by a 2 or 3 watt one turn per hour clock type motor. Time is easy to figure because each quater turn is equal to 15 minutes and of course a full rotation an hour, so counting back is easy.

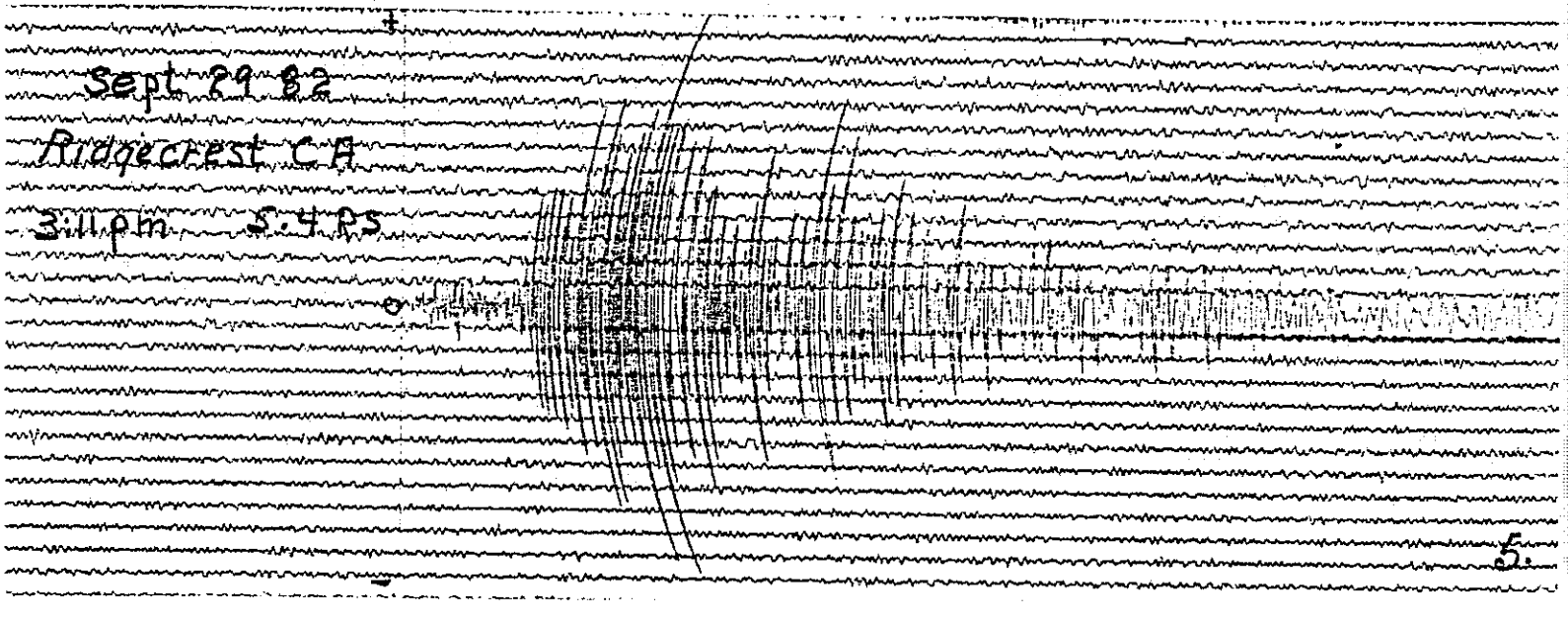
Now apply something on the paper so you can see the quake movement is next. Outsidein the yard is a weather proof box, inside is a seismograph which is mounted on a flat comcrete slab. It contains a heavy magnet flat earth mounted. The coil is mounted on a free swinging armwhich is dampened by a heavy weight and at the end a magnet. This magnet and weight keep the arm from swinging like a door in the wind, the dampening effect.

This coil and magnet is like a dynamic mike. The moving coil cuts magnetic lines of force and an electric circuit is formed. This goes to the input of a two stage amplifier which boosts the signal 10,000 times. The output is connected to a pen motor which gives a plus and minus movement from pen center. This shapes and records the wave form on the paper. This can be done with two types of pens. The wet pen and the hot pen. Howard uses the wet pen type.

Now we have a drum with paper, a recording pen and a quake, what next? Well here we go---A quake has a primary and secondary wave. You measure the length of the primary in time: on a table you convert seconds of time to degrees. A degree here eguals 69 miles. Then degrees times seconds equal milage or distance from your location. Now if you have two or three stations trianglization finds the quake center.

This is all fine if you stand over the drum all the time watching for quakes. Even Howard does not plan to do this so an alarm is needed. An arm extension connected to a disc between a lamp and a photo cellactivitates a tone alarm when the needle moves day or night.

It was an interesting trip to Howards Home in Sebastopol. He gave me the full show enen down to a small distrubance perhaps from the Mommoth Lakes Area. Thanks Howard.



----SWAP -----SALE------WANT----WHAT EVER----------

523-2436--KN6S GEO...Wilson MK2-6 Xtals--T,T Pad--Hand Held--$100.00
544-3788-Hank --Wants Gen. Coverage Rcvr. Dig. Readout.
415-897-1655--WA6YFD--I Com 2A $150.00---V COM Telescoping Ant $15.00---DC1-Pwr. Converter Car 12V to I Com-$15.00...
544-3485 W6GFY Van--10 Watt Heath Kit 2 Mtr. Amp. $30.00TU-170 FLASHER $150.00..SBE34 $135.00
778-7226--W6JYO--Wants open wire line...
K6WE--JOHN--HW 101--HP23--Spk. and Mike--Manual--Like New--$250.00
823-2292--N6BFY--DENNIS--Yeasu--FT627RA--6 Mtr. FM--Scan--$200.00---227R--2 MTR. FM--$200.00
528.0201--KS6W--GEO.. Yeasu-227R 2 mtr. FM--and Info Tech. Keyboard--CW-RTTY- Call.
762-8600--N6DSW--SB 104--$275.00

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In this issue of Short Skip you will find an Application for ARES...This slip gives us information on members and equipment when in need for an emergency..Please fill in and return to Hank Davis via Short Skip or direct to 7822 Washington Ave , Sebastopol, CA 95472, or to the P O BOX 116 , 95402 of the CLUB.. Just so you return it, THANKS.

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ARRL LETTER------
FCC-proposals for a post WARC frequency allocations table (Docket 80-739) were released Dec 30, the public has until March 10 to comment. March QST will carry details as regards the Amateur and Amateur satellite Services. The proposals generally follow the international table agreed to at Geneva in 1979, but several issues remain to be resolved.

160- Meters: Radiolocation trans. now operating at 1625-1705kHz will have to be relocated when the A-M Broadcasting Band is expanded later in the decade. FCC is looking at 1900-2000 kHz for them, and proposes that the Amateur Service be secondary in this segment in the meantime. Remaining LORAN -A operations in Region 2 soon should be phased out.

220 MHz: Non-amateur fixed and mobile services will not be implemented in the band pletion of a joint FCC/ntia study of spectrum requirements for the band; howeve e FCC proposes Amateur, Fixed, and Mobile as co-equal, primary sharing partners.

MHz: Amateurs along the Canadian border would lose access to 420-430 MHz under posal, but "Waivers as appropriate could be considered based on technical cons-

Aug. 81 QST, p 57. Sept. 81, QSTp. 56..

DISMISSES W4MB PETITION... The FCC has recently dismissed a petition for rule n sought to have the two newWARC bands at 18MHzand 24 MHz immediately allocated to the Amateur Radio Service. According to the Commission, while the frequencies were reallocated for the exclusive use of the Amateur Radio Service at the 1979 WARC, the use of these frequencies by Amateurs is subject to the transfer of all current assignments from these frequency bands. There are currently 33 government and four non-government assignments in the 18 MHz band and ten government and two non-government assignments in the 24 MHz band. Accordingly, the petition was dismissed as premature.

RM-4040 DRAWS LATE FIRE---ARRL hasrequested FCC to strike from the RM-4040 file the late-filed comments of American Video and Landmark Cablevision. RM-4040 is the League's rulemaking request to bar CATV operation at Amateur frequencies.

ARRL said the cable operators' joint comments were filed for "purposes of delay and to muddy the waters of this proceeding". The ARRL blasted Americal Video/Landmark Cablevision's assertions of amateur CATV "sharing"; "No frequency is "shared" between over the air services and (closed) cable systems". The Commission should strike the joint comments because the cable systems filing was made three and one-half months late, the league concluded. Look in March QST.

Packet Shack- Farmers Lane - Omitted By Mistake

---AMATEURS NEEDED---

believe it or not--there is about 647 licensed Amateurs within Sonoma Co.. Santa Rosa alone has around 300. You can see that there are available many Amateurs that could help if motivated.

RACES and ARES in Sonoma Co. always needs Amateurs to sign up and help inmany ways. At present there are only 150 or so registered. In this issue of Short Skip there will be ARES applications. If you feel like signing up please do so and return them to Short Skip.

Red Cross needs Amateurs interested in their line of Service. RACES and RED CROSS work together in many emergencies.

A new activity in Sonoma Co. needs the services of the Radio Amateur. California State Military Reserves is now organizating. This group replaces the National Guard at such a time the Guard is called out of the county. Major Geo Robinson--phone number 584-9389 Home and 523-3535 Business. At the present time CSMR would like 2 to 4 Amateurs in Communications. If you are interested in the military here is a chance for officer and or initsted type level entry.

ARRL LETTER CONT.....

QUOTE OF THE WEEK----FCC's dismissal of proposed "external controls' and more channels for CBers has drawn comments of opposition from the Personal Radio Operators Federation. The PRO Federation submitted comments on Dec. 17, complaining that the dismissal is against the public interest.

In its conclusion, the PRO Fed. refiutes the Commission's view that cooperation between users is the key to successful operation on the band. The Federation says that this solution is "simplistic" and "even the Commission must have noticed by now that great numbers of SSB operators are 'cooperating by employing other 11 meter frequencies which largely are not otherwise being used. Unfortunately the Commission has not seen fit to authorize those frequencies yet." (Emphasis added).





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FIRST CLASS