Welcome to the World of Ham Radio!

Thank you for your interest in 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 snapshot 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.

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

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

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

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!

Max is gone!
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!

N9JA, this is KD7QEZ, no sign of Max! How about you?

KD7QEZ from N9JA, 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!
Hello, 911! 911! Max is lost!

It didn’t work Zack.

What? It didn’t work!

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

NEED!

Ham radio
- Battery

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?
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!

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

MUST BE
145.330 MHz - 0.6 MHz offset
= 144.730 MHz

MUST BE
TONE = 179.9 Hz

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.

**OFFSET?**

**BANG**

**KRASH!**

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

**Tone 179.9**

**Hi**

What about the tone?

**179.9**

**YES**

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

**Is anyone on frequency, this is N9JA! We have an emergency!**
N9JA, this is Katrina, KD7RSE. How can I help you?

KD7RSE, Thanks for answering my call. We lost our pet pig, Max! Can you call the State Patrol for us?

Okay, Give me a description of him.

MAX...

He's a white pig with a red circle around his right eye!

Where was the last place you saw him?

We were hiking on Tiger Mountain when Max suddenly took off!

State Patrol! Max the white pig is missing! Can you help us find him? He was last seen near Tiger Mountain.

Okay, Mady, stand by. I'll call the State Patrol. Don't worry, I'll get back to you both as soon as I can. 73, Katrina, KD7RSE.
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...

MAX is Missing
ICOM Breaking 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.

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 N9JA!

This is KD7RSE. I've told the state patrol about Max. They haven't found him yet, but they've sent out an Amber Alert!... Stand by, my cell phone's ringing!

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

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

Okay. Thanks, bye.
N9JA, this is KD7RSE, the police have not found Max yet, but they will keep in touch.

Thanks Katrina, 73, N9JA!

Me: meanwhile, back on the mountain...

Who else can we contact for help?

hmmmm

The International Space Station!

I Know!

We could ask Josh and Sara to do it! Their school is scheduled to make a direct contact with the Space Station today! Quick! Let’s ask them to help. They’ll only have a 10-minute window when they can communicate with the ISS as it passes overhead.

Great idea, but how do we do it?
KD7NJC from KD7QEZ! Josh, are you there? K3000 from KD7QEZ. Sara?!

Almost there...

 KD7QEZ from KDYNJC! Hi Zack? What’s up?

Zack?

Mady and I lost MAX while hiking today on Tiger Mountain! When you and Sara contact the space station today, can you see if they can help locate him?

Josh, this is Sara! We’ll ask the astronauts if they can help! The ISS will be passing overhead soon... As you know, we had to submit our questions to the astronauts in advance, but since this is an emergency it'll be all right. 73, K3000.

73, KD7QEZ.

NA1SS from KD7NJC!

This is K3000 calling the International Space Station, NA1SS for our ARISS Direct Contact.

This is NA1SS International Space Station. We've been looking forward to your call.
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. 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?...
Thanks kids for all of your questions! We’re passing out of your zone now, we couldn’t find Max! Good luck. 73, NA1SS.

73, KD7NJC.

It was our pleasure! We’ll remember this day for a long time! 73, K3000.

All right kids, have your logs filled out by tomorrow so we can file our final report to NASA... Sara and Josh, I expect you to help fill out our on-line report...

Josh, let’s get back to Zack & Mady and tell them what happened.
KD7QEZ, from KD7NJC! Zack, are you there?! It's Sara & Josh!

This is KD7QEZ! Josh, how did you and Sara do?! Any sign of Max yet?!

This is K3000. Zack, we contacted the ISS and they used one of their high powered telescopes, but they couldn't spot Max!

KC7JPA here, whoa, guys, how did you talk to the Space Station?!

Max~!

The IC-910H is a transceiver that, if set up right, I can use to communicate through ham radio satellites, or even to communicate with ham astronauts on the ISS.

For our direct contact today we used all the equipment that the ARISS (Amateur Radio International Space Station) program required.

What's that?

We used the IC-910H!
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 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!

How?

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!

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

Icom's come out with a D-Star radio. It could help us find Max!
Oh! Now I get it! But who has a D-Star radio that we can use?

My Dad! He got one when I bought my radio! C'mon! Let's call him!

Not so good. We lost Max!

What!? Max is LOST?!? He doesn't know it's a dangerous world out there!!! What are we gon....

Dad, Snap out of it! We need you to hook up your ID-1, the D-Star rig, and send out a picture of Max!

Okay, Zack, I get it. I'll pull over and send an E-mail from my laptop, to send his picture out. Hang in there, this should help...

Go! Send it!
Did it work?

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

So let me get this straight... Max is getting his face broadcast all over the world!

Over the radio, Dad has e-mailed pictures of Max to all the Hams he knows and posted Max’s picture on some Web sites!

Meanwhile, in a town called Kirkland, Bill is trying to get baseball tickets.

BASEBALL TICKETS
Tonight’s Game

BLINK

Go! Team!!

WOOF!
Tickets, tickets, tickets... YES! tickets for tonight’s game!

POA ALERT
MAX is Missing
White pig with a circle around the right eye
WHOA! WHAT?

BOW!

I’ll help find Max!
A few minutes later, Bill, an avid pilot in the Seattle area, decides to take to the skies in his effort to help find Max.

He’s not here!
I’ll look over at the Ball Park.

ZOOC!

Not here! WaHoo! We’re winning 6 to 4!

Better check the Market...
Hey! What are all those people laughing about?
it's MAX!!!
I better contact those kids about their pig!

WOOF!
FRUITS  FISH  HA  HA

CQ! CQ! CQ!
KC7SFN to N9JA! Max is FOUND at the Market!

KC7SFN to N9JA
I repeat, I found Max....

THEY FOUND MAX!

This is N9JA, Mady, here with Zack. Please give us the details of where you found our friend.

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

Thank you so much, 73 N9JA!

Great!
I'll call my Dad so he can give us a ride!
I hope he’s not hurt!
I’m sure he’s fine.

Where is he?!
FARME
HA HA HA
Where is he?!

Oh Max! It’s only a fake pig!
Don’t ever run away again!

We have captured our prey! “Hi-Hi!”
What does “Hi-Hi” mean?
When you tell a joke on the radio,
you say “Hi-Hi” because the person on the other end of the radio might take it the wrong way.*

Cool Dad!

Max and I are tired Zack, let’s go home.

Sure.

* 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®!
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
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
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

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

FLORIDA
AES
Orlando, FL • 407-894-3238
Cedar Distributors (Export)
Miami, FL • 305-597-3090
Ell’s Amateur Radio
Mt. Laurel, NJ • 856-226-1348
Mike’s Electronics
Mt. Laurel, NJ • 856-226-1348
Portable Communication (Export)
Hialeah, FL • 305-822-2258
RF Components (Export)
Miami, FL • 305-597-9269

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

IDAHO
Ross Distributing Co.
Boise, ID • 208-342-5625

INDIANA
Ham Station
Evansville, IN • 812-422-0231

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

MICHIGAN
ComDoCo 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 • 406-888-3052

NEVADA
AES L
Las Vegas, NV • 702-647-3114

NEW HAMPSHIRE
Ham Radio Outlet
Salem, NH • 603-598-0555

NEW JERSEY
KJI Electronics
Caldwell, NJ • 973-852-2315

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

OHIO
AES
Cleveland, OH • 216-631-3200

OREGON
AES
Portland, OR • 503-598-0555

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

TENNESSEE
GT Morgan
Chattanooga, TN • 423-629-7911
Memphis Amateur Electronics
Memphis, TN • 901-883-9125

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

UTLHA
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
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Milwaukee, WI • 414-335-0408

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