

# The ADVENTURES OF ZACK & MAX

Lost In Seattle

VOLUME 2



## Welcome to the World of Ham Radio!

Thank you for your interest the next volume of *The Adventures of Zack and Max - Lost In Seattle*. This story provides you with basic information about new advancements in the hobby, new products, applications, and relevance of ham radio today.

### About Icom Inc.

Icom Inc., founded by Tokuzo Inoue, JA3FA, is a worldwide leading manufacturer of amateur and other radio equipment. Headquartered in Osaka, Japan, Icom entered the radio business over 45 years ago, creating some of the first transistorized amateur radio transceivers. Today, Icom is proud to continue its advancement of the hobby by offering a wide range of amateur radios – from cutting-edge, digital technology base transceivers to innovative handheld radios. Icom is always working to improve its products by employing the latest technology, listening to customer suggestions, and drawing from experience in the radio industry.

### About the Story

*Lost In Seattle* is a very special volume. The story was created by the kids in the 4th grade at Ben Franklin elementary school in Kirkland, WA and the Lake Washington HAM Club, KC7OIO, who also meet at the same school.

Mr. Dave Condon KI7YP, an elementary teacher and mentor for the Lake Washington HAM Club, had his 4th grade class create this wonderful tale about using amateur radio to help find a lost friend.

The students enthusiastically tackled the writing by organizing themselves into groups with a project manager and editor. They had the 5th and 6th grade members of the Lake Washington HAM Club KC7OIO proof the text.

The photos on the right give a snap shot look into how the students put together the story. From left to right, top to bottom:

- a. the project manager
- b. the editor
- c. & d. the writing group, who would go over the many versions and keep the story boards up to date
- e. science and research
- f. & h. the art group who helped us with ideas for how the comic book should look
- g. the transcription group
- i. & j. pictures of Katrina and Josh, HAM Club members who assisted in the story and lent their names and call signs.

We also want to thank Anna Veltkamp, a member of Mr. Condon's class, for the poem she contributed at the end of the story about Max the pig.

At Icom America, we had fun producing a truly remarkable story. We want to thank Mr. Condon, his 4th grade class, and the Lake Washington HAM Club for a job well done!

The comic book was once again beautifully illustrated by Kayoko Nakajima, a professional cartoonist living in the Seattle area.

All call signs used in this story are real and are used with permission.

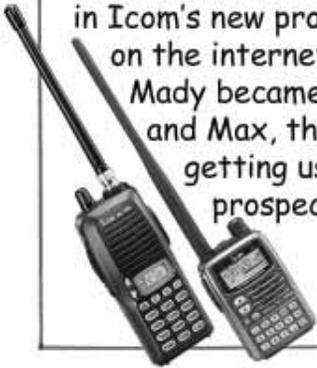
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All characters are purely imaginary and any resemblance to any real person, living or dead, is entirely coincidental.





In volume one, Zack, with Mady's help, got his amateur radio license. After much picking and choosing, Zack and Mady bought new Icom radios, the IC-T90A and the IC-V8. Zack's dad was very interested in Icom's new product listings on the internet. Zack and Mady became good friends and Max, the pig was getting used to the prospect of ham radio.

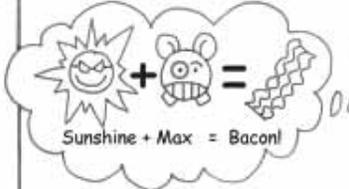


IC-V8 & IC-T90A

One day Zack, Max and Mady went on a hike in the mountains near a city in Washington State. They had planned to hike to the top of a peak and try out their new radios.

Yeah. Let's rest a while. I don't know if I can make it!

Wow, this is a hard climb! The sun is making it even worse.



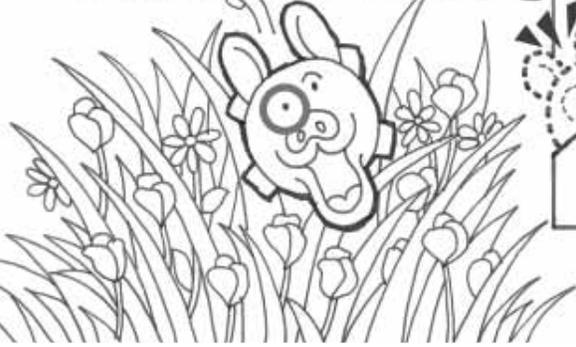
It sure is hot out here!

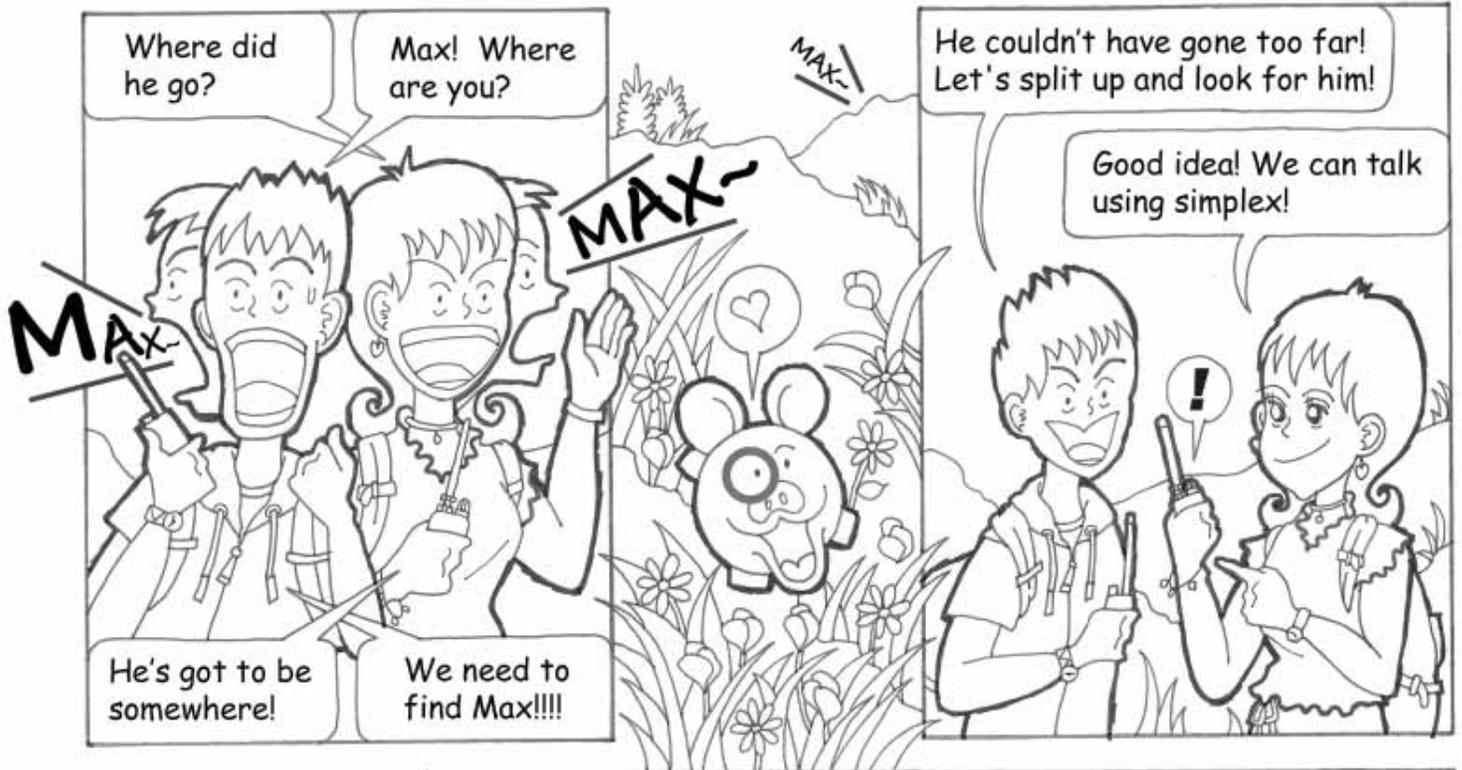
Max is lucky, he gets to ride!



Speaking of which, where is Max? Max!?

Don't play games with me ... MAX!





Where did he go?

Max! Where are you?

He couldn't have gone too far! Let's split up and look for him!

Good idea! We can talk using simplex!

He's got to be somewhere!

We need to find Max!!!!



I hope he is okay!



I'll go this way. Let's not get too far apart though.

Right! I'll go this way!

Summit 6miles  
Parking 2miles  
Lake 1com 1mile

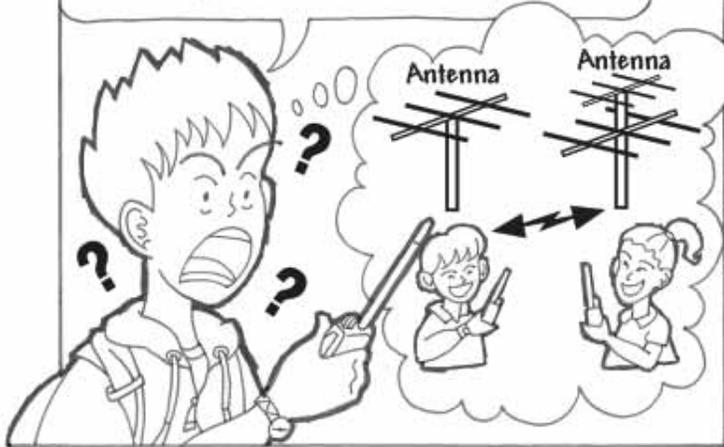


KC7JPA, this is KD7QEZ, no sign of Max! How about you?

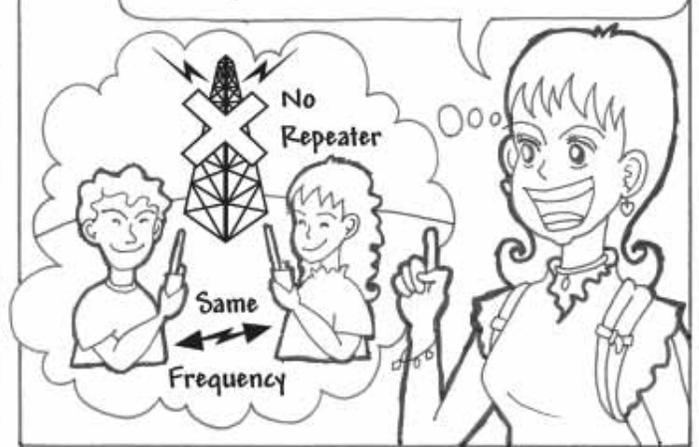
KD7QEZ from KC7JPA, no sign of him, Zack. Meet me back where we were.

Okay. 73, KD7QEZ.

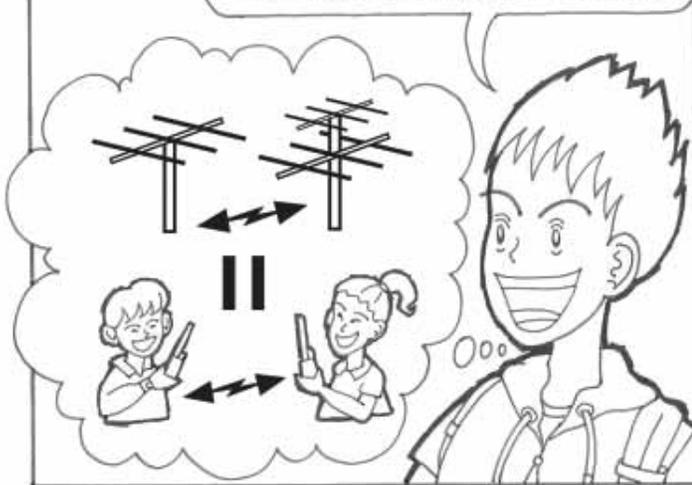
By the way, Mady, I never understood simplex. I know it's like antenna to antenna, but what is it really?



Simplex is when signals travel between radios without using a repeater.



Oh, so it's basically like I said before, antenna to antenna...



Yeah, that's simplex, but it's been a long time and we still haven't found Max yet!



I have an idea! Mady, do you have a cell phone?

I do. Why?

**YAH!**

**Call 911!**  
They can help us find Max!



Maybe I forgot to pay my monthly cell phone bill, or perhaps we are out of range. Cell phones only work if there is a cell phone tower nearby. Do you see any?!



**NEED!**

- Cell Phone
- Range
- Pay Bill
- Cell Tower

Phone Bill  
\$100  
dialup system  
taking them to a  
bank to pay!

**NEED!**

- Battery

Ham radio

Simple

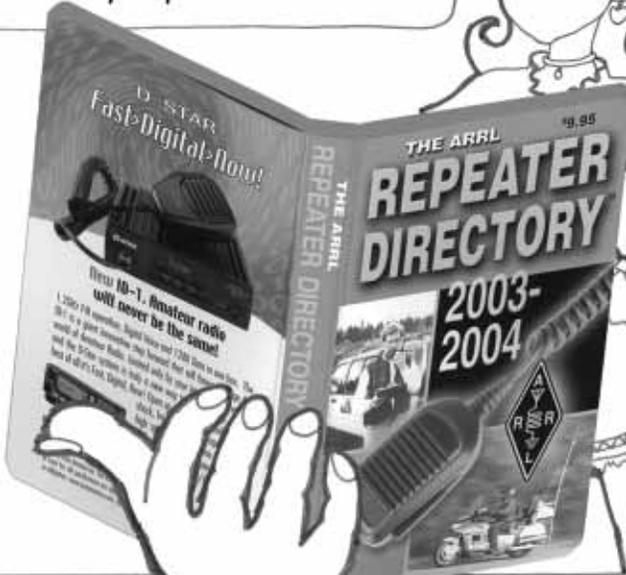
Ham Radios work on batteries, and there aren't any monthly fees!

Let's try to contact someone on a nearby repeater! Then they can call 911 for us! Do you have a Repeater Directory handy?

**REPEATER DIRECTORY 2003-2004**

# YES!

I have an ARRL Repeater Directory. Let's use it to find a nearby repeater.



This one is closest. Let's set up your V8 to use it! That way we can extend our range!



What? Huh? Hey! What happened? I thought ham radio never shut down!... I'm getting noise!



Location	Output	Input (Offset)	Call Sign	Notes/Tone	Sponsor
147.0800			K7MMI	alt 700	
147.0800			W7WWS	alt 100.5	
145.4300			K3TVL		Hogden
145.3700			W2JAD	@ 179.9	Raven
147.1000			W4TAN	@ 126.5	B St Andre
145.2300			W7TJM	@ 127.3	JMar Com
145.3300			K7NWS	@ 179.9	B.E.A.R.S.
147.1600			K7SKW	@ 100.5	Mt Baker
145.8600			W7RVM	@ 127.3	ICAR
145.3190			N7TR	@ 100.5	

**MUST BE**  
145.330 MHz - 0.6 MHz offset  
= 144.730 MHz



**MUST BE**  
TONE = 179.9 Hz

It didn't shut down! In all this excitement, you accidentally forgot to set the offset and tone...

Without the right access tone, you won't be able to get on the repeater. If you don't offset your transmit and receive frequencies, the signals will collide. Let me give you some examples of how this works.



Imagine that your transmit and receive signals are like two cars speeding towards each other along the same road. The offset allows them to pass without crashing into each other.

Did you forget  $-.6$  OFFSET?

OFFSET?

BANG

# KRASH!



179.9

Hi

What about the tone?

Tone  
179.9

The tone acts like a key in a locked door. Without the right tone you can't open the door.

Wow, that's really cool Zack, thanks for reminding me to check the radio settings! Hey, I think I'm getting a signal!



YES



Is anyone on frequency, this is KD7QEZ! We have an emergency!







All right!  
I'll put out an Amber Alert!



We interrupt this program for an important news bulletin. A white pig with a red circle around his right eye, who goes by the name of Max, is missing! Meanwhile in other news...

**ALERT!**  
**MAX is Missing**  
ICOM Breaking News

**ICOM NEWS**



Wow Mady!  
This Repeater Directory is a really cool book!

It is cool, Zack.  
It tells me where the repeater is and, like you said, what frequency to use.



The repeater receives your signal and resends it with more power. That makes it go much farther.

Frequency!



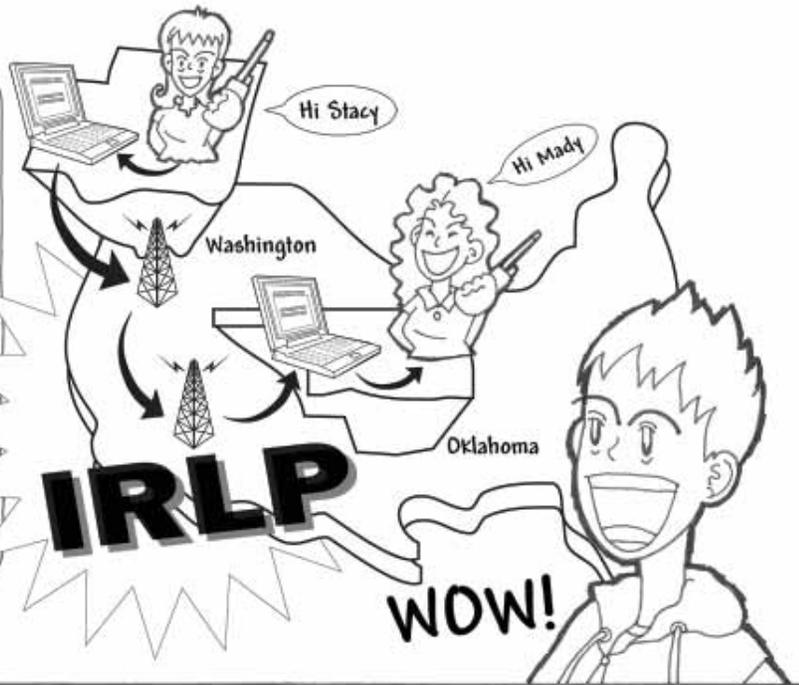
Repeaters are really useful. They help us talk to people far away!

Some repeaters are even inter connected over the Internet. For example, my Aunt Stacy is a Ham and lives in Oklahoma.

I can talk to her on my handheld, using IRLP to link a repeater near me to a repeater near her.

The Internet serves as a communications backbone.

Aunt Stacey lives in Enid OK, near an IRLP node. It's like a chat room, or instant messaging ... it is lots of fun!



I better call Katrina back and see if she talked to the State Patrol.



KD7RSE!  
This is KC7JPA!

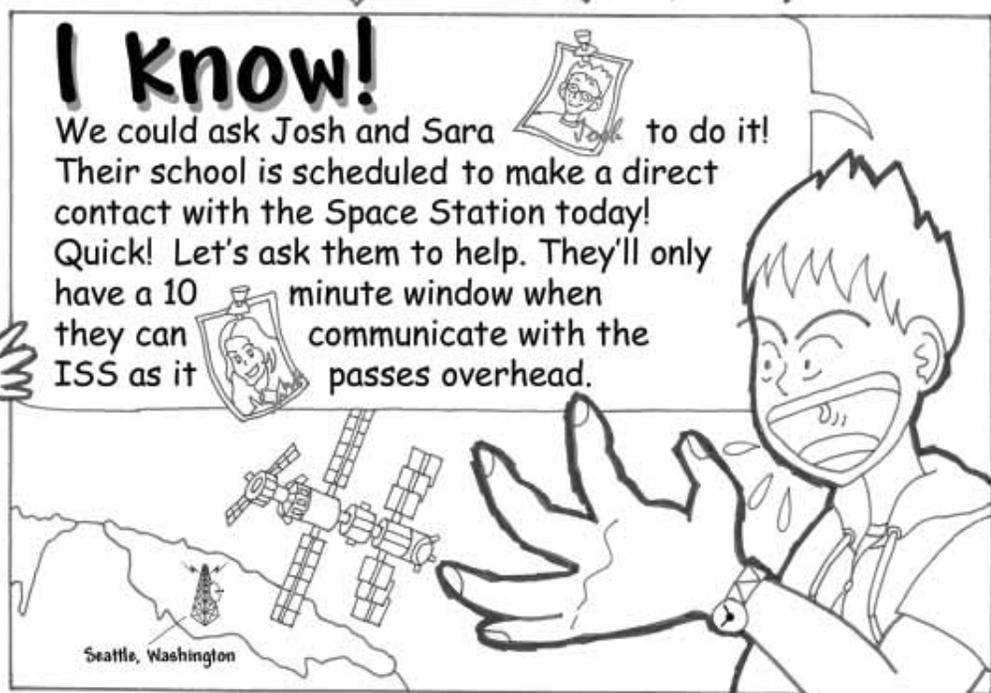


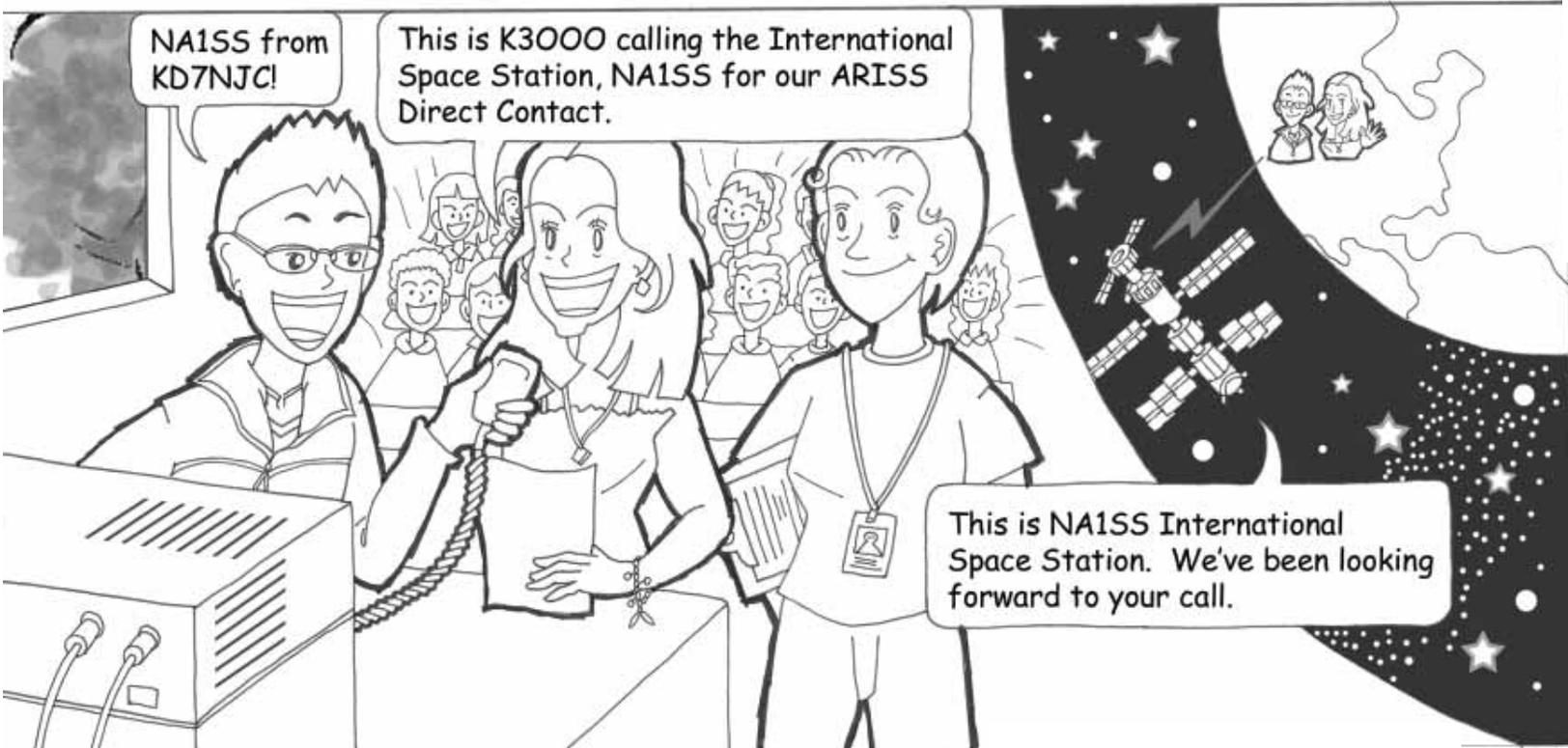
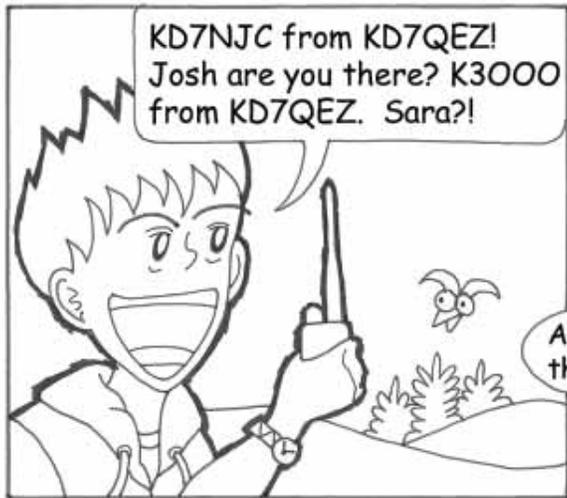
Hello, yes, this is Katrina, have you found Max yet?



No luck so far!  
We'll call if anyone reports something!







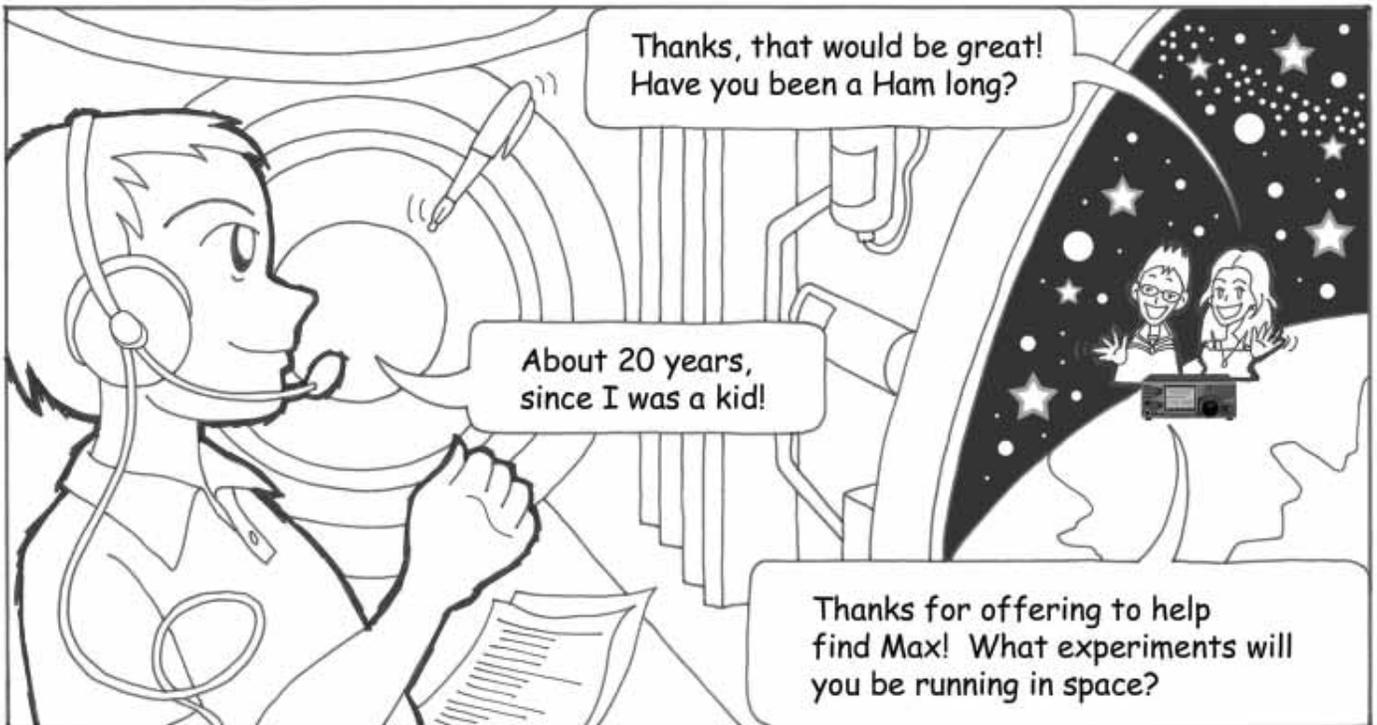
NA1SS, this is K3000, my name is Sara, we had a list of questions for you, but we need your help in finding our lost friend. He's a pig, and he was last seen near Seattle, Washington. Let me have my friend Josh, KD7NJC, give you his description. K3000 to KD7NJC, go ahead Josh!



NA1SS, this is KD7NJC, Josh, here, Max is a white pig with a red ring around his right eye! He's a very important pig!



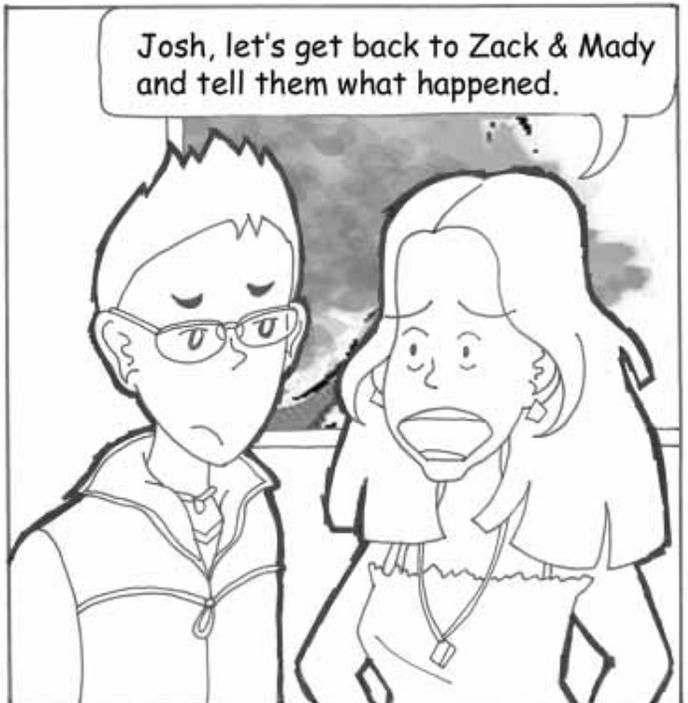
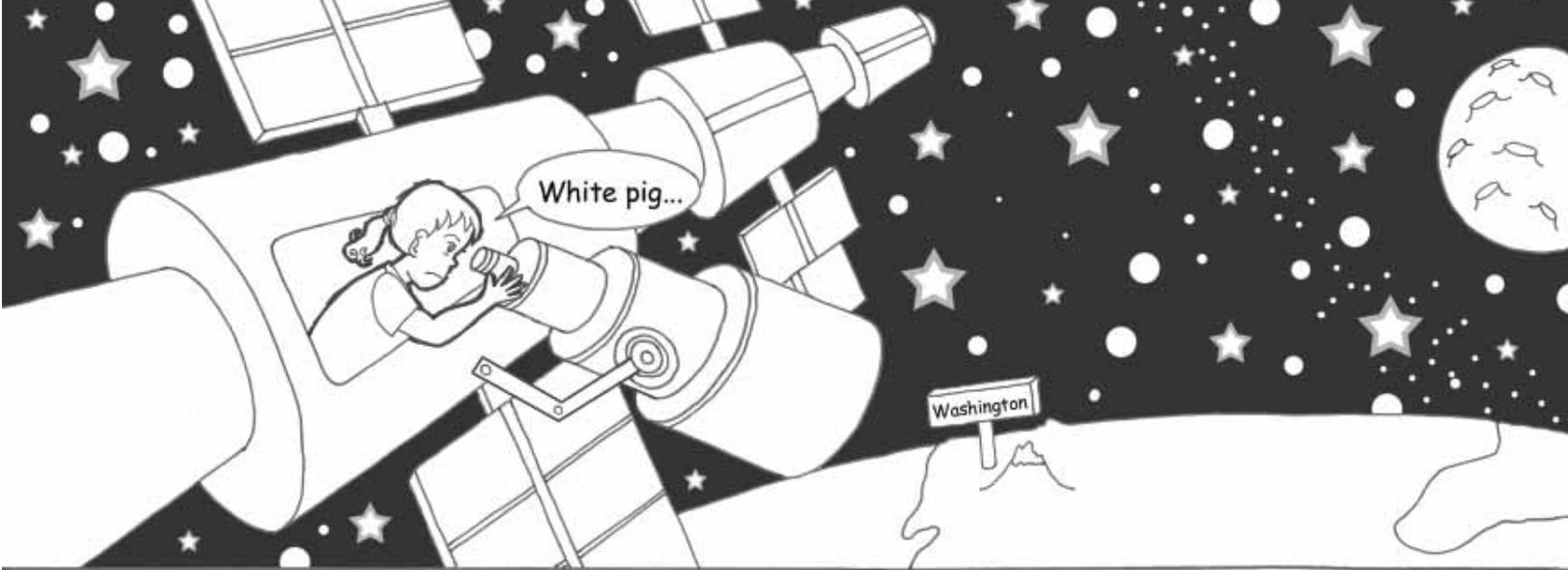
As we pass over your area, we'll be happy to use one of our new telescopes to see if we can spot Max!

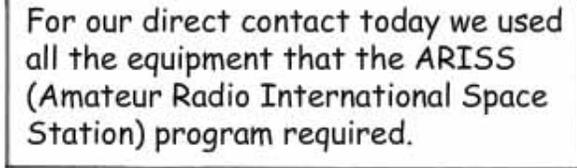
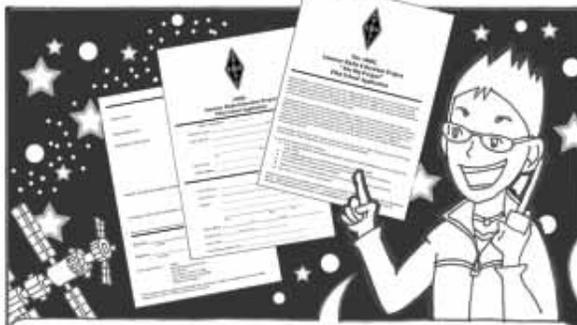
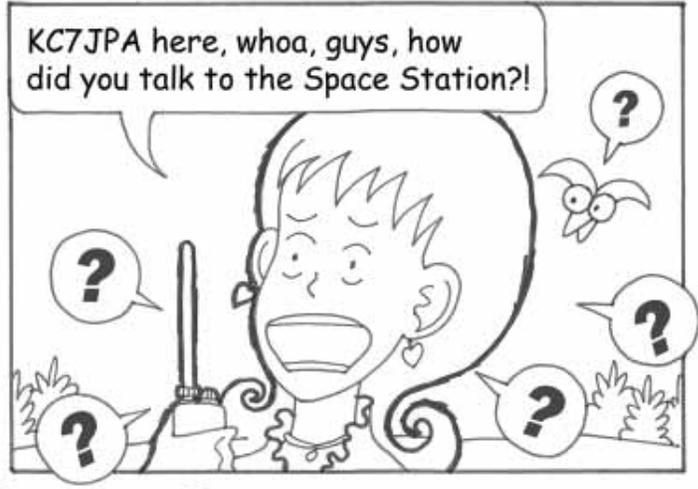
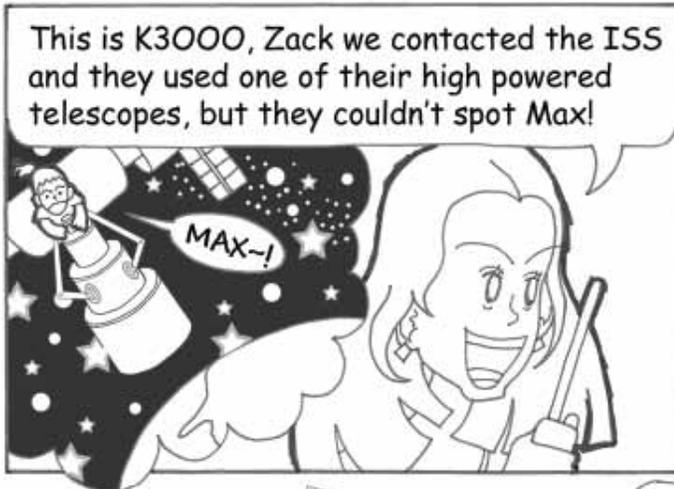
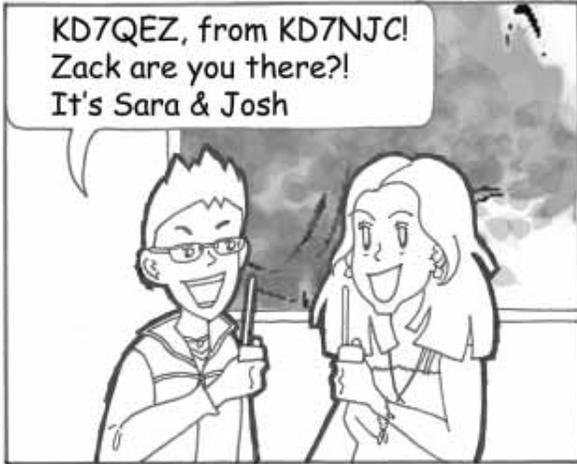


Thanks, that would be great! Have you been a Ham long?

About 20 years, since I was a kid!

Thanks for offering to help find Max! What experiments will you be running in space?







First I need to select the VFO mode by pushing the "V/M 1" button, and then I push the "A/B 3" button which lets me select VFO "A"..... Then I push and hold the Band button marked "M/S" to select 2 meters as the main band.....I enter in "145.800 FM" and then hit the "F-INP ENT" button....then I push the "A/B 3" button again to select the VFO "B"....I enter "144.490 FM" hit the "F-INP ENT" button and then press the "SPLIT" button...You then receive on 145.800 and transmit on 144.490....When you get back we should get together and I can show you how this all works! It's really fun!



Wow! That's amazing! Let's do it when I get back! Thanks for calling the ISS and for checking back! Bye for now, 73, KD7QEZ!



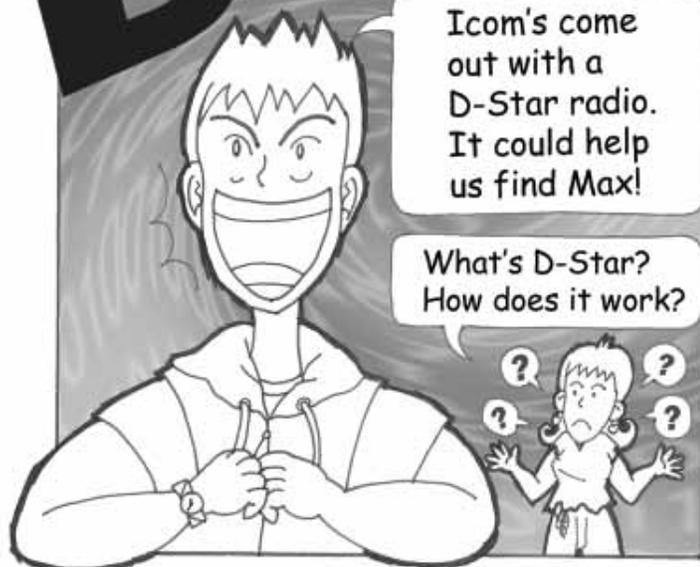
The IC-910H is really cool, but even with all those people looking, we still haven't found Max!



I know a way everyone can know about Max!



# D-STAR

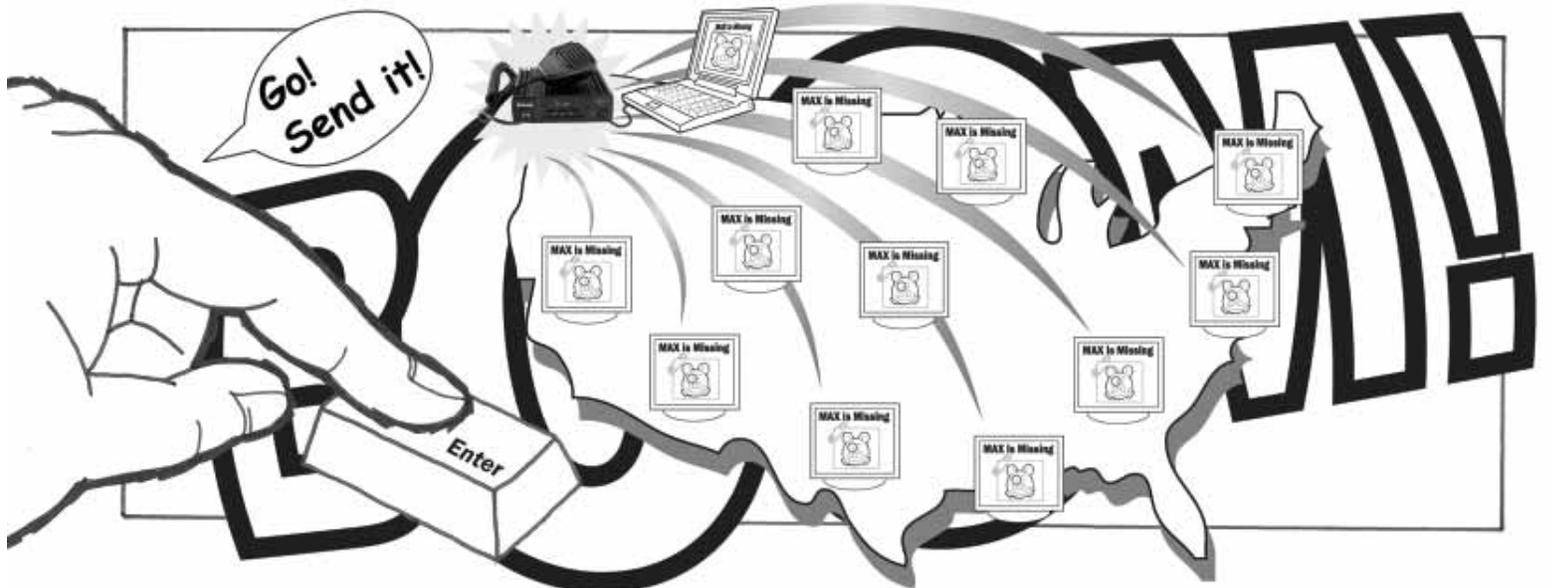
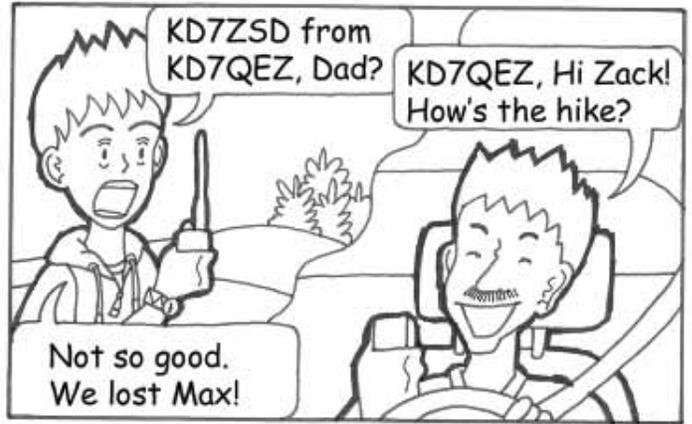


Icom's come out with a D-Star radio. It could help us find Max!

What's D-Star? How does it work?

Well, you know how you can take a digital picture and place it on the Web? O.K., with a D-Star radio, you can do that from anywhere you don't need an ethernet connection. We could take a picture of Max, use the ID-1 rig to send it back to my house, and send it out all over the Internet where everyone can see it!







You bet it did! It got around fast because it sends data at 128 kilobits per second!



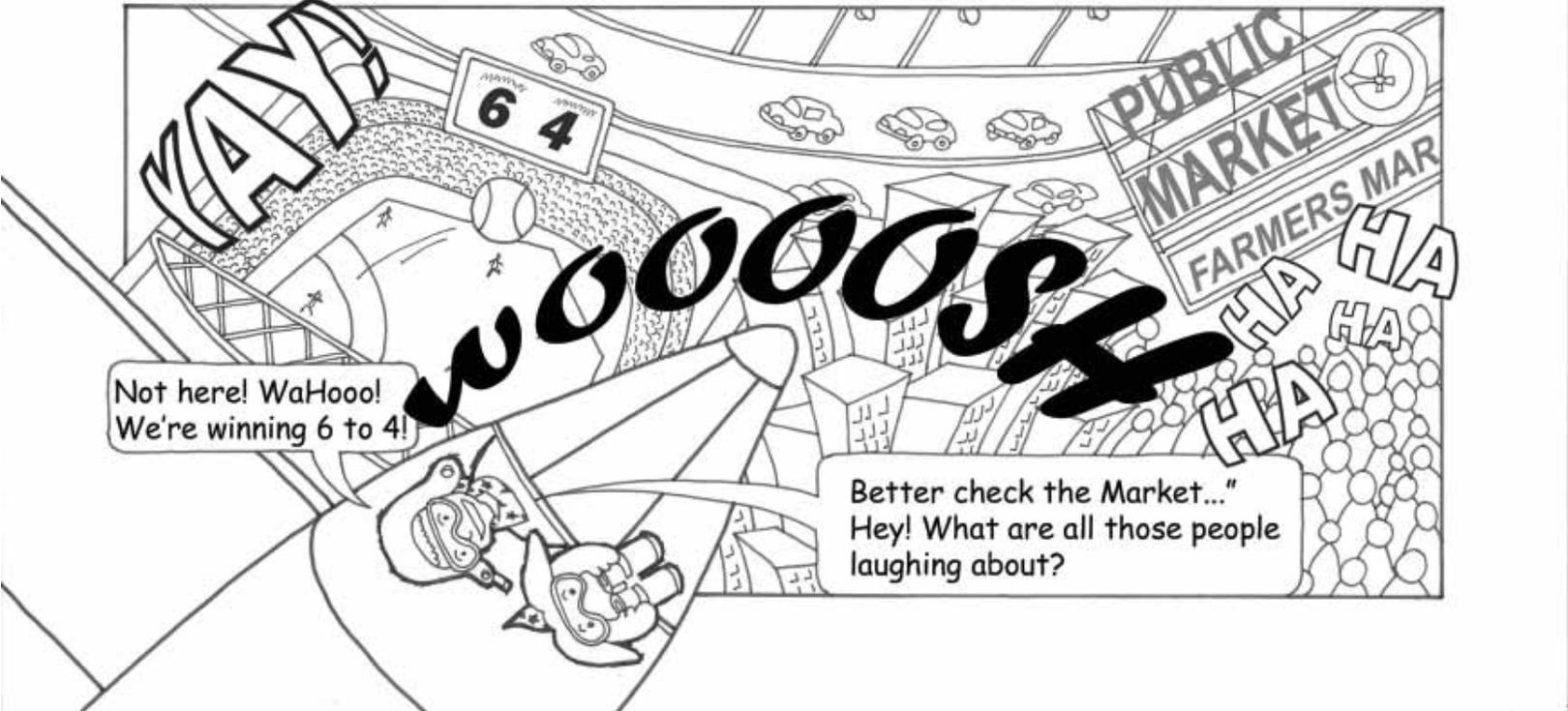
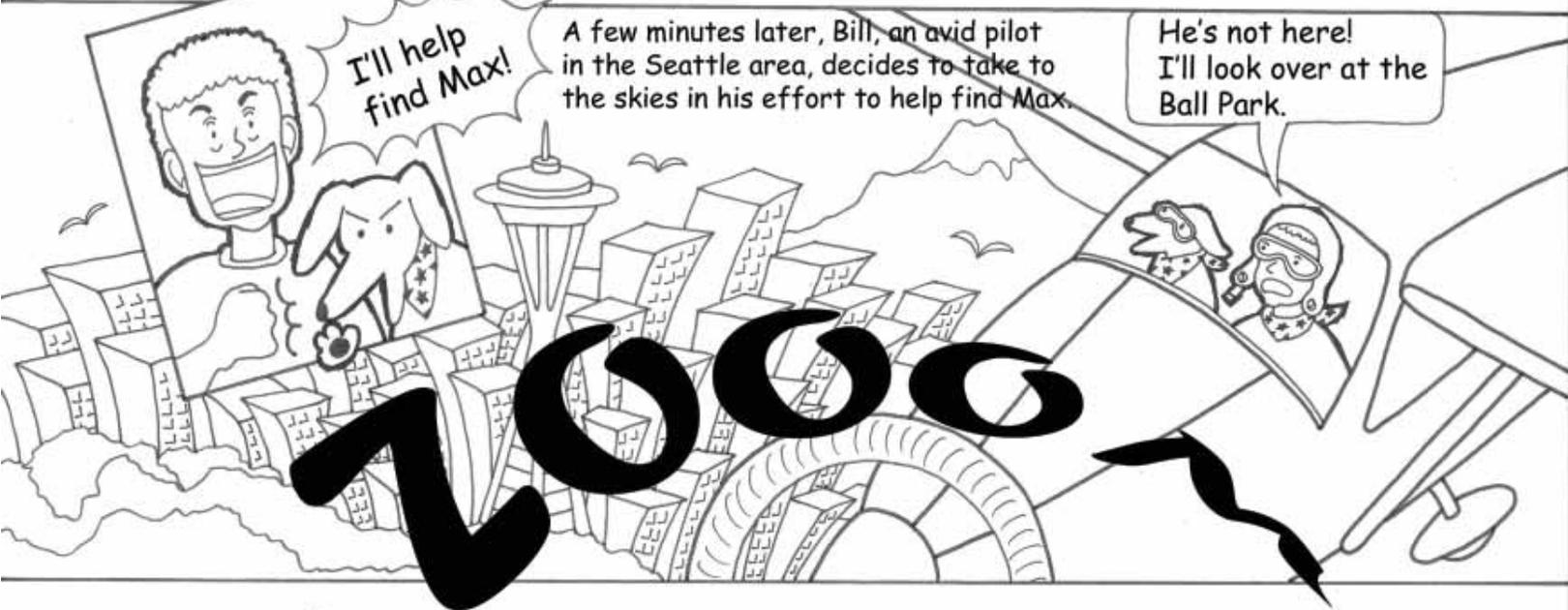
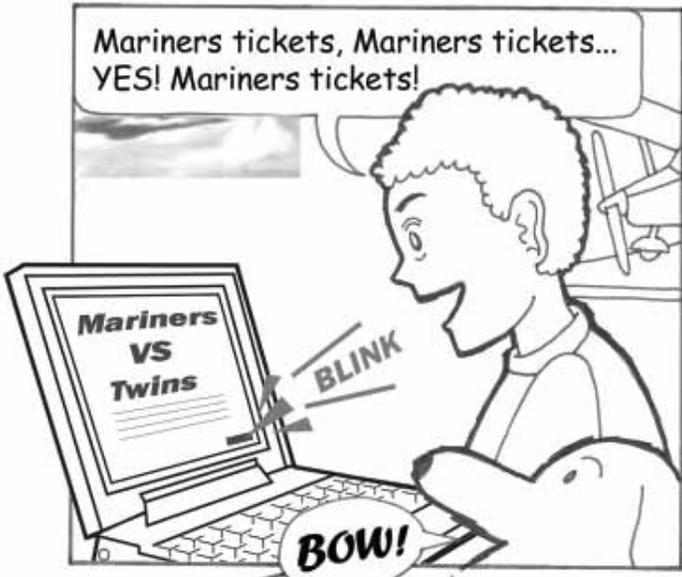
**WHOA!**

That's like DSL speed, but wireless!



**128**  
Kilobits  
Per Second







**it's MAX!!!**

I better contact those kids about their pig!

**WOOF!**

**HA HA HA**

**HA HA HA**

**CQ! CQ! CQ!**  
KC7SFN to KC7JPA! Max is FOUND at Pike Place Market!

**BWOING**

KC7SFN to KC7JPA  
I repeat, I found Max....

**THEY FOUND MAX!**

This is KC7JPA, Mady, here with Zack. Please give us the details of where you found our friend.

He's at Pike Place Market, near the entrance...

Thank you so much,  
73 KC7JPA!

**Great!**  
I'll call my Dad so he can give us a ride!

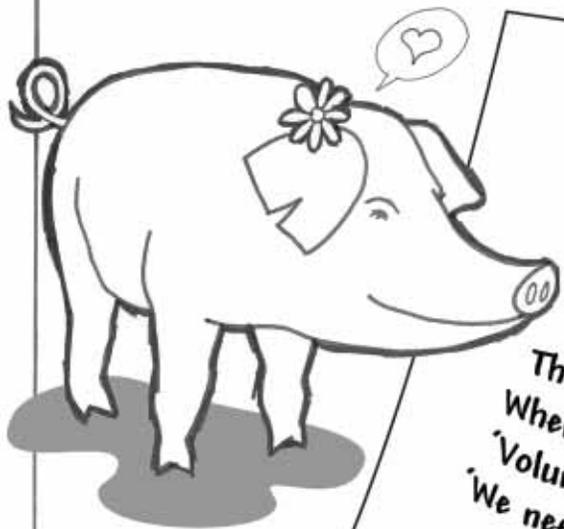




When you send the Morse code letters "H" and "I" twice in a row, it sounds like laughter on the other end. "dit-dit-dit-dit dit-dit, dit-dit-dit-dit dit-dit."



Zack and Mady were able to persuade Max to say "good-bye" to his new love.  
 Max was glad to be home but still missed the shiny, bronze piggy.  
 A few days after Max went home a note was discovered beside his lost love. It read:

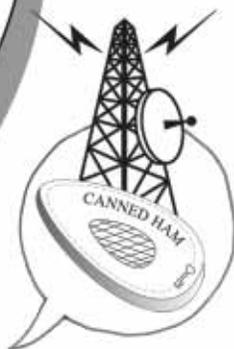


A pig sits sad, all alone,  
 A cold hard barn its only home.  
 He cries, "Christmas ham I will be!  
 Pork is my reality!"

The hog, he ran, he took flight  
 When a sign came in sight.  
 'Volunteers needed' it read such sorrow  
 'We need this radio named by tomorrow!'

The pig applied, went to the studio,  
 Hoping to name that radio!  
 But when the men saw the SPAM®  
 They cried, "We'll call it amateur ham!"

The hog got his own parade  
 And was dubbed  
 'The Best Pork Ever Made!'  
 Take a lesson from this ham:  
 Radio's not a bunch of SPAM®!

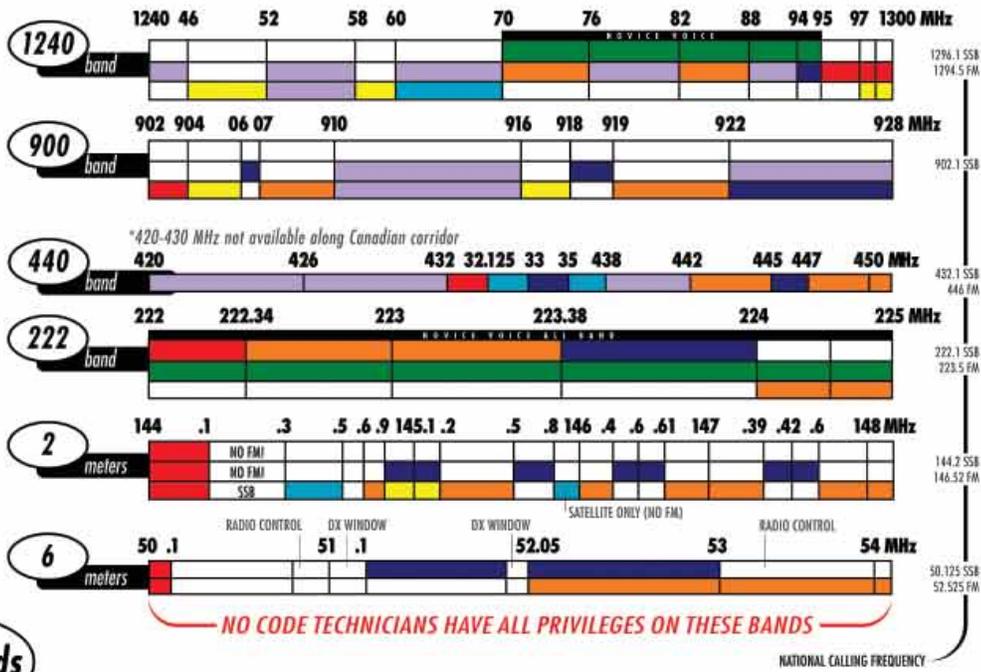


IC-910

# AMATEUR RADIO BAND PLAN

## UHF/VHF

- NOVICE VOICE AND DATA
- AMATEUR TELEVISION FAST SCAN
- SATELLITE (NO FM)
- LOW BAND WEAVER SIGNAL ONLY FAX
- DIGITAL
- FM SIMPLEX
- SSB
- FM REPEATER



**IC-2720H**  
AM, FM/2M, 440



**IC-T90A**  
AM, FM, WFM/2M, 6M, 440



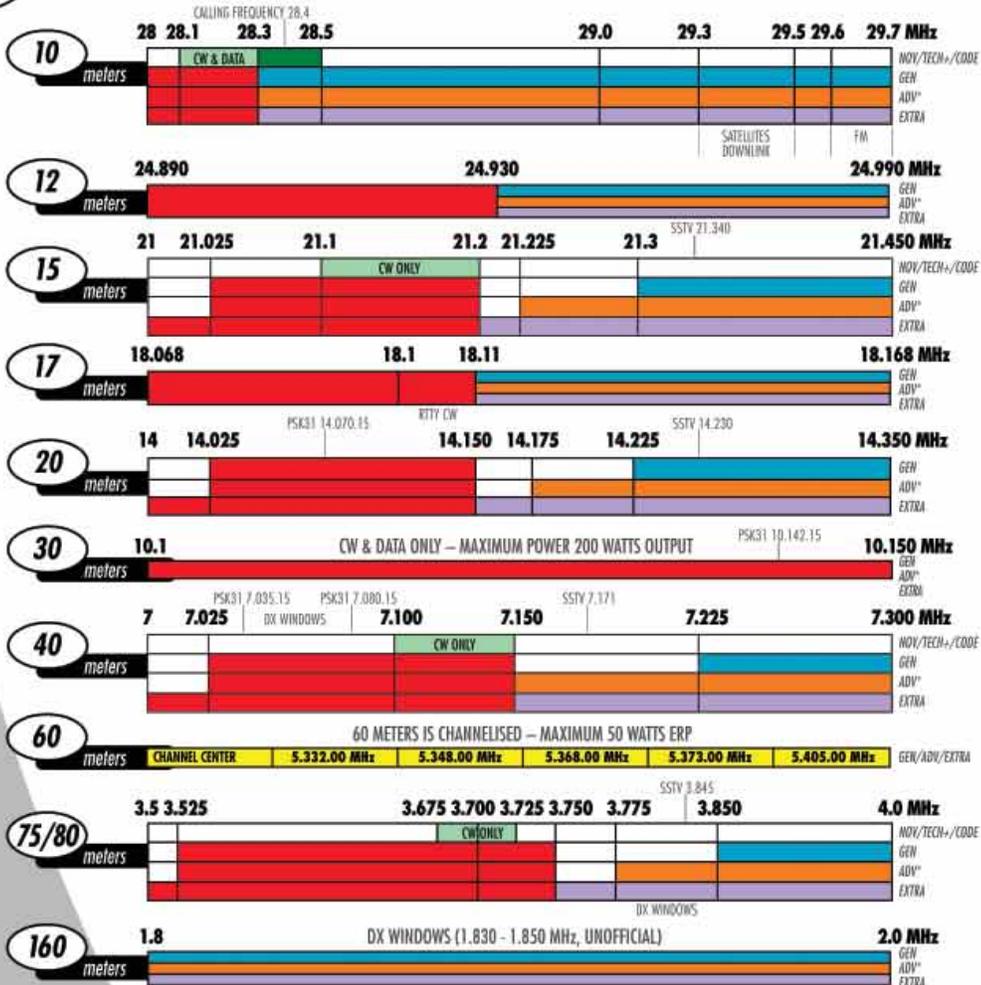
**IC-V8000**  
FM/2M



**IC-V8**  
FM/2M

## HF Bands

- NOVICE/TECHNICIAN W/CODE, CW
- NOVICE/TECHNICIAN PLUS VOICE
- GENERAL VOICE, CW, SSTV, FAX
- ADVANCED VOICE, CW, SSTV, FAX
- EXTRA VOICE, CW, SSTV, FAX
- CW, FAX
- NO PRIVILEGES
- GENERAL & UP; USB VOICE ONLY



**IC-756PROII**  
AM, FM, SSB, CW, RTTY/HF, 6M



**IC-746PRO**  
AM, FM, SSB, CW, RTTY/HF, 2M, 6M



**IC-706MKIIG**  
AM, FM, SSB, CW, RTTY/HF, 2M, 6M, 440



**IC-718**  
AM, SSB, CW, RTTY/HF

\*Grandfathered  
 All old & new license classes retain their operating privileges after April 15, 2000.  
 Under restructuring all HF classes retain band privileges as indicated. **General Class now 5 WPM!**  
 Developed by Gordon West (WB6NOA) Radio School, Inc., for exclusive use by Icom America Inc.

Here's where you can learn more about how to become a licensed ham radio operator:

### American Radio Relay League (ARRL)

www.arrl.org  
1-800-32NEWHAM  
326-3942

The ARRL provides information for anyone interested in amateur Radio. Through books, tapes, maps, and a list of ARRL-affiliated ham clubs, you will be able to find the answers to all your questions about amateur Radio.

### Gordon West Radio School

1-714-549-5000  
E-mail: [wb6noa@arrl.net](mailto:wb6noa@arrl.net)

Gordon West teaches evening ham radio classes and offers weekend ham radio licensing seminars on a monthly schedule.

### Other Sources

Check with your school's science teacher, school librarian, or your local public library.

Here's where you can learn more about amateur radio and purchase Icom radios in the U.S.

#### ALABAMA

GigaParts, Inc.  
Huntsville, AL • 256-535-4442

#### ARIZONA

Ham Radio Outlet  
Phoenix, AZ • 602-242-3515

P.A.C.E.  
Tucson, AZ • 520-888-3333

#### CALIFORNIA

Ham Radio Outlet  
Anaheim, CA • 714-533-7373

Ham Radio Outlet  
Burbank, CA • 818-842-1786

Ham Radio Outlet  
Oakland, CA • 510-534-5757

Ham Radio Outlet  
San Diego, CA • 858-560-4900

Ham Radio Outlet  
Sunnyvale, CA • 408-736-9496

Jun's Electronics  
Culver City, CA • 310-390-8003

#### COLORADO

Ham Radio Outlet  
Denver, CO • 303-745-7373

#### CONNECTICUT

Lentini Communications  
Newington, CT • 860-666-6227

#### DELAWARE

Ham Radio Outlet  
Newcastle, DE • 302-322-7092

#### FLORIDA

AES  
Orlando, FL • 407-894-3238

Cedar Distributors (Export)  
Miami, FL • 305-597-3090

Eli's Amateur Radio  
Ft. Lauderdale, FL • 954-525-0103

Mike's Electronics  
Ft. Lauderdale, FL • 954-491-7110

Portable Communication (Export)  
Hialeah, FL • 305-822-2258

RF Components (Export)  
Miami, FL • 305-597-9269

YV-5 Communications (Export)  
Miami, FL • 305-577-9960

#### GEORGIA

Ham Radio Outlet  
Atlanta, GA • 770-263-0700

#### IDAHO

Ross Distributing Co.  
Preston, ID • 208-852-0830

#### INDIANA

Ham Station  
Evansville, IN • 812-422-0231

#### KANSAS

Associated Radio Communications  
Overland Park, KS • 913-381-5900

#### MICHIGAN

ComDaC Radio  
St. Joseph, MI • 616-982-0404

#### MINNESOTA

Radio City, Inc.  
Mounds View, MN • 763-786-4475

#### MISSOURI

Gateway Electronics  
St. Louis, MO • 314-427-6116

#### MONTANA

AmCom  
Lake Side, MT • 406-884-3052

#### NORTH CAROLINA

Communications Headquarters  
Wilmington, NC • 910-791-8885

#### NEVADA

AES L  
Las Vegas, NV • 702-647-3114

#### NEW HAMPSHIRE

Ham Radio Outlet  
Salem, NH • 603-898-3750

#### NEW JERSEY

KJI Electronics  
Caldwell, NJ • 973-364-1930

#### NEW YORK

Barry Electronics  
New York, NY • 212-420-0500

#### OHIO

AES  
Wickliffe, OH • 440-585-7388

R & L Electronics  
Hamilton, OH • 513-868-6399

Universal Radio Inc.  
Reynoldsburg, OH • 614-866-4267

#### OREGON

Ham Radio Outlet  
Portland, OR • 503-598-0555

#### SOUTH DAKOTA

Burghardt Amateur Elect.  
Watertown, SD • 605-886-7314

#### TENNESSEE

CT Morgan  
Chattanooga, TN • 423-629-7911

Memphis Amateur Electronics  
Memphis, TN • 901-683-9125

#### TEXAS

Austin Amateur Radio Supply  
Austin, TX • 512-454-2994

Houston Amateur Radio Supply  
Spring, TX • 281-355-7373

KComm, Inc.  
San Antonio, TX • 210-344-3311

Rad-Com Radio  
Lubbock, TX • 806-792-3669

Texas Towers  
Plano, TX • 972-422-7306

#### UTAH

Communication Products  
Midvale, UT • 801-567-9944

#### VIRGINIA

Ham Radio Outlet  
Woodbridge, VA • 703-490-4664

#### WASHINGTON

Alf Enterprises  
Arlington, WA • 360-403-4840

#### WISCONSIN

AES  
Milwaukee, WI • 414-358-4088



THE ADVENTURES OF  
**ZACK & MAX**