Eastern Iowa DX Association

An ARRL affiliated club - Established 1975

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October 2017

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Joe Hungate
K8OM

Over the past 3 years the EIDXA membership has stayed rather stagnant at about 73. We've had

- The myth of reflected power
- Jurassic Journal

Member News

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QRM

- Light bulb antenna & FT-8
- How to learn Morse code, semi-consciously

Club Officers:

President:
Joe Hungate K8OM

Vice President:
Jerry Rappel WWØE

Secretary:
David Christ KØLUM

some very interesting guest speakers presenting on a wide range of topics, we've moved the club meeting location to the Hall-Perrine Cancer Center which is more centrally located and has easier access than at Kirkwood, we've had a joint club meeting with the Cedar Valley Amateur Radio Club (CVARC) and the Collins Amateur Radio Club (CARC), we've aired club meeting promos on local radio stations and we continue to invite local scouting groups to our meetings.

I believe EIDXA has a lot to offer to eastern Iowa amateurs interested in DXing and contesting but it appears we're still not adequately getting the word out.

We certainly need and appreciate your ideas on how to recruit new members, but just as importantly, we need your help in implementing those ideas. I extend an invitation to any club member that would like to lead a recruiting effort this coming club year in gathering suggestions/ ideas and developing strategic and tactical plans to improve our recruiting success. In order to successfully grow our ranks, this must be a complete club effort

Treasurer:
Rich Haendel W3ACO

Repeater Committee:
Al Groff KØVM
Joe Finkstein WØMJN

Membership Committee:
Jim Spencer WØSR
Tom Vavra WB8ZRL
Nelson Moyer KUØA

Packet Cluster: WB8ZRL
147.51, 144.91, WB8ZRL.no-ip.org:7300

Repeater: NØDX/R
144.59 / 145.19 (tone 192.8)

www.EIDXA.org

Web Master:
Craig Fastenow KØCF

Newsletter Editor:
Bob Lee WØGXA
rclee2266@gmail.com

Facebook Website

Upcoming Events

West Liberty Hamfest Oct 1

and your help is greatly needed.

Dwindling or stagnant membership numbers isn't unique to just our club. I'm sure we have members that belong to other social organizations that are battling the same recruiting problems and can bring new insight into how those organizations are working the issue.

Please remember, all EIDXA related ideas and suggestions are always welcomed and greatly appreciated!

This is your club and together we can make it grow and prosper well beyond our years.

(info here)

Collins ARC, Oct 17

EIDXA, Oct 20

Musings from the lunatic fringe

Bob WØGXA

Begali Pearl

This guy is getting some use now that we're into the contest season.

The days are getting shorter, the day-time highs are dropping and farmers are busying themselves with harvest related activities. These are harbingers of the coming contest season. I encourage us all to get out there and take care of any last minute antenna tasks. I know antenna performance is inversely proportional to the temperature in which you do the work but...

Frostbite is a terrible thing

It's hard to send code, key the mic, type and drink beer. Your scores will surely suffer and most importantly, you stand to miss 3YØZ!

Speaking of 3YØZ, now is the time to finish up plans for Bouvet-specific antennas. I plan to erect 30m and 17m antennas pointed in

that general direction (~135 degrees).

Since all eyes are on Bouvet, this edition's DX News is an article written by one the team who first summited the island's volcano in 2012.

Like the prior editions of the newsletter, all of you have been great about sending me content. I enjoy putting together the member spotlight articles the most. It's interesting to see the diverse backgrounds we all have, yet we managed to find our way into this hobby.

For the next edition:
Send me your FT-8 stories. I'll compile them into an article describing members' thoughts on this new form of sorcery.

We have 85 page newsletter! Be sure to drink plenty of fluids and take a break every two hours.

Remember, the newsletter is only as good as you make it.
Thank you

It's harvest season - Be mindful of what you might meet on the road!

Club News and Administrative Items

Minutes of the EIDXA meeting on July 5, 2017

President Joe Hungate K8OM called the meeting of the Eastern Iowa DX Association at 7:30 PM.

Thirty-one attendees introduced themselves to start the meeting

It was moved and seconded to approve the previous meeting's minutes. Motion passed.

Rich W3ACO reported on the status of the club's treasury. He explained what funds remain available for the coming fiscal year.

Matt, KØKB, was not present so his application for membership was not acted upon.

DXpedition funding was discussed.

9U4M Burundi has requested funding and is scheduled for November 6-17, 2017.

Baker Island (KH1) is too early in planning.

3YØZ Bouvet has a budget of $740,500. Currently they are $200,471 short. It should be noted that the team members are each committing significant personal funds.

It was moved and seconded that we donate Burundi $100 and Bouvet $1000, with two-thirds coming from the Tom Hise Fund. Motion passed

No cluster report. *We're glad, Tom, that your surgery was successful - Ed.*

Webmaster KØCF had nothing new to report.

WØGXA was congratulated on the latest issue of the newsletter. Seventy pages no less. He commented that the quality of the newsletter depends on member's contributions.

An extensive report was given by NRØX on the repeater which is now up and running.

Due to Jason's helpfulness to a local ISP (sharing tower space), EIDXA has been offered a full time connection to the Internet at no cost. This creates the possibility of making the repeater an EchoLink node.

It was moved and seconded that NRØX, with the assistance of WB8ZRL, be authorized to make the repeater an EchoLink node and that they be reimbursed for any expense. Motion passed.

There was no old business.

Terry WØAWL noted that Arlo Meyer WØLBK will be 91 in two days and that he has bee been licenses for 67 years. In honor of that Terry

moved that Arlo be elected an honorary life member of EIDXA and be exempted from payment of any further dues.

It was also noted that George WØPPF is now in his 68th year as an amateur operator.

NRØX offered to host the annual EIDXA picnic at his site near Martelle, IA. It was moved and seconded that the date be September 9 with September 30 as a rain date.

Any members planning on flying in should coordinate with NRØX.

A quick survey of the club members present indicated that the meeting location at the Hall-Perrine Cancer Center is our preferred meeting location moving forward.

Meeting was adjourned at 8:00 PM

The door prize of a year's subscription to NCJ was won by Ron Andreatta NØIQN. This was Ron's first visit to EIDXA. He left with an application and we hope to see him back with it completed.

Outstanding programs were presented by Vicky AE9YL on operating as DX from a YL's perspective and Carl K9LA on propagation status and forecast.

David KØLUM, Secretary

Next Meeting

October 20, 2017
Hall-Perrine Cancer Center at Mercy Medical Center in Cedar Rapids
Social Hour 6:30 PM
Meeting & Program 7:30 PM

Program: **Glenn WØGJ - Planning a Mega-DXpedition**

Directions here

Club Elections

We'll be voting on new officers at the October meeting.

We're accepting additional nominations. So far we have:
President: Joe - K8OM
Vice President: Rick - WØFG
Secretary: David - WØLUM
Treasurer: Mike - NA9Q

Vote early and vote often!

Speaking of elections...

Rod, KØDAS is running for re-election against Cecil Miller, WBØRIW from Wichita.

By now you should have your ballots. Be sure to turn them in!

Card Checkers

We have three club members who can check your QSL cards

- Tom, WB8ZRL
- Glenn, WØGJ
- Mike, NA9Q

Contact info can be found here: http://www.arrl.org/dxcc-card-checker-search

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Member Spotlight

Nelson Moyer KUØA

Circa 1998

Chasing a new one over the lunch hour

We all dress like this when we're chasing an ATNO, right?? - Ed.

I was born in Jacksonville, FL in 1943. We moved around a lot because my dad was in the Army until the war was over, then he became a Methodist minister. I went to seven different schools in Florida and Alaska before I graduated from high school in Jacksonville, FL. I earned a BS in Microbiology from Florida State University in 1965, spent four years in the Air Force as a Titan II Missile Combat Crew Commander, and then earned a Ph.D. in Microbiology from Louisiana State University in 1974. I worked in the laboratories of the Florida Department of Health and the Oklahoma Department of Health before moving to Iowa to accept the position of Principle Microbiologist at the State Hygienic Laboratory in 1982. Following retirement from the University of Iowa in 2002, I worked as a consultant for The Cadmus Group, Inc. of Watertown, MA, primarily on contracts for the EPA Office of Drinking Water in Washington, DC. I retired completely in 2008.

My first exposure to radio came in 1949 at the age of six when my father became interested in amateur radio and built several crystal sets of different designs. I spent many hours listening to exotic sounds on extremely uncomfortable hard plastic ear phones. We attended a meeting of the local radio club, and I remember seeing a bug for the first time. It was light years ahead of the Western Union telegraph set I had gotten for Christmas the year before. We started to learn Morse code together, but we moved, and that ended our early foray into amateur radio. The next exposure to short wave radio occurred when we lived in Alaska in the 1950s. Dad bought a Hallicrafter receiver and put up a long wire antenna so we could hear the news and sports in our remote location on the Kenai Peninsula. I discovered the short wave bands and turned them listening to stations all over the Pacific. The most distant country during my brief SWL experience was Australia. Dad sold the radio when we moved back to the States in 1959 (Alaska was a territory until then), so that ended my SWL activities.

I didn’t do anything with radio again until 1980. I am a classical music enthusiast, and I was playing Beethoven’s Seventh Symphony for my six year old son, when my phono cartridge began rectifying Morse

code from a ham who lived about two blocks away. I ask my son if he knew that that was, and he didn't, so I explained the source of the interference. I asked him if he wanted to learn Morse code with me, and he agreed, so I bought a Novice license manual and a practice oscillator kit at the local Heathkit store in Oklahoma City, and we started learning code together. He gave up at 15 letters, but I continued on until I could copy and send 5 wpm. After studying the manual, I took the code and written tests from a ham at the Heathkit store, and shortly afterwards, I received my first call, KA5KCX on November 30, 1980. I didn't have any equipment, so I started hanging around the local ham radio store Saturday mornings looking at transceivers and asking questions. I finally settled on the FT-707 with an external power supply and antenna tuner. I bought a Nye-Viking hand key, a Ham Keyer, and a Telex headset. My first antenna was a 15 meter dipole strung across the attic of my house.

I'll never forget my first novice QSO on April 13, 1981. I answered a CQ call from KA4TLB, but I didn't copy much of his transmission other than he was in FL. I didn't even copy enough of his call to send a QSL. Fortunately, he sent me his card, so I was able to reciprocate and tell him that he was my first contact and thank him for his patience. My first DX QSO happened quite accidentally on May 15, 1981 when I answered a CQ from KG4FG. I had no idea how semi-rare Guantanamo Bay was, but fortunately we exchanged QSLs to confirm the contact. I continued to work exclusively on 15 meter CW until I put up a 40 meter inverted V using a radio shack mast on a chimney strap. My first 40 meter CW QSO was on August 1, 1981. I continued working towards WAS on 15 and 40 meters until I upgraded from Novice to Advanced in December 1981. By then, I had confirmed nine countries. My first phone QSO was with KB2YK in New Jersey. It took a while to get used to the mic, but before long I was checking into the 40 meter Century Club to finish out 40 meter WAS. I stumbled across the Certificate Hunter's Net and worked my first DX on phone. I got a HyGain 18AVT for Christmas, and that opened up 80 through 10 meters. By the time I moved to Iowa in April 1982, I had confirmed 24 countries, and I was a committed DX'er in the making. I took the Extra exams at the FCC Kansas City Field Office during the move to Iowa, and received the call KUØA in July 1982.

I joined the Iowa City Amateur Radio Club and met WDØAWL (now WØAWL) and KØCF, among others. I was in awe of their country totals, wondering if I could ever work all that DX. I attended the ARRL National Convention in Cedar Rapids, where I bought my Alpha 78. That completed my station until I discovered split operation during the 1983 Heard Island DX'pedition. I couldn't work them because I couldn't work split on the FT-707, so I bought a FV-770DM and started to work DX in earnest. I joined the EIDXA in October 1983 and finished DXCC Phone in May 1984.

I traveled a lot around Iowa during the first few years of my job as Principal Microbiologist at the State Hygienic Laboratory, and I operated mobile while on the road. I discovered the County Hunter's Net and started chasing counties in 1983. Contacts on the County Hunter's Net, the OMISS Net, and the YL System helped finish 5BWAS in 1984.

I became increasingly dissatisfied with the 18AVT, and purchased both the Butternut HF6V and HF2V at the bottom of Cycle 21. The verticals didn't help all that much, so I bought a Butternut HF5B in 1987 and mounted it on a roof tripod. That was without doubt my worst antenna ever! I don't remember hearing anything on it that I couldn't hear on the verticals, and the only advantage it had was being QRV on 17 and 12 meters for the first time. By now my DXCC certificate was endorsed for 152, and I bought an ICOM IC-2SAT to monitor the repeater in 1989. I added a PK232MBX to monitor the packet cluster in 1991. By the end of 1992, my DXCC total was 276 and I had earned the basic 5BWAZ with 155 zones confirmed. At this point, I was nearing the effective limits of my verticals, so I sold the HF5B and bought a Cushcraft A-3 for the roof tripod. I was amazed at the improvement on receive. By the time I got the A-3 on the roof tripod, I had 305 confirmed for DXCC, and I had worked 5BDXCC with only the verticals.

The single biggest improvement to my station was the erection of a 48 ft. tower and purchase of a HyGain TH-11. The improvement did not come without pain, as I had to obtain a building permit from the City of

Iowa City and approval for the installation from FAA, being near the Iowa City Municipal Airport. Construction was completed on August 23, 1996, thanks to several ICARC and EIDXA members who wheeled concrete, and WB8ZRL, who put the TH-11 on the tower with the help of a rented crane. My first QSO on the new antenna was with the Midway DX'pedition on August 24, 1996. Just as the A-3 was a quantum leap over the verticals, so the TH-11 was over the A-3. I started chasing prefixes in 1987, and it took ten years to get the WPX Award of Excellence. By September 1988, I made the Mixed Honor Roll, and Phone Honor Roll came in 1999. The FT-707 VFO failed about this time, and I bought the FT-100D in February 2000 to use until I could get a real DX radio. This gave me 6 meter capability for the first time, so I added a Cushcraft A50-5S to the tower, side mounted at 40 ft. and pointed Southeast to the Caribbean. I was able to confirm 29 entities in the ten years I left it up, despite the fact that most of that time was at the bottom of the solar cycle.

WØIZ was extolling the virtues of RTTY about this time, so I decided to give it a try. My first RTTY QSO was with FOØAAA on Clipperton on March 6, 2000. I was hooked, and I worked 27 new entities in 4 hours in the March 18-19, 2000 RTTY contest. I bought the Hal DXP38, and started the quest for RTTY DXCC. My biggest thrill on digital modes was working P5 on 15 meter RTTY. I've worked some PSK to get countries that were rare on RTTY, but most of the QSO totals for the digital modes are on RTTY. Currently, I have 329 entities confirmed on RTTY.

After RTTY, the next challenge was to operate 160 meters. I put up an inverted L for transmit and built a mag loop and a Waller flag for receive. I build the W7IUV preamp for the receive antennas, and a protection circuit to prevent accidental transmission into my receive antennas, which is known to be fatal to preamplifiers. My first 160 meter DX QSO was on October 24, 2003, and I made 160 meter DXCC in January 2009. Working 160 from a town lot with a back yard measuring 50 x 60 x 70 ft. is not easy, but I currently have 137 entities confirmed on 160 meters.

The past ten years brought a 160 meter endorsement to my WPX

Award of Excellence, 12, 17, 30, and 160 meter endorsements to 5BDXCC, CW Honor Roll, 6 meter VUCC endorsed for 200 grid squares, 5BWAZ endorsed for 194 zones, DXCC endorsed for 348 entities (including deleted entities), DXCC Challenge endorsed for 2602 bands, and #1 Honor Roll Mixed and Phone. I still need to work and confirm ZS8 and P5 to finish #1 Honor Roll on CW.

Finally, in 2008, I bought the Elecraft K3 with dual receivers. That was the second best ham purchase I've made. That radio has helped me work stations on both the high and low bands that I couldn't have heard with my other radios. The irony is that I had already finished #1 Honor Roll before I bought the K3. I'm looking forward to working those elusive low band Challenge entities over my remaining years, and I'm confident the K3 will provide a big assist. I'm still looking to finish those last 6 zones. I need one on 40 meters (zone 26) and five on 80 meters (zones 17, 18, 22, 23, and 26) to complete 5BWAZ.

After I retired in 2008, I reactivated a latent interest in model railroading, and that activity has dominated most of my hobby time since then. I read the Daily DX and watch for DX'peditions to entities I need, but that's been the extent of my ham radio activity since 2008. In fact, I haven't made a single QSO yet in 2017. The upcoming operations from Christmas Island (VK9X) and Bouvet offer the opportunity to make the bottom rung of the RTTY Honor Roll, so I'll certainly be in the pile-ups.

Nobody achieves DX success alone, and I couldn't have gotten where I am without the assistance of many EIDXA members. KØVZR was the first to welcome me into the club. KØGVB encouraged me to stay up late to work 80 meter DXCC and planted the seed that eventually got me on 160 meters. WØEJ was always encouraging me and reveled in my early accomplishments. WØIZ was my RTTY guru. NRØX is remembered as a fierce competitor, and it soon became apparent that I couldn't compete with his antenna farm. All of these are now silent keys, but the debt of gratitude I owe them is incalculable. There are many among the living that I also owe my thanks. WØAWL and KØCF were there to answer many questions early in the game. WB8ZRL was my resident expert on the repeater and packet cluster.

He put the bolts in the legs of my tower as the crane tilted it up and installed the TH-11 at the top, and he was at the base of the Waller flag when it slipped into the pipe set in concrete. The list of calls that helped out at my antenna parties is too long to remember, but for all those who hauled concrete or helped in any way, you have my eternal thanks. Perhaps most important are the friendships established along the way. WB8ZRL, WØAWL, KØCF, WØSR, WØCK, KØDX, KØJGH, NØSM, KØGT, and many more have shared the journey. It's been a lot of fun.

My original ham station in Oklahoma City was nothing more than a card table with an FT-707 with power supply, antenna tuner, microphone, and straight key. I didn't take any pictures. My second station was on an office desk in Iowa City. Circa 1986

The TH-11 was erected in 1996, and it has performed very well.

I built a ham bench using an oak solid core door and oak lumber. The transceiver is the FT-100D. Circa 2003

The rotatable Waller flag, together with a rotatable magnetic loop mounted on a 4 ft. mast have been respectable receiver antennas on

both 80 and 160 meters. The tall posts on the back fence support the inverted-L transmit antenna. It starts at the base of the tower, runs up to about 40 ft. then out to the corner post, and back to the post in the middle of the fence. Don't talk to me about interaction with the receive antennas. DX'ing is the art of the possible.

This is the ham station as it is today. I had to sacrifice my former space to the railroad. The current station is on a cut down version of the original ham bench that I fit into the bedroom closet of the room that now houses a large part of my model railroad. The ham bench also serves as my modeling workbench. You will never again see it this clean.

I didn't get any pictures of the antenna parties when the TH-11 was installed. We were all too busy with the concrete and later the crane, to take pictures. Craig (KØCF) and I tried unsuccessfully to erect the flag, but it soon became obvious that more help was needed. I rescheduled the event, but Craig was unable to participate the second time. My wife snapped a few pictures of the antenna party that successfully erected the Waller flag. This photo is a salute to all the volunteers that helped at both antenna parties.

Pictured are WB8ZRL, WØAWL, KØGT, and KUØA from the EIDXA, and KCØVKN and KIØJP from the ICARC.

DX News

Definition...

anticipation /anˌtisəˈpāSH(ə)n/

noun

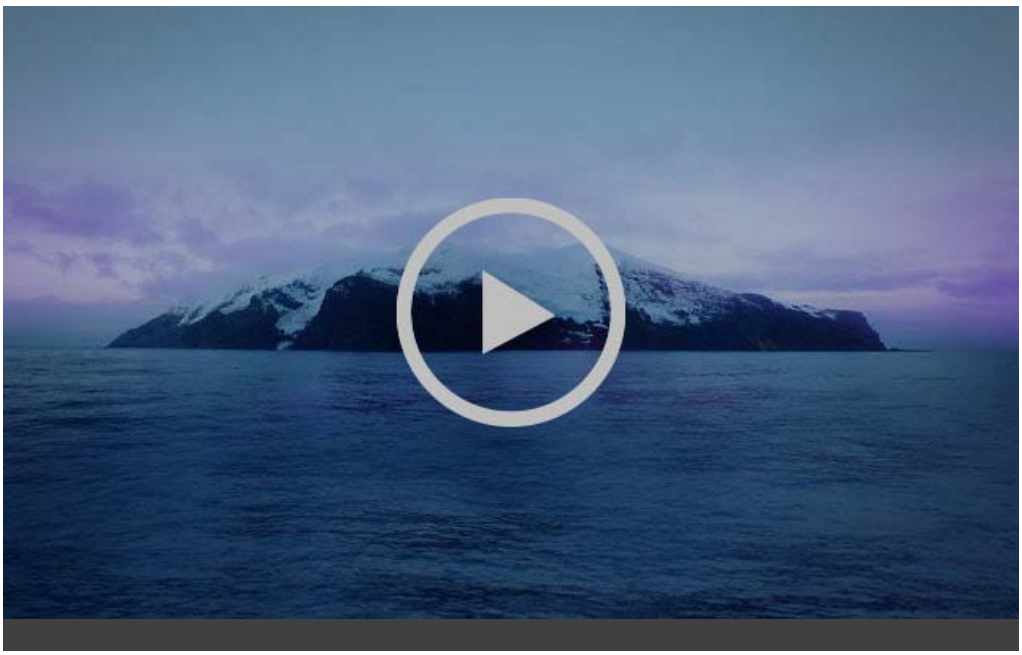
1) The action of anticipating something; expectation or prediction

2) A song by Carly Simon
3) Waiting around for the Bouvet activation to begin

Making History – the first summiteers of the most remote land on Earth.

Jason Rodi

Nine people from the Hanse Explorer reached the summit of Bouvet Island on the 20th and 21st of February 2012. This is my personal account of this historic event. I left a time capsule at the summit containing visions of the future for 2062.



The sun has gone down on the Hanse Explorer. We made history today. It's weird to say it like that, it's even stranger when I stop to picture the implications. For some time I may have been the youngest to climb up the seven summits, the highest mountain on every continent. I may still be the youngest to have skied to the North and South Pole, but who knows. These things mean very little. When you've done such things you always have one record or another; the shortest man ever to climb X mountain, the only deaf European woman, or who knows what else. However, to have reached Bouvet Island, the most remote land on Earth, a place where less people had walked than the moon, and to climb to it's summit, that is truly history. While no one can ever take it away from us, as there can only be one first, as I headed down the mountain I had a hint of regret. This was one of the last untouched places on the planet. I wonder how many will be driven to visit Bouvet now, and climb the extinct volcano as we have?

Bouvetoya is Norwegian territory. It is a World Heritage Site, and it's been a personal project of my father's to visit every one of these sites. When he mentioned Bouvet to me the first time, the first thing that came to my mind was whether anyone should reach this island at all. It struck my imagination since this venture had something particularly human about it; if we can go somewhere, than we will. It was the fact that the ship would be leaving from Cape Horn that reminded me of an old dream of mine: sail from cape to cape, Cape Horn to Cape of Good Hope. These are both known as the toughest seas on the planet and I'd first heard about these as a teenager sailing the Pacific Rim on the SV Concordia, a beautiful Barkentine school ship that sank on the coast of Brazil three years ago. I decided to charter the Hanse Explorer and bring meaning to my father's journey by creating a time capsule, inviting people to send us their vision of the year 2062. To sail from the end of the world to the beginning of civilization in the hope of reaching the last place on Earth, it seemed fitting to invite anyone to join us, in their own way.

This was only three months ago, an extremely short amount of time to put together such an expedition, but ever since we put the project in gear, got a film crew together, and a web site up, I started receiving

not only visions of the future, but also plenty of people letting me know how Bouvet Island is a mystical place for them, one that they either dream of visiting, or simply dream of. As lonely a place as this may be, there is a whole community of people with their hearts and minds there. This made my journey mean more than I'd hoped. I definitely wasn't alone in this.

We are 25 on the ship, 11 of which are passengers, the rest being crew. It is a German ship, but a lot of the crew is from South Africa, and most have been traveling with the ship for close to 6 months now so they are very happy that our final destination is their hometown of Capetown. Everyone on board feels quite privileged for being a part of the journey, realizing that very few people have ever sailed these seas.

The landing on Bouvet was rather difficult, but not as difficult as we expected. Two days before our arrival, the weather forecast cleared up, putting the island, usually surrounded by a heavy mist making even clear photography a rarity, between two fronts. We arrived in the early morning, with the rising sun, to discover a beautifully open sight at the island. We may have had the best two days of weather in years. It was plain odd. Everyone seemed to agree that the stars had lined up for us. Nervous, we set off with two zodiacs to find the right place to land. Aaron Halstead, our mountain guide, a very experienced Antarctic expeditioneer from New Zealand, had been studying the only map of the island available, as well as Google Earth, to not only find the best way to the summit, but most importantly, a good place to bring our zodiacs in and get us on shore.

Circumnavigating the island we quickly found a beach previously thought to be an ice wall. We attached both zodiacs with a rope and let one of them get pulled in by the waves, while the other would quickly pull it back out to sea, a technique we discussed for the three weeks in took us to get there. It was great to see it not only working, but also being necessary to our safety. Ten of us reached the shore that first morning, quickly emptying the zodiac of all of our climbing gear without getting it wet. While we had water up to our knees and some of us up to our waist, we all managed to remain without injury or

unbearable cold. We had planned for this after-all, and had spare clothing and climbing gear ready.

The volcanic sand was utterly black, a very special sight. This fifty foot beach was just gorgeous, but it was filled with huge fur seals. We knew from experience at South Georgia that they can be rather aggressive so we approached the ice wall behind them with extreme caution, eyes all around the group, ready to snarl back at a seal daring enough to come charging, because they do. It's not dangerous if you don't run, you just have to stand your ground and appear superior. Get bitten though and you may just leave your life here, especially considering that we are over a week away from any other ship or island. That's the real danger of this situation: we are in the most remote place on the planet, and we don't want to be reminded of what that can entail.

Aaron had decided to first attempt the summit with the four most experienced climbers, meaning Will Allen, our cinematographer, my father, and myself. We geared up and headed up the ice wall that would bring us over the glacier. Within twenty minutes we were above the beach, ready for the long day ahead of us.

Bouvetøya is only 774 meters high, but it is not well mapped, so one of the challenges is the element of the unknown. It's hard to conserve your energy when you don't know what's ahead. Furthermore, and most difficult in my case, the time capsule was actually very heavy once we had printed out all of the visions we'd received. Made of stainless steel, it weighed 18 pounds, empty. I hadn't realized what that would represent once we'd be climbing, but all I could think after the first hour was how heavy a burden the future was.

It didn't take long for the visibility to considerably drop as well, to the point where we could barely see 10 meters ahead of us. 50km winds came in, and snow, and there we were following the GPS up the volcano, walking into the unknown otherwise. I was living my metaphor of the future more than I'd ever wished. It was a seven kilometer walk up a steady hill, and we weren't halfway there that my legs started giving in under the weight of my pack. It was extremely

hard, and perhaps having not moved much over the past few days on board the ship might have made it even harder. I've always thought that what makes any mountain worth it, is when you get to a point when you don't know whether you can go any further, yet you manage to keep going. In that sense, Bouvet was definitely worth it. With about 150 meters of elevation to go, I exchanged packs with my father, leaving him the heavy weight for the rest of the way. I don't know how I could have brought the capsule to the summit without him, which says a lot about the place my father still holds for me. In those dire moments, he remains there for me.

My mind was not on my father as much as my own daughter actually, and even more on the one that's yet to be born. In May I have a second daughter due, and I thought of her more than anything else during my climb up. She'll be fifty years old in 2062, and if someone returns to the island to retrieve the capsule, it may very likely be her. That's what crossed my mind as I planted the capsule into the ice.

It was while walking down that I imagined having possibly created a climbing destination that day. The chances of the weather being so kind again may be low, and that beach may even disappear under water within a few months, but I remembered what first occurred to me when my father mentioned Bouvet, that if man can go somewhere, he will, and we had just proven that it is indeed possible, and there was something sad to me about that. Back on board the ship however, as I looked back at the island, it looked just mysterious to me then as it had when we first arrived, even more so perhaps. I may have visited, but only to discover how little I would ever know it. It is approximately 50 square kilometers so we hadn't seen any of it really, and the tall cliffs that surrounded all of it didn't make it seem much more welcoming than it did before.

The following day, while a slept and incredible eighteen hours, a remaining five passengers reached Bouvet's summit with Aaron, being the only man to ever climb the mountain twice. These five other individuals are Sarto Blouin, Seth Sherman, Chakib Bouayed, Cindy Sampson, and Akos Hivekoviks. About half of the ship's crew also touched Bouvet's shore, the other half unable to reach it since the

zodiac almost capsized attempting it. The visibility that second day was near perfect.

We are now sailing westward toward the Prince Edward Islands, hoping to have permission to visit an island whose wildlife is virtually untouched. That will mean checking all of our clothing for any possible seeds or dirt from any other destination that could contaminate this Eden. Once again, as much as I hope to see this incredible place, I know it isn't mine to see. None of this planet is mine to see. I am a passenger here, a blessed one at that for reaching such foreign shores. We look to the stars for alien life, but lately I see myself as the alien.

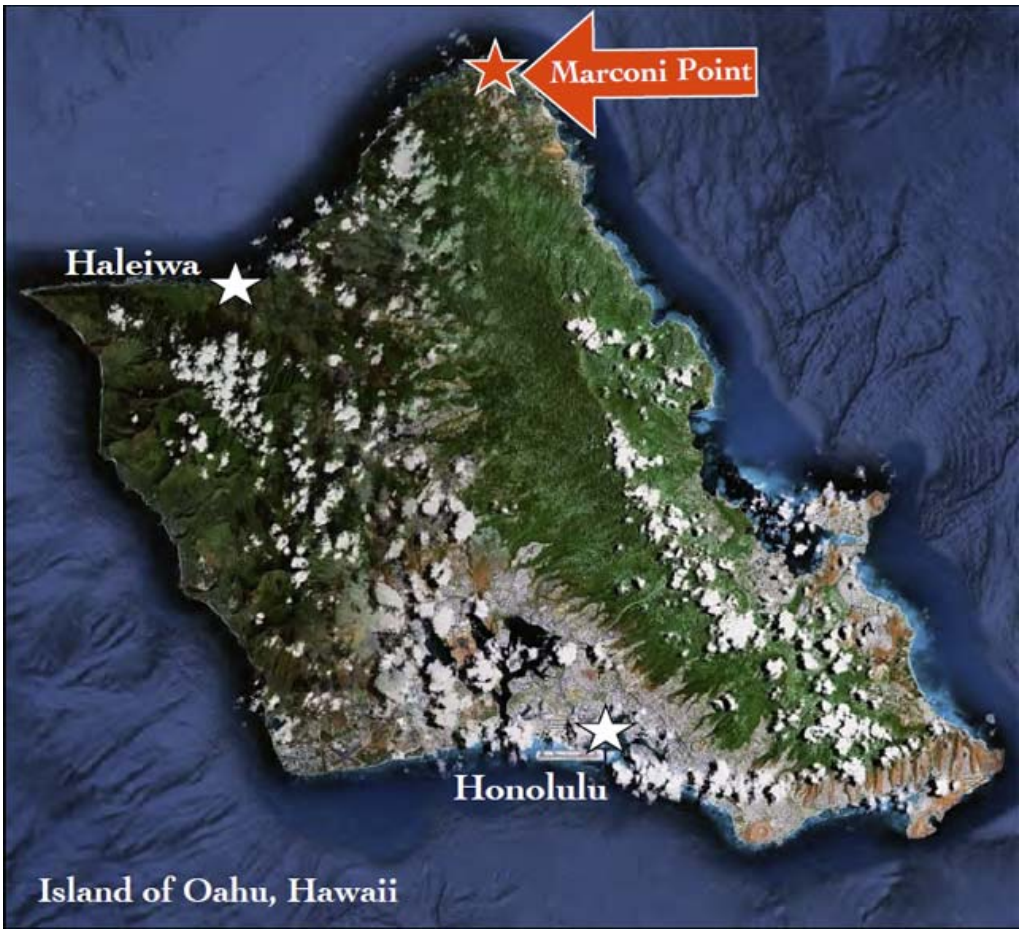
For those of us on a budget, a place to consider going for a DXpedition is Tristan da Cunha (ZD9) - The most remote "inhabited" place on earth.

And finally.....

From the lunatic fringe... I'm just going to leave this here (click here)

Feature Articles

Marconi Site History



Excerpts from a real estate ad for this property in Hawaii, Dec 2016, www.secondshelters.com - Ed.

Today, when locals hear “Kahuku” they often think of Kahuku sweet corn or shrimp from this agriculture-heavy area. But for over a century, one stretch of Kahuku was smack in the middle of history. Now, over 28 acres of beachfront land and historic … proper historic … buildings are up for sale for $18 million by Julia Napua Fetzer of Hawaii Life Real Estate. It is by far the most fascinating piece of property on the market in Hawaii.

After researching the history of the place, friends and I dropped the top

on the car and headed up north to see it in person. What a treat to share with you …

It all began in 1899, when a group of investors at the behest of the Hawaiian King (Texas ain't the only state that was a country!) brought Marconi wireless telegraph stations to Hawaii and formed the Inter-Island Telegraph Company. At the time it was UK-based Marconi's first major order. They'd read of the Marconi demonstration sending wireless Morse code signals across the English Channel. The purpose was to provide real-time communications between the Hawaiian Islands.

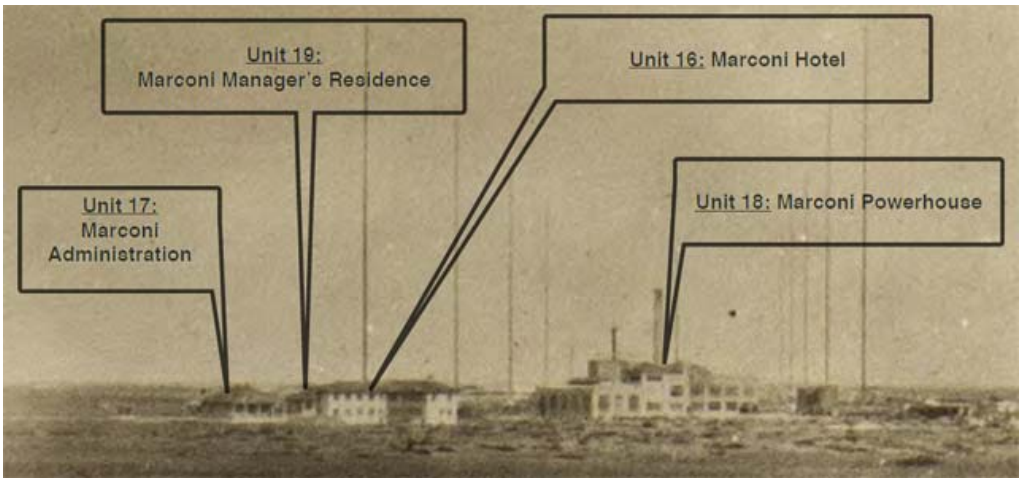
28-acre Kahuku Station properties

Surrounding plots for agriculture use.

In June 1900, the first message sent about four miles between Iolani Palace and the closer Kaimuki Station. It was brief, *"Hello! Is anybody out there?"* It was the first wireless transmission west of the Rocky

Mountains. In the end, five of the islands were connected for the first time. Inter-Island Telegraph's name changed many times, but was the progenitor of today's Hawaiian Telecom Company (owned by Verizon). The Kahuku station was constructed during this time.

Ten years later in 1912, the Marconi Corporation proposed "A Wireless Girdle around the Earth" for long-range wireless telegraph signals (still Morse code). By 1913, Marconi's long-range stations were built at Koko Head and Kahuku (receiver and sender) on the island of Oahu to connect stations on the U.S. mainland with Asia.



Undated Photograph of Marconi Buildings

On September 24, 1914, 198 guests attended the opening of the new long-range Kahuku station having taken the train from Honolulu. A small silver key, inserted by Governor Lucius Pinkham opened the new station. The first message was sent from the governor to the President of the United States, Woodrow Wilson.

"With time and distance annihilated and space subdued through wireless triumphs and impulse, the Territory of Hawaii conveys its greetings, profound respect and sympathy to Woodrow Wilson, president of the United States, as he so earnestly seeks the blessings of peace and good will for all men and all nations."

* The "sympathy" was in regard to Mrs. Wilson's death the month prior.

By 1916, Kahuku was transmitting to Funabashi Station in Japan, a distance of 4,200 miles, the longest distance ever undertaken by a commercial telegraph enterprise at that time. Eventually WWI, began

in 1914, ultimately brought an end to Marconi's "Wireless Girdle" dreams. When the U.S. entered World War I, the Navy took over operations at Kahuku and Koko Head.

B-24 Escorting 2 Culver PQ-14s, with Kahuku runways below

After the war, wireless technology changed from Morse code to begin carrying voice traffic. The patents for the technologies were split between five companies. The U.S. Navy forced the merger between General Electric and American Marconi Company that formed Radio Corporation of America … what we remember as RCA. The Navy further orchestrated patent sharing between the remaining patent holders, AT&T, Westinghouse, and (oddly) the United Fruit Company. The Kahuku and Koko Head stations were then Americanized and operated by RCA.

In 1941, news of the Dec. 7 attack on Pearl Harbor, which brought the U.S. into World War II, was transmitted to the mainland via the Kahuku station. Two days later, the Navy once again took control of Kahuku. One day after that, the Navy began construction of a runway that kicked off the Kahuku Airfield Military Reservation. A second runway was built in 1942. During the war, the airfield was used for refueling B-17, B-24 and after expansion, B-29 bombers.

On April 1, 1946, a tsunami flooded the base and the military ceased operations soon after, returning the leased land to the James Campbell Estate. Following WWII, RCA once again operated on the site until 1978 when satellite communications made them obsolete.

After the military left, in the 1950s and 1960s, parts of the runways were used for drag racing. Cleaved out of the original 89-acre installation, the construction of the neighboring Turtle Bay Resort in 1972 by Del Webb destroyed the northern sections of runway. The hotel was originally called the Kuilima Resort Hotel before changing to Turtle Bay in 1983 when Hilton took over management. The Turtle Bay golf course borders the Marconi property being sold. The southern end of the original parcel lost its runways too and now contain the James Campbell National Wildlife Refuge and a shrimp farming operation.

The remaining 28-acre Marconi property and historic buildings were placed on the Hawaii Register of Historic Places (2012) and National Register of Historic Places (2013) and will soon qualify for tax credits. And that’s what is now for sale along with neighboring agriculture lots.

The ruins of the Marconi power generating station (foreground) and derelict hotel in the background at Kahuku. Timothy Williamson

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While we're talking about Marconi...

This link (here) is the second part of a speech made by Guglielmo Marconi on the occasion of the unveiling of the 'Fisk Memorial' at Wahroonga, Sydney, New South Wales, Australia on 14 December 1935 (the disc is incorrectly labelled).

The 'Fisk Memorial' (more info here) commemorates the first direct wireless message sent from the U.K. to Australia, in 1918.

In the speech, Marconi forecasts the impact that wireless communication will have on ship navigation, but also the world economy generally. Would he be surprised by how accurate he was in his prediction that 'no country can make much headway' without such technology?

CAUTION: You're only half-way through the newsletter and this next article is rather lengthy.

It's full of numbers and math. Maybe now would be a good time for a nap before proceeding.

The myth of reflected power

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A common topic among HAM radio operators is about power lost due to high VSWR when feeding an untuned antenna. A very frequent explanation about why this should (or should not) be a concern, is more or less like this:

The power generated by the transmitter enters the coaxial cable and runs towards the antenna. When it reaches the load (the antenna) it encounter a mismatch; due to this mismatch, some power is transferred to the antenna, while the rest is reflected back and therefore lost. A tuner can be added between the transceiver and the line, but it will just “fool” the transceiver to believe the load is 50Ω: nevertheless the mismatch is still there with all of its consequent losses.

The amount of reflected (thus supposedly lost) power is directly related to VSWR and usually quantified in tables like this:

VSWR (:1)	Return Loss (dB)	Reflection Coefficient	Mismatch Loss (dB)	Match Efficiency (%)
1.011	45	0.006	0.000	100.00
1.020	40	0.010	0.000	99.99
1.036	35	0.018	0.001	99.97
1.065	30	0.032	0.004	99.90
1.074	29	0.035	0.005	99.87
...				
2.61	7	0.447	0.967	80.05
3.01	6	0.501	1.256	74.88
3.57	5	0.562	1.651	68.38
4.42	4	0.631	2.205	60.19
5.85	3	0.708	3.021	49.88

Match Efficiency - e.g. 100 Watts Forward Power at 1.33:1 VSWR Yields 98 Watts Output (ie. 2 Watts Reflected).

The Mismatch Loss in dB is calculated with the formula below:

$$ML_{\mathrm{dB}} = -10 \log_{10} \left(1 - \left(\frac{VSWR - 1}{VSWR + 1}\right)^2\right)$$

For example, with VSWR=5.85, according to this approach, more than 50% of the power should be lost (-3.021 dB).

Where does the energy go?

Many sources do not even bother to consider where the “lost power” is supposed to go: simply, it disappears. However we all learned in our high school Physics class that energy can not disappear into nothing.

Some more advanced sources, instead, explain that the reflected power runs back into the transmission line until it bangs against the transmitter, whose internal resistance dissipates it. And if it bangs to hard, it can destroy the transmitter, like a train crashing into a wall.

According to this theory, the complete process should be:

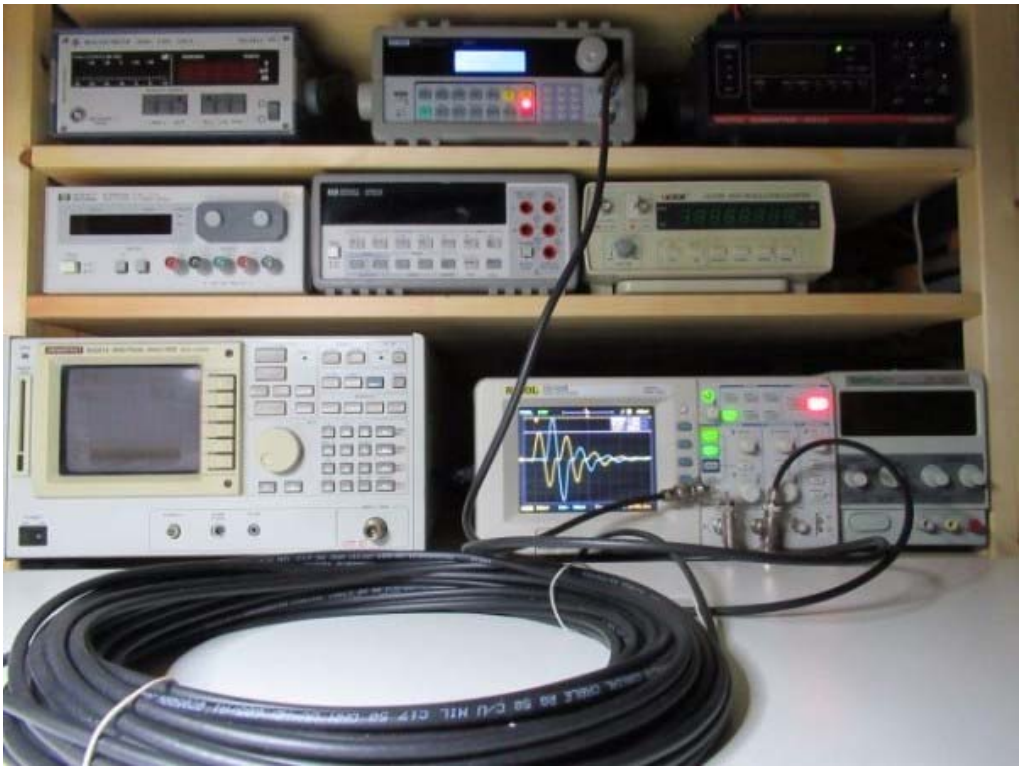
- energy leaves the transmitter and enters the coaxial cable;
- while running in the transmission line, some energy is dissipated as heat (all HAMs are aware of the dBs lost for every 100m/100ft at a given frequency of their favorite coaxial cables);
- the surviving energy hits the mismatch point, where the high-VSWR antenna is connected to the coax;
- given a VSWR value, a fixed percentage of energy goes to the antenna, while the remaining is “sent back” on the same coax;
- the returning energy runs back on the cable and gets dissipated again by the same cable attenuation that it met on its forward run;
- finally, the remaining reflected energy hits the transmitter and it is completely dissipated by the generator internal resistance;

Let us make an example. We have a cable that has 1dB of attenuation at the frequency in use and we have an antenna presenting VSWR=5.85, thus a Mismatch Loss of 3.021dB: we should expect to have 3.021dB+1dB=4.021dB attenuation, i.e. only 40W out of 100 that go on the air.

But… is that true?

Experiments setup

In order to verify the theory above, I connected my function generator to channel #1 of my oscilloscope; after that, I connected 24.9m of RG-58, then channel #2 of the scope and finally the load resistor representing the antenna. This setup will allow us to see the **voltage entering the line** and the **voltage entering the load** after having traversed the entire cable.

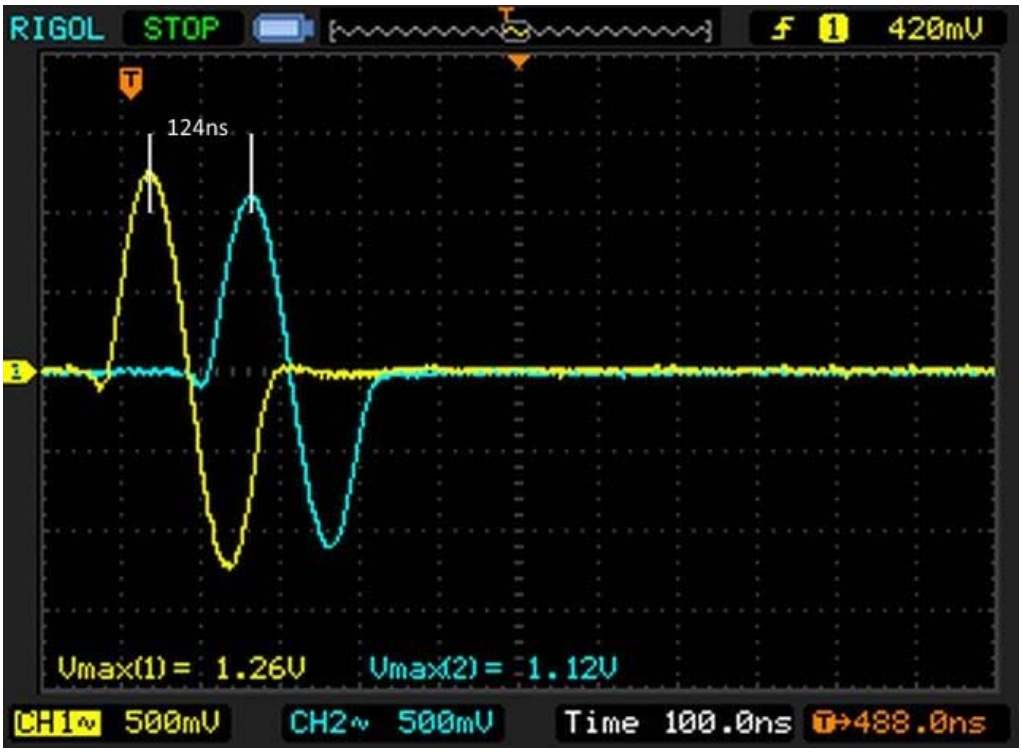


Knowing the voltage V and the complex impedance Z, we can calculate the resulting power with $P=V^2/Z$. Thus, with this setup and the help of a VNA, we can measure the **power entering the coax** and the **power received by the load** without impedance restrictions. The difference will reveal us the **real power loss**.

Before starting the experiments, I carefully measured this test cable with my network analyzer. It resulted having a velocity factor of 0.6636 and, at 5MHz, an attenuation of 0.823dB.

Experiment 1: matched load

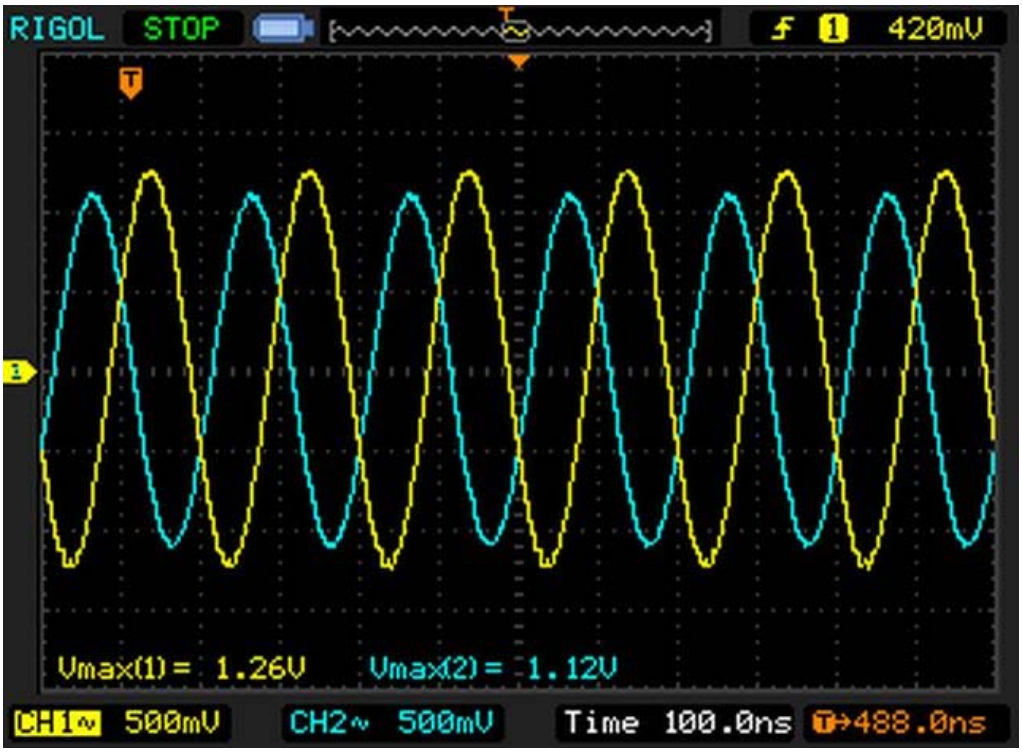
In this experiment, the line is terminated with a 50Ω load, thus it is perfectly matched. In the picture below we can see the function generator sending a **single 5MHz sine wave:**



As expected, we have the generated pulse (yellow) developing on the 50Ω characteristic impedance of the coaxial cable. After 124ns, the same pulse reaches the 50Ω load. Considering that light travels 300mm every 1ns, we have 124 * 300 * 0.6636 = 24686mm = 24.6m, which is fairly close (±1ns) to the measured length of 24.9m.

Being R the same on both sides (i.e. 50Ω), we can calculate the power ratio squaring the ratio of peak voltages: $(1.12/1.26)^2$=0.79, which is a loss of 1.02dB, which is the same as the VNA measure ±0.2dB.

Now we can set the generator to send a **continuous stream of sinewaves** at 5MHz:



As expected, we obtain the same pattern as before but **repeated over and over**: voltages and timings are absolutely identical.

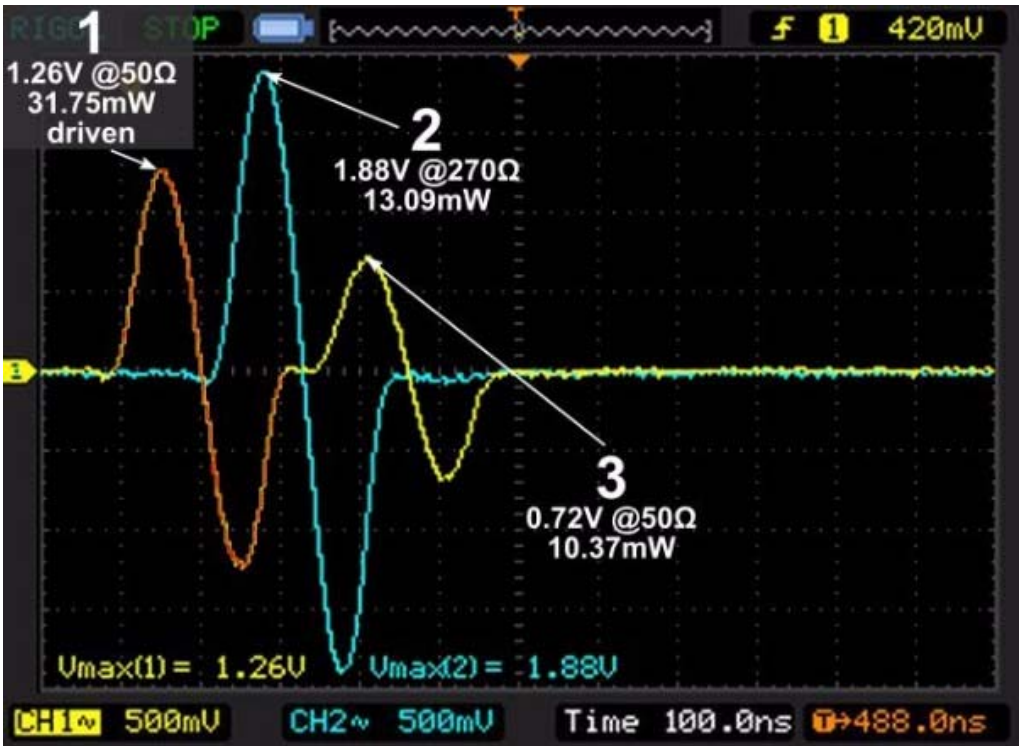
So far so good.

Experiment 2: mismatched load

In order to test the behavior of the transmission line when loaded with high VSWR, I prepared a female SMA connector with a 270Ω SMD resistor soldered on it:

This load produces VSWR=5.403 and, according to the Mismatch Loss table above, a loss of 2.779dB (53% to the antenna, 47% lost).

Let us now send again a **single 5MHz pulse** and see what happens:



What we see now is something a bit different than before. The **initial pulse (1) is identical as the one of experiment #1** (1.26V peak). When it arrives to the 270Ω load (2) 124ns later, the **voltage is much higher** (1.88V peak). Then, after 124ns, a **new peak** (3) **appears on channel 1**, the load side.

Let's see what happened. The initial pulse (1) is driven on the transmission line, that **at that time appears as a 50Ω load**. There should be no surprise to observe that the first pulse **is always identical** among all the experiments: since information can not travel at infinite speed, the generator can not know instantly that at the end of the line that there is a different load than before. Therefore, the first peak must be identical to the ones we have seen before when we had the 50Ω load – and so it is.

The peak power sent by the generator in the coaxial cable is 1.26V on 50Ω (1), which makes 31.75mW. The peak then travels along the line generating heat; when reaches the other end, after 124ns, it should have lost 0.823dB: the power available at (2) should be 26.27mW.

At this point the wave encounters the mismatch. The tables say that,

due to VSWR=5.403, only 52.7% of this power should be delivered to the load, that is 13.85mW. If we look at the 1.88V peak on 270Ω we have 13.09mW **which confirms it**.

We have now a remainder of 12.42mW that have not been delivered to the 270Ω load. This power is bounced back and travels the coaxial cable in the other direction, loosing again 0.823dB. The power that reaches back the generator should be 10.28mW: the value at point (3) is 0.72V @50Ω, which makes 10.37mW, again **perfectly in line with expectations**.

At this point the returning peak (3) encounters the function generator output port which offers 50Ω, i.e. a perfect match: the returning wave heats up the 50Ω resistor inside the function generator and disappears.

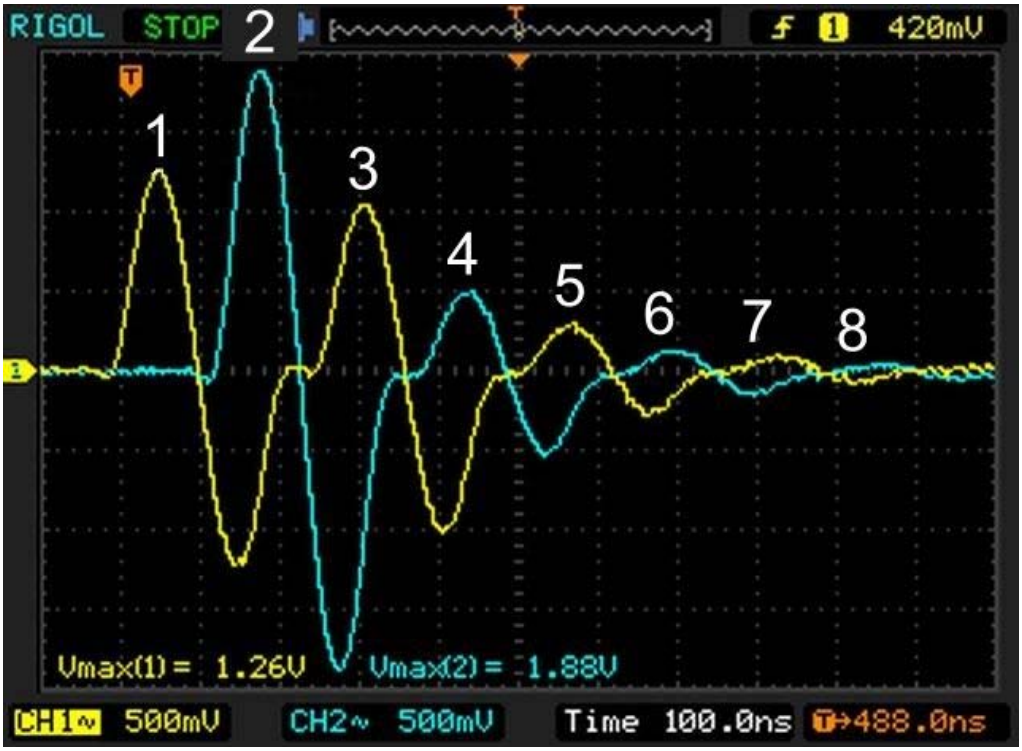
So far, the initial theory is perfectly confirmed: the mismatched load has consumed the **exact percentage of power** and the rest has been bounced back and **dissipated in the generator.**

The power delivered to the load was expected to be attenuated of 0.823dB (cable loss) + 2.779dB (mismatch loss)=**3.602dB**. Using a script and the binary data downloaded from the oscilloscope, I integrated the energy contained in the driven curve (orange, 3.040429nJ) and the load curve (blue 1.313286nJ): their ratio, 0.4319, accounts to 3.646dB of attenuation, which is almost a **perfect match with the expected 3.602dB!**

Experiment 3: mismatched load and generator

This time we shall repeat the experiment 2, but instead of having a 50Ω generator, we shall use a different impedance. In order to attain it, I prepared a matching attenuator with 10.28dB of attenuation and a reverse impedance of 144.5Ω. This is like to have a generator which output impedance is not 50Ω anymore, but 144.5Ω.

I increased the function generator voltage to compensate the attenuator so the same 1.26V initial peak was generated again in the transmission line. This is what happened:



Here we can see a **different story**. The initial stimulus (1) **is the same as before** as predicted; it travels until it reaches the 270Ω load (2) which reacts exactly as in experiment #2, reflecting the 47.3% of the received power. However this time the power coming back **finds another mismatch**, the 144Ω attenuator pad (3), and **it is reflected back again** towards the 270Ω load (4). Then it bounces back and forth over and over until all the power is gone. As it appears clearly, this

time **more energy is delivered to the load**, although in multiple steps.

Using the energy integration method, I calculated the energy actually delivered to the 270Ω load. This time the loss is only 3.271dB: i.e. the load **received 0.37dB more than before**.

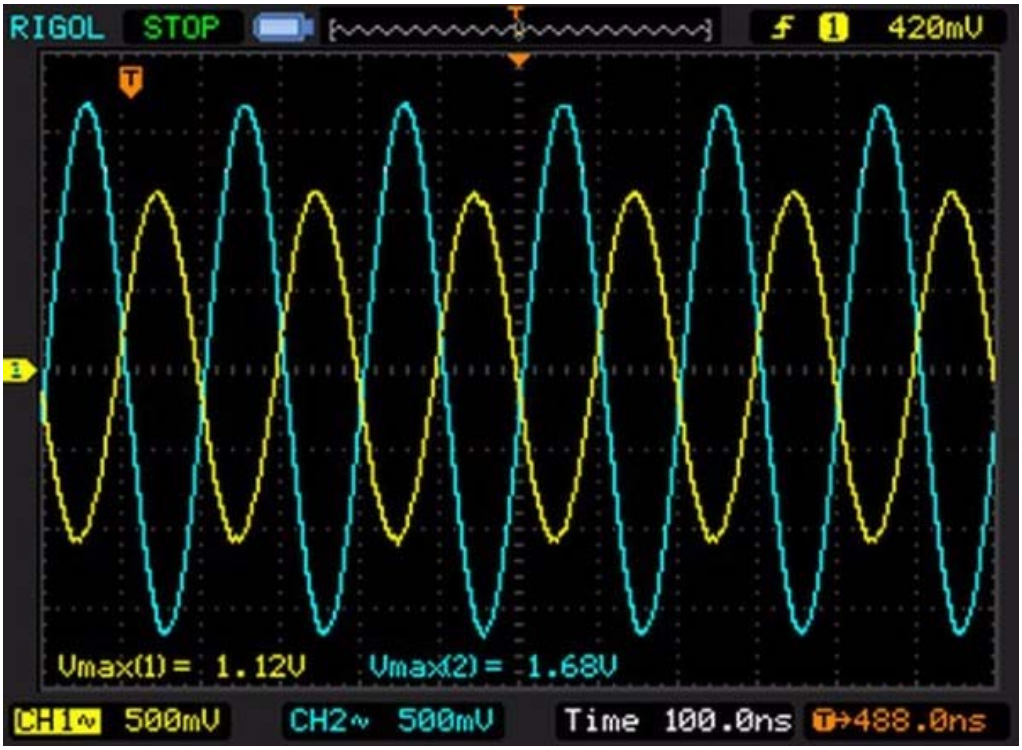
The **first cracks in the initial theory begin to appear**. The initial claim is founded on a fixed relation VSWR->loss, but a very simple experiment like this shows **a case where it does not work**. Same identical initial wave, same line, same load, same VSWR, two different results just by changing the impedance of the generator?

Experiment 4: let's the magic begin

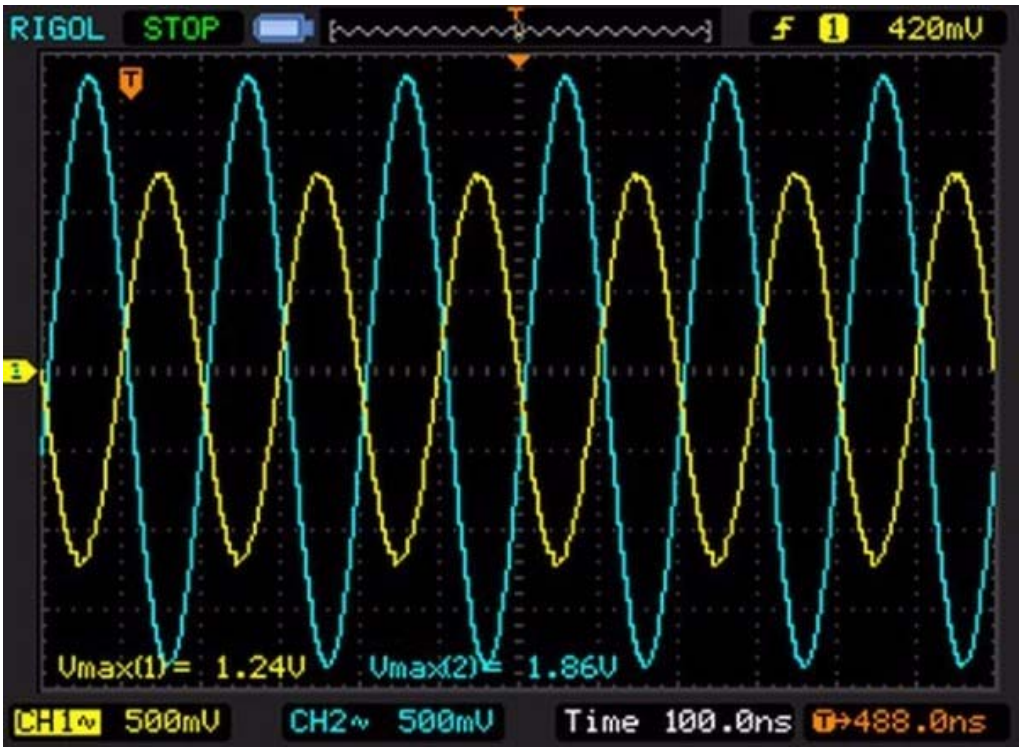
So far we have seen with that same setup, **two different generator impedances** feeding exactly the same power **can change the amount of power delivered to the load**. The experiment above shows that the power not delivered to the load is dissipated as heat by the cable itself and by the internal resistance of the generator.

We shall now execute another experiment: this time, we will repeat experiments #2 (50Ω generator, 270Ω load) and #3 (144Ω generator, 270Ω load) but **feeding a continuous sine wave**. In both tests, the generator is set with the identical voltage level that in the previous tests generated the 1.26V initial peak.

Here they are:



Test with 50Ω generator, 270Ω load



Test with 144Ω generator, 270Ω load

When feeding the circuit with a **continuous sine wave**, something weird seems to happen. First we note that by looking at these screenshot, there is **no clue of any bouncing anymore**: both tests

generate a nice yellow sine wave that propagates 124ns ahead to a nice blue sine wave on the load.

Even more interesting is that the peak CH1/CH2 voltages, although not identical among the two tests, **hold exactly the same ratio**:

- 1.86/1.24 = 1.5
- 1.68/1.12 = 1.5

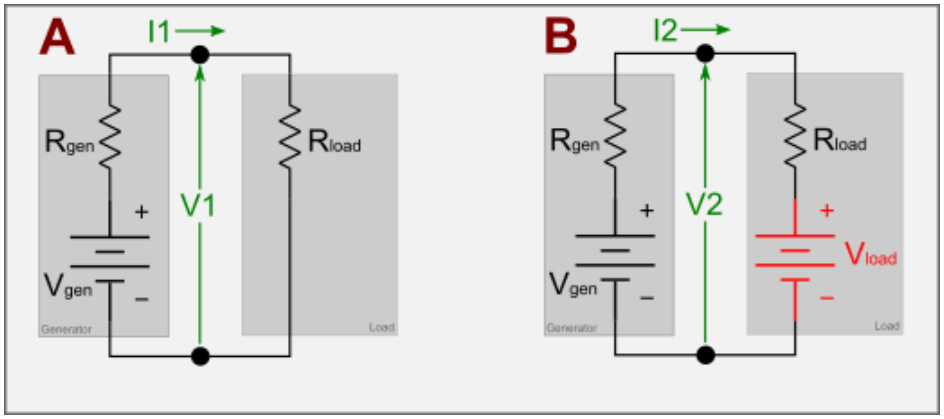
Unlike the single-shot tests #2 and #3, the continuously fed lines **are delivering exactly the same amount of power**, **no matter what the generator impedance is**.

In other words, when the generator sends a single shot, part of the energy is bounced back and dissipated by its internal impedance. As we saw, different generator impedance, different amount of energy dissipated, different amount of energy successfully delivered to the load. But if the generator sends a **continuous flow** of sine waves, we experience a completely dissimilar behavior: **no matter of which is the generator impedance**, **the very same percentage of the power** that enters the coaxial cable **is delivered to the load**.

So, what's going on?

Behavior of a transmission line

Without entering into the details, we can have an hint of the reason why a transmission line fed continuously behaves differently from one that receives a single pulse from the picture below:



In picture "A" we have a voltage generator V_{gen} with its internal resistance R_{gen} feeding a load made of the resistance R_{load}. What the

generator will see is a voltage V1 and a current I1 developing on its terminals: therefore, it will see an impedance Z1=V1/I1 which, in this case, is the same as R_{load}.

The reflected power forms a voltage wave that travels back on the line until reaching the generator. This wave is seen as a voltage generator was added at the feed point (picture “B”). If we calculate the V2 voltage and I2 current we shall see that, due to the contribution of V_{load}, they will not match I1 and V1 anymore. The generator will **see a new impedance value** Z2=V2/I2, this time not equal to R_{load} anymore.
In other words, the reflections **change the impedance of the transmission line** at the feed point.

The resulting effect is that the transmission line now **acts as a impedance transformer**. The power lost in this process is only the one dissipated by the transmission line as heat: no matter what the VSWR is, if we could have a perfect line, all the power would be transferred to the load.

Whatever formula that calculates power loss **using only VSWR** as a parameter, like the one at the beginning, **it obviously flawed**.

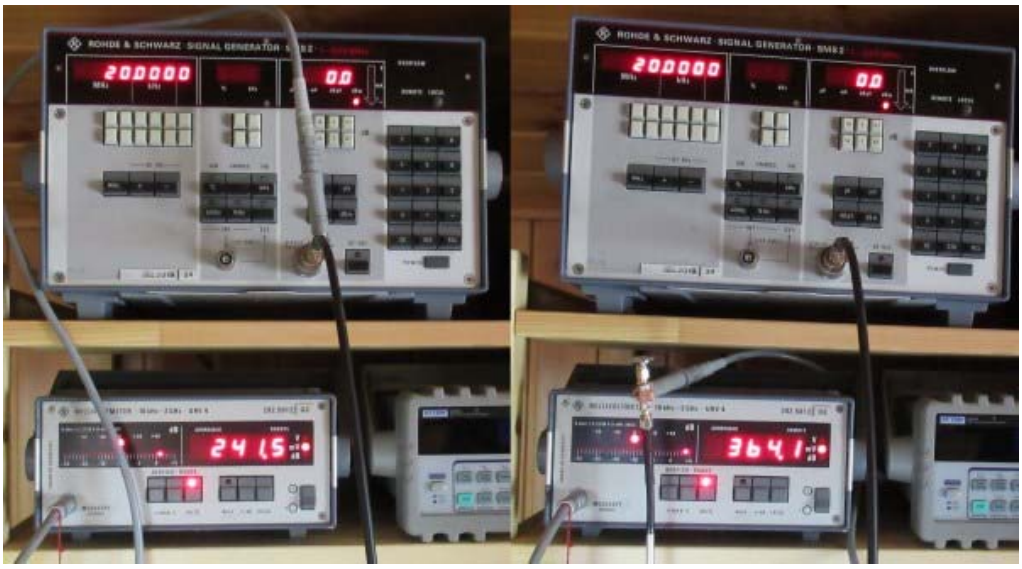
Measuring real losses

So far, we have established that the Mismatch Loss formula shown at the beginning **does not really tell how much power is lost due to mismatch**. So, how much power do we really loose?

To have an answer, I prepared another experiment of measurement of power entering and exiting a transmission line terminated with a mismatched load (the same 270Ω load). To achieve the best precision, instead of using the oscilloscope, I used a much more accurate Rohde&Schwarz RF millivoltmeter. The test cable was made of 6.22m of RG-58 terminated with SMA connectors. I made two microstrip fixtures that could host the 1GHz probe of the RF millivoltmeter, which adds about 2pF. I then made an S11 and S21 measurement of this setup, including fixtures and probe, to know the impedance values needed to calculate the power levels.

At 20MHz my 6.22m test cable has a matched loss of 0.472dB.

Then I set my signal generator at 20MHz and measured input and output voltage:

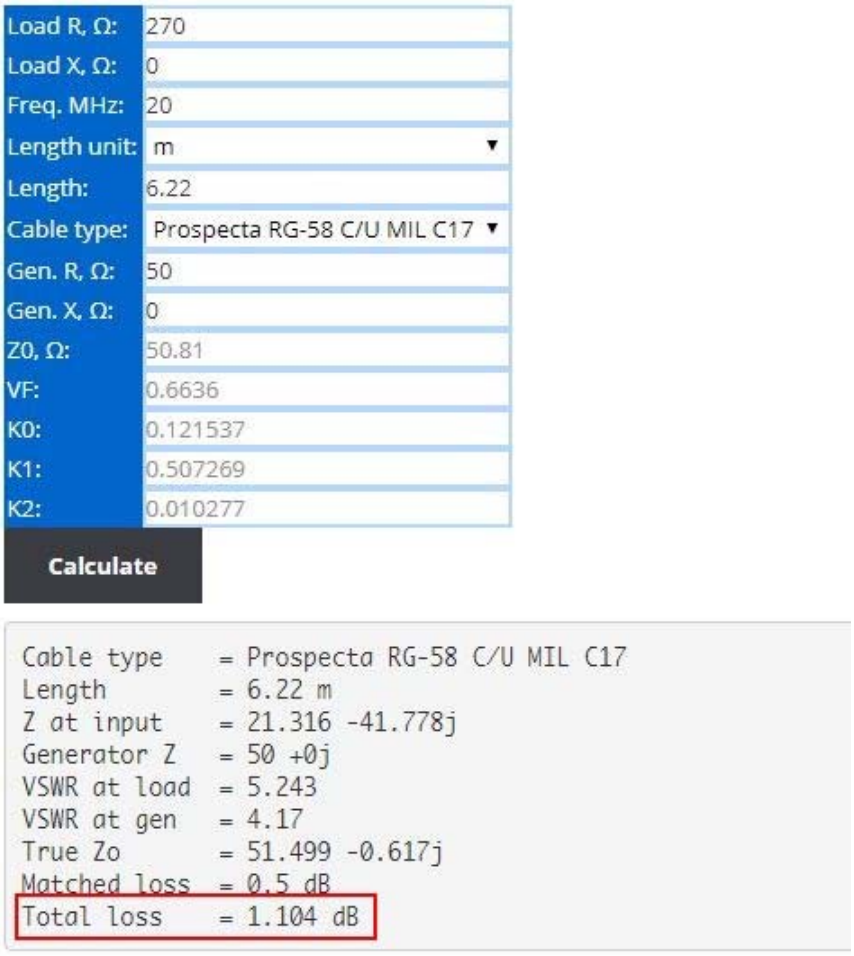


The measured impedance at 20MHz is 18.590 -j36.952; on that impedance, a voltage of 241.5mV$_{RMS}$ amounts to 0.634mW$_{RMS}$ (-1.981dBm); the output voltage is 364.1mV$_{RMS}$ on 270Ω, which is 0.491mW$_{RMS}$ (-3.092dBm).

The overall power lost in this cable at this frequency is 1.110dB, i.e. only **0.638dB** more than the 0.472dB that this cable would have normally dissipated due to line attenuation. This is **significantly different than the 2.779dB loss** foreseen by the “Mismatch Loss” method.

Calculating mismatch losses

Is there a formula that allows us to estimate the loss of a mismatched transmission line? Yes, there is. You can find a complete explanation in the very interesting AC6LA's site. These formulas require some parameters of the transmission line to be measured with a network analyzer. I measured my "Prospecta RG58" with two S11 runs (open/short) and I fed the S11 files to ZPLOT, which gave me back the nominal Zo, nominal VF, K0, K1 and K2 parameters for my line. I fed those parameters to the IZ2UUF Transmission Line calculator, which gave me the following results:



The software calculated a matched loss of 0.500dB (I measured 0.472dB) and a total loss of 1.104dB (I measured 1.110dB), which makes it a stunning "perfect match" with only 0.006dB of difference!

So far I got very good results comparing real and predicted loss figures up to VHF, with discrepancies of hundreds of dB. To test higher

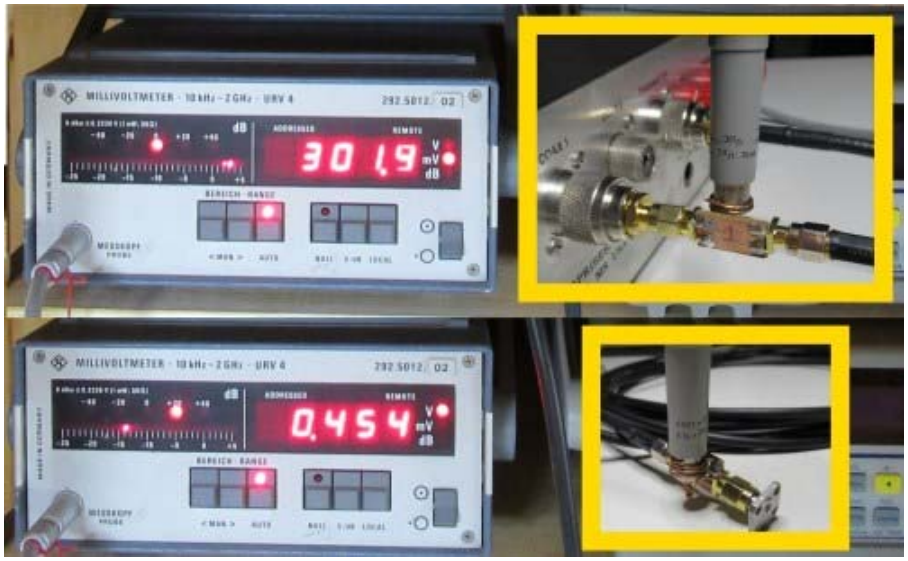
bands I shall do further work to cancel out the impact of measurement fixtures and probes.

Adding a tuner

What happens if we add a tuner between the transmitter and the transmission line, as most HAMs do? In order to verify this, I connected the same 6.22m RG-58 line terminated with the 270Ω load to my MFJ-949E tuner and, with the help of my network analyzer, I tuned it to reach a perfect 50Ω match including the millivoltmeter probe:

Then, I connected it to the signal generator and, using the RF millivoltmeter at the feed point of the tuner as a reference, I increased the generator power to compensate the extra cable I added. With 0.4dBm set on the signal generator, I had perfect 0dBm at the perfectly tuned 50Ω tuner input. As far as the signal generator is concerned, it is feeding a perfect load.

Let us see the voltage entering the line after the tuner and the voltage reaching the load:



We have 301.9mV on the beginning of the line, where the impedance is 18.59-j36.952: solving the complex numbers calculation tells that my **tuner is pumping on the line 0.990mW (-0.043dBm)**. At the end we have 0.454mV, which **delivers to the 270+j0 load 0.763mW (1.173dBm)**. This means that the line dissipated 1.130dB, which is almost identical to the 1.110dB measured in the previous example (difference is only 0.02dB!) and almost identical the 1.104dB calculated by the online calculator.

In these measurements we see that in this case the **tuner received 0dBm** and produced on its **output -0.043dBm**, thus **dissipating as little as 0.043dB of power** (<1%).

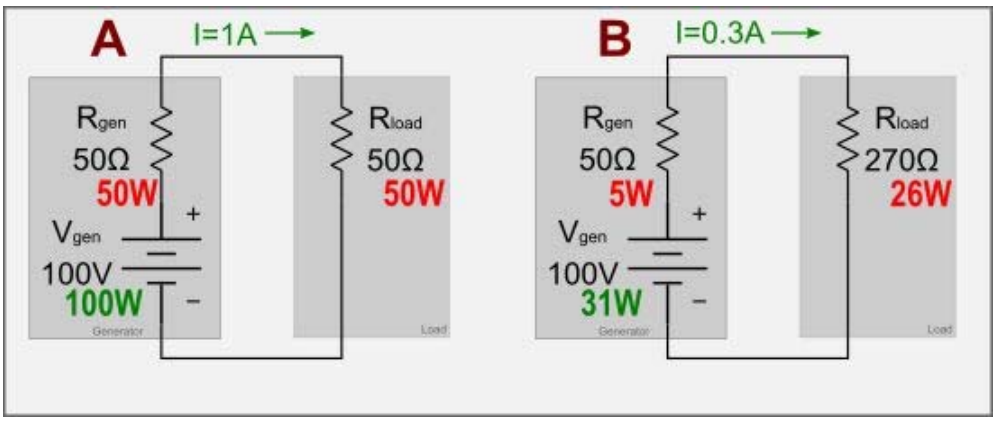
If we would have fed a perfectly matched 50Ω load with this 6.22m long RG58 line, we would have lost 0.472dB due to normal line attenuation. Feeding the same line with a VSWR>5 load and a tuner, we have lost 1.173dB, which means a **net cost of only 0.701dB.**

Be aware that such a low loss in a tuner is not a general rule, since tuning other impedances could cause greater heat dissipation, but it is very common.

Back to the Mismatch Loss

After all the experiments above, we have established beyond all reasonable doubt that the Mismatch Loss formula shown at the beginning of the article **does not indicate the power lost when feeding a mismatched antenna**. So, what is it for?

Let us consider these two simple circuits:



Picture “A” shows a 100V voltage generator with its internal 50Ω resistance R_{gen} feeding a 50Ω load R_{load}. Using Ohm’s law, we can calculate $I=V/R=V_{gen}/(R_{gen}+R_{load})=1A$. Given that $P=I^2R$, we can calculate the power dissipated by the load: $P_{load}=I^2R_{load}=$**50W**. The generator itself is generating $P=V_{gen}I=100W$ and 50W are dissipated by the internal resistance R_{gen}.

Now we can do the same calculation on “B”, where R_{load} is 270Ω. We have that $I = V_{gen}/(R_{gen}+R_{load}) = 100/(50+270)=0.3125A$. Hence, the power consumed by the load is $I^2R_{load}=$**26.367W**. The generator is generating $P=V_{gen}I=31.25W$ and R_{gen} is dissipating 4.883W.

We see that in circuit A the **load is receiving more power**: 50W vs. 26.367W: due to the maximum power transfer theorem, we get the maximum power (in this case 50W) when $R_{load}=R_{gen}$. For any other value, the power going to the load will be less. The “A” condition is defined as “**matched**“.

If we calculate the ratio of the power delivered on B and the maximum possible delivered power A, we have that 26.367 / 50 = 0.527; if we transform it in dB, we have **2.779dB** which is **exactly the Mismatch Loss** we calculated before for the 270Ω load.

The Mismatch Loss value does not tell how much power is actually lost due to other dissipated, but it represents the **inability of the generator to generate power due to mismatch**.

Note also that the **Mismatch Loss is not an index of efficiency**: with matched load, we got the highest power on the load (50W)

but **efficiency was at 50%** (100W produced, 50W used on the load). In the mismatched circuit, the generator produced 31.25W of which 26.367W were delivered to the load, holding an efficiency of **84.3%**!

We can see this effect on the power that the R&S SMS2 signal generator has been able to deliver into the mismatched line with or without the tuner:

The difference in power between the two is 1.94dB: if we calculate the mismatch for the impedance being fed (note the reference impedance is 18.590 -j36.952 presented at the input of the line, not 270+j0 at load!), we have VSWR=4.3 and Mismatch Loss=2.13dB, again another almost perfect match to the measured values. Without the tuner, due to the mismatch, the signal generator was not able to generate the whole power it would have produced on a matched load: **power is not lost, is simply not generated**.

That is like when a biker is pedaling with the wrong gear: great effort, little performance. The tuner adapts the impedance at the input, exactly like the biker that shifts on the right gear.

Mismatch on real transceivers

Note that the mismatch effect that prevented the signal generator to generate the full power is mostly due to the fact that **laboratory signal generators are designed to behave as close as possible as an ideal 50Ω generator**. But being an ideal 50Ω generator, as we have seen, means low efficiency. **Real transmitters** are indeed **designed**

to work on a 50Ω load, but not necessarily **to present back 50Ω** impedance when transmitting. Modern transceivers are able to compensate some degree of mismatch by feeding different voltages/currents to make the load happy. My FT-817 sends out the same power no matter of the load: changing the load, changes the voltage but the resulting power is almost the same until the HIGH VSWR protection kicks in by cutting the power. This kind of radio can feed mismatched lines within their VSWR tolerance without suffering loss of power, thus without the need of a tuner (I have planned to write another post reporting on this).

Conclusions

- the claim that **a given VSWR values gives a fixed loss of power is a myth** deriving from a misinterpretation of the concept of “Mismatch Loss”;
- if all the people that published such claim would have ever measured input and output power from a mismatched transmission lines, they would have immediately realized that true figures on power loss are most of the times very distant from their forecasts;
- the power lost in the transmission line is the result of a **function that combines the mismatch and the normal loss** of the line in matching conditions; an ideal (lossless) line would have no loss

at all no matter of the VSWR;

- **do not assume that feedline loss due to mismatch is always low**: severe mismatches, like feeding a 40m 1/2 wave dipole on the 20m band, **may cause very high losses** in the transmission line;
- a **transmission is an impedance transformer**;
- unless transmitting single bursts, the impedance of the transmitter has no relevance in the calculation of the power dissipated by the transmission line;
- the mismatch between the transmission line and the transmitter might prevent it to generate its maximum power but many transmitters might be able to compensate the mismatch;
- a tuner is not *fooling the transceiver to believe the antenna is tuned*, it is simply adapting two different impedances (after all, not many HAMs would describe their power supplies as objects *fooling the radio to believe that the 220V AC power line is actually 13.8V DC*, won't they?);
- tuner is not *wasting huge amounts of power* as commonly believed: many times its insertion loss is negligible (tenths of dB) even with high VSWR.

Jurassic Journal

- A look back in time -

Tom Vavra WB8ZRL

Twenty years ago, the fall of 1997

TZ6SI

Baldur, DJ6SI was active (mostly on CW) from Mali as TZ6SI in October. He was active on all bands.

8Q7AJ

Bruce, KD6WW was active on 10-160 metres, with emphasis on low and WARC bands, mostly on CW and RTTY as 8Q7AJ in early November. This was a reissue of 8Q7AJ that K9AJ was issued in 1991.

T32BE
Paul, WC5P, was active on all HF bands, mostly on CW as T32BE from Kiritimati (Christmas) Island, East Kiribati in late November. He was there to participate in the CQ WW CW Contest.

5A2A
The German team left on 4 December after some 25,000 QSOs.

A61AJ
David, K3LP and Rich, KE3Q were in Dubai before the CQWW CW contest to help Ali, A61AJ, finish off his antenna farm. They were active before and after the contest mostly on CW on the low bands. Afterwards, they went to Muscat signing A4/K3LP.

LU1ZC
Hector, LU6UO and Ernesto, LU4AXV went to Deception Island in the South Shetlands (AN-010) where they activated LU1ZC. Main activity was CW, often on 40 metres.

3D2_rot
Ron, ZL1AMO traveled to Rotuma and was active from 6 Nov to 14 Nov as 3D2RW.

From my CQWW CW contest logs 1997 (31 Zones, 92 Countries, all 40M):

8Q7DV, UAØAGI, C4A, 5A2A, RKØFWL,VK9LX, AH2R, W5NM,JRØBQD/JD1,OHØMAM, 3V8BB, 4Z4TA, TK/DF9LJ, HBØ/HB9LF, EX9A, OJØA, 4U1ITU, 5V7A, 9U5CW, 7Z5OO, 3DA5A, 9G5VJ, HC8N, TU3F, 8R1K, FK8HC, OY1CT, 9M6NA.

Ten years ago, the fall of 2007.

Propagation was much like it is today. During the quarter the Solar Flux ranged between 65 and 94. The A-index ranged from 0 to 24.

9UØA

A group of DL hams activated 9UØA for 10 days in late September. Mostly CW with much WARC band activity. They were very active on 40 and 80, but could not get on 160.

C52C

The Czech and Slovak OMØC contest team activated C52C in October. Activity was split between cw and ssb, and included all bands. I remember a bit of a 160M pileup.

V8FWU

Flo, F5CWU activated V8FWU for two weeks in November. Only cw on 80M-17M.

C91KDJ

Wayne, W5KDJ, activated C91KDJ for 12 days in November. He was on all bands 15M and below, and spent lots of time on 80M and 160M. Wayne made 6962 CW QSOs plus 1605 QSOs on RTTY.

3DAØZO

Marco, N5ZO, operated from 3DAØZO before and during the CQWW CW contest.

PZ5X

Lee, N5UN, activated PZ5X for 8 days around the CQWW CW contest. All CW.

E51NNN E51MMM

George, K5KG and Ron, KK9K were active as E51MMM and E51NNN from Rarotonga, South Cook Islands from 12 November to 1 December. They operated CW and SSB, concentrating on 160 and 80 metres. They were active in the CQ WW DX CW Contest as E51MMM.

3X5A

For the 14th consecutive year the VooDoo Contest Group activated a West Africa country to participate in the CQ WW DX CW Contest.

This year as 3XY5D from Conakry, Guinea. The team included AA7A, G3SXW, G4BWP, G4IRN, GM3YTS, K4UEE, K5VT and KC7V. As usual, they were Multi-Multi category with mono-band antennas for all six bands and kilowatt amplifiers.

RZØAF

Andrei, RZØAF was one of the first stations to usher in the fantastic conditions on 160M. For eleven days in early November, he was passing out zone 18 QSOs. He completed 160M WAS. This seemed incredible as Zone 18 on 80M was very difficult to find and work.

YI

The Iraqi government reopened the amateur radio service as of 20 November, and Scott, AD7MI (now NØZB) was licensed as YI9MI from Camp Taji until 15 May.

VQ9

Jim, ND9M returned to Diego Garcia on 12 December for another four-month tour and resumed operating as VQ9JC. However, he was often aboard ship and away from the island. Operating time was severely restricted when he was there. The shack which he used has since been removed, and activity is rare.

On 7 December 2003, Saint-Martin and Saint-Barthelemy voted in favor of autonomy from Guadeloupe, in order to form separate Overseas Collectivities (Collectivites d'outre-mer, COM). On 21 February 2007, the French Parliament passed a bill granting COM status to both Saint-Barthelemy and Saint-Martin. The new status took effect on 22 February, when the law was published in the Official Journal.

As for DXCC, Saint-Martin and Saint-Barthelemy have formed one single Entity for decades - until 14 December 2007. As of this date, St Barthelemy became entity number 338, with an FJ prefix. It is a really big pileup when everyone needs it for a new one.

ZD7

Tom, ZD7X (KCØW) moved to St. Helena in early September 2007,

and expected to remain there for several years. However he had to depart the island in April of 2008.

From my CQWW SSB contest log, 2007:

A35RK, C5ØC, OHØR, CN3A, TS6A (3V), 5H3EE, ZD8N, 6V7G, ZD7X, PJ2T, V73RY, AH0BT

and from the CW contest log:

SV9CVY, ZB2X

Member News

WBØB and KØTJ at Ft. Madison ARC Field Day

L to R: EIDXA member Larry-WBØB and Jim-KØTJ just erected end to end flat tops for the 2A Ft. Madison ARC FD effort from WFØRT.

They are framed in a coax choke Larry just wound on a discarded bleach bottle found nearby. They are at or near the top in recent years in Iowa 2A. Photo: WØNB

Society of Midwest Contesters

Bob WØGXA and Richard KØXG attended the SMCFest on Aug 26th.

This is an annual conference of the Society of Midwest Contesters. Quite a few good speakers including our "soon to be" own: Matt KØKB who spoke about building his station. *Photo: K9QQ*

"A few of my favorite things..."

An occasional feature highlighting our favorite shack accessories

Rod Blocksome KØDAS

I'm not a red hot CW operator nor a key collector. However, I have three straight keys that each have a story attached.

The key on the left is a WWII surplus J-38 that I bought for $1.59 in 1959. I used it to learn the code and take my Novice license test in April of 1960. The License arrive 2 months later and this key modulated my 2nd hand Globe Chief 90 Transmitter crystal controlled on the 15m, 40m, and 80m Novice bands. Fast forward forty years later when I began operating in the VHF contests as a Rover-on-the-go and this same key was brought back out of retirement. The cord is the original from 1959 and has gotten a bit stiff with age (as with many other things).

The key in the center comes from China. In 2002, I made a trip to Guangzhou (formerly Canton) where we set up and demo'ed our system for shipboard email over HF to a company that owns 300 ships that haul "Walmart" to North America. They were currently using HF CW for all their ship-to-shore traffic. One day I was in their operations center learning their messaging system. Each ship frequency was on a loud speaker and the operator for that frequency would mill around until he heard a ship calling on his frequency. There must have been about six speakers/frequencies. Hearing a call, the operator would immediately stop what he was doing and start copying the CW (no headphones) by typing on a computer. I'm copying it also and it's

4-digit code groups which are appearing on his computer screen. A couple times he missed some numbers and he would grab the straight key beside the computer keyboard and “break” the ship and ask for a repeat. (They were running duplex with separate remote receiver and transmitter sites). I’m thinking, is this encrypted or is it weather data, or what?

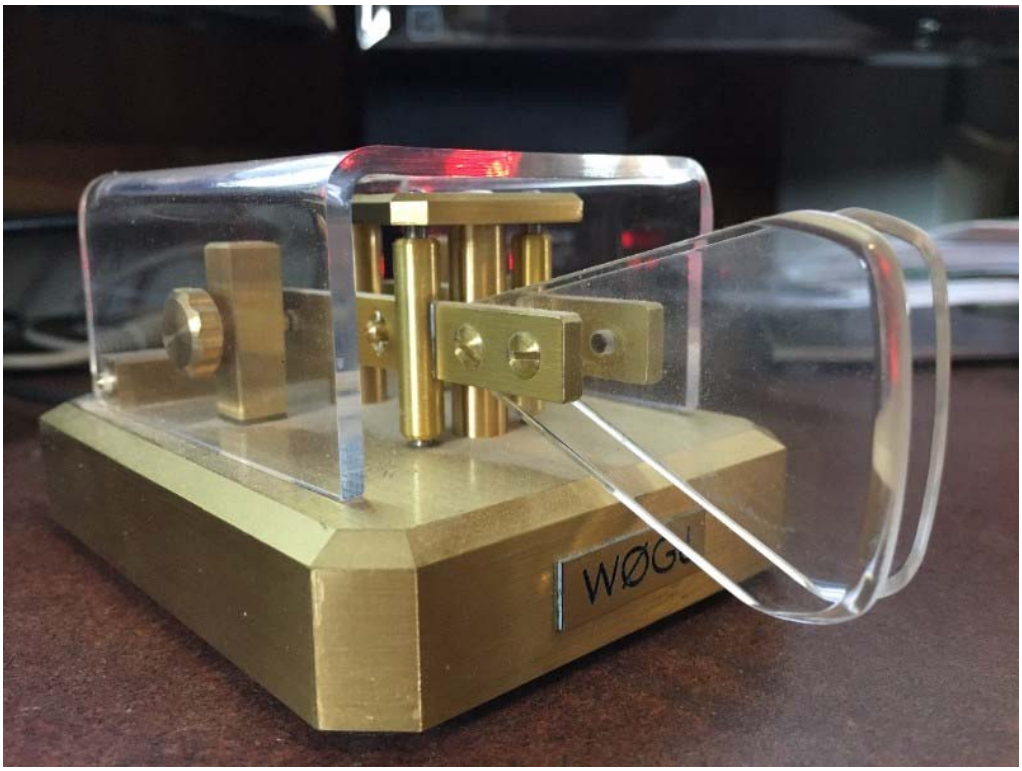
I have a young lady from our sales office in Beijing with me as a translator. So with her translating both directions, the next conversation went like this:

Me: “Ask him what these 4-digit code groups are all about.”
Operator: “Watch this” (he presses a function key and Chinese characters appear above each 4-digit number). “The Chinese language has over 3,450 unique characters so it takes 4-digits to uniquely specify each.”
Me: (I’m impressed) and we visit through my translator a bit more while the operator moves around the consoles and starts dismantling an unused operator position. I noted this big heavy “pump handle” chrome plated straight key they all used and asked “Where can I buy one of these keys”
Operator: “You can’t buy them”
Me: “Well ..... then where did you get these?”
Operator: “The company furnished them.”
There is a long pause as I figured this was ‘end of story’ when suddenly the operator hands me the key he had just removed from the unused position.
Translator: “He says you may have this one.”
I’m a little surprised so I replied “Can he really give it to me?”
Operator: “Yes, we were going to throw it away otherwise”
So I brought home a treasure from China.

The key on the right dates from WWII and was typically used on military aircraft. I bought this key at the Orlando, FL hamfest several years ago intending to put it aboard the B-29 FIFI. It is a J-37 though it carries no markings. The radio operators called it a “Mae West” Key because of the shape of the base. They did not like to share their keys so upon completing a mission, they would pull the key, wrap the

cord around the base, and take it with them. Hence the real reason for the base shape – though it has a very nice touch and produces very smooth CW.

Glenn Johnson WØGJ



This is my Schurr key.

It's the very last one made by Mr. Schurr before he sold his company.

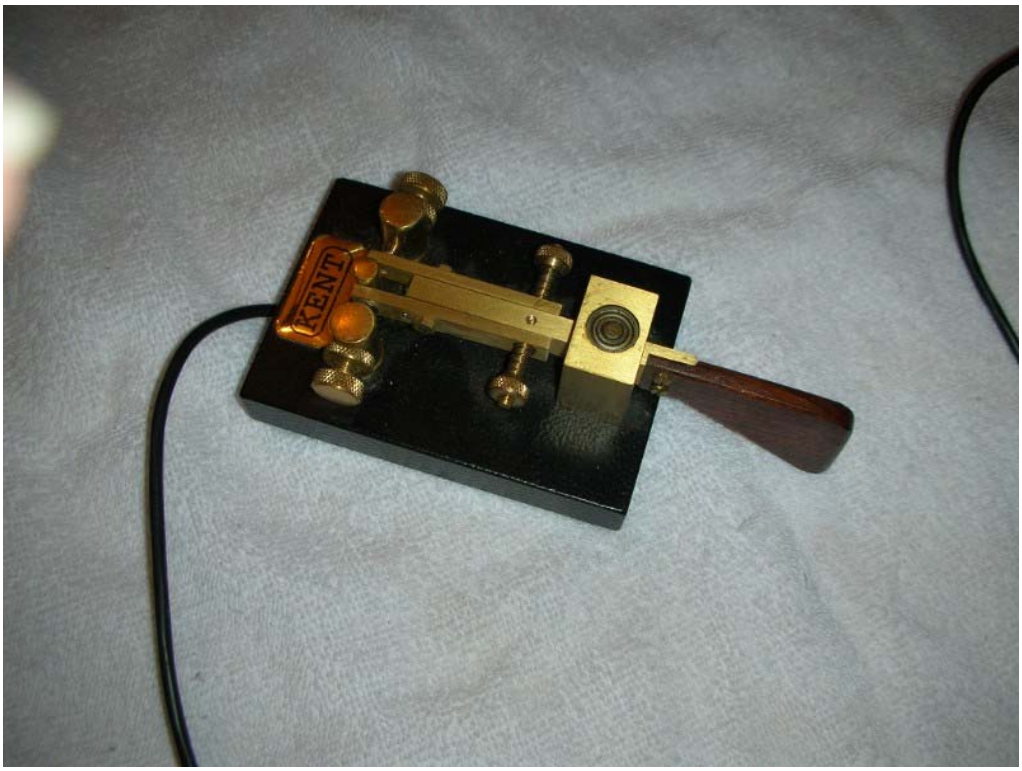
This is my favorite new "headset" - Westone CR10.

Custom molded, very light and blocks out ambient noise. I forget they are in my ears if it weren't for the cord!

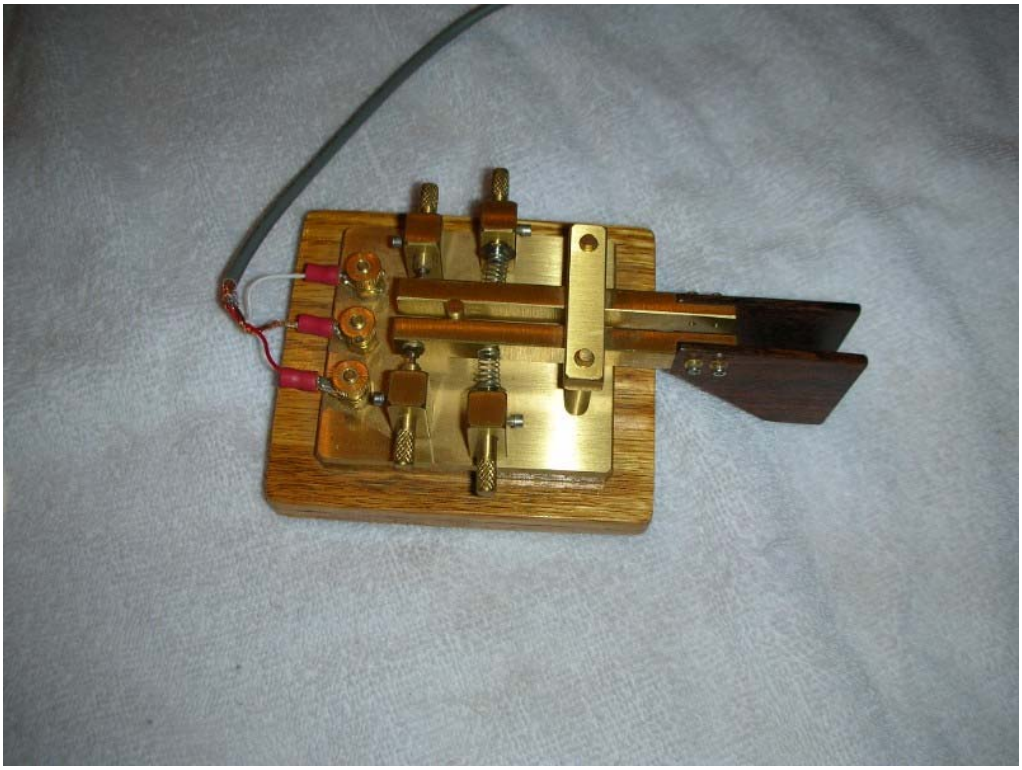
Hopefully, it filters out all but EIDXA member calls when on remote islands - Ed.

Rich Haendel W3ACO

TE NE key
Obviously quite small; has movable bronze springs



Kent Single lever key
- Works quite well



K8RA Key
- built by Jerry Pittenger himself before he passed away.
This is also a smooth operating key.

Both the Kent and K8RA keys have rosewood finger paddles.

Picnic Prize Winners

Prize	Winner's Call
ARRL Antenna Book, 23rd. Edition	WØCJB
Shortwave Receivers: Past & Present	WØFG
Joe Carr's Loop Antenna Handbbok	WØSR
Screwdriver Set	WØPPS
MFJ 24/12 Hour Clock	KØLUM
MFJ Lightning Surge Protector	KØDAS
MFJ Ceramic Insulators	KØGT's Sister
MFJ Auto Cigarate Lighter Plug	KØDAS's XYL
ICOM Pouch	KØGT
Yaesu Coffee Mug	NØYY

Yaesu Can Koozie	NØLNO
Yaesu Can Koozie	KØGT's XYL
Yaesu Hat	W3ACO

You'll find some picnic pics here

W9DXCC

Dave Huff WØIM

Dave attended W9DXCC in mid-September. He came back with some pictures (including the one below) and presentations (both DX and CTU). Flex and Elecraft had displays, so if you're into eye candy...

Presentations here
Pictures here

Glenn, WØGJ at W9DXCC
with his "Please give me money" smile

Glen, KØJGH, reports a clean sweep in the Rt 66 on the Air.

"Not that many of the EIDXA play in this week long event but Pam and I were the rover W6S seven years ago ... so it's sort of dear to our hearts. Hi. 73, Glen"

Logbook

Logs
NYØV:
CW - A52IVU, A25UK, YI0MTU, TX5EG, XW4XR, 4L5P (#301 on 30m), S79NH, FH/DJ9RR, 9Q6BB
RY - YI1WHR

Even with the lousy bands, there is still opportunity to work some of the more rare DX when the sun is supporting the propagation. - Tom

WØGXA: 5A1AL - #279 with a bonus: LoTW QSL

KØAFN: CW: TX5EG, RI1ANO SSB: 5Q7DX

CQ Test

Contesting by Rick

Rick Heinrich NØYY

Getting Started

Contesting is not for everyone – but it provides some on-the-air opportunities that seem to draw a larger set of participants. Newcomers all seem to ask “How do you get started?” The answer is “one contact at a time!”

There is a contest almost every weekend to draw you in - HF, VHF, UHF, CW, SSB, RTTY, digital modes, domestic, DX, etc. Some are major efforts and some are casual skill building events. One of the best tools is the WA7BNM Contest Calendar found on the web (click here). Bruce has listings by year, by month, by mode, etc. You can even customize the search list to your liking (cookies must be enabled in your browser).

Each of the listings include the website with contest specifics. Probably the most important part is the “Exchange”. The Exchange is the information sent and received to establish a valid contact. Some are short like the CQWW DX Contest that is a signal report and the CQ Zone Number – in Iowa the Zone Number is Zone 4 – so the exchange is 599 4. Someone in Germany would send 599 14 where Zone 14 is Western Europe.

Other contests have more involved exchanges. The ARRL November Sweepstakes contest is one of those. Steeped in the days of traffic handlers the message format follows the structure of a traffic message with a Precedence, a Message Number, a Check and other content. Sweepstakes is a great way to build your copying skills. It is also a great opportunity for even a modest station to make a significant impact. On Sunday afternoons, all the big guns have already worked the other competitors so when you show up with any signal you can throw out there, you will find that as “fresh meat” many will be interested in working you. It’s always nice to be loved…

So you have your radio and an antenna – what else do you “need”. That is all you really need, plus an understanding of the exchange. But to make it “easier” you might want to consider using your computer. Do you use it for logging? Is it connected to your radio to extract band or frequency information? If so, you are all set! Of

course you can paper log but that comes with some other considerations.

Duplicate contacts do not add to the score of a participant. So it is important to make sure that you only work a station once. Depending on the contest that might be to work them once on a band or in the case of Sweepstakes – only once in the contest, independent of the band. You are responsible to making sure that you do not make supplicate contacts. In the contesting vernacular they are known as “dupes”. So part of your logging is to have some way to track who you work and not work someone a second time.

It gets a little interesting at this point. You may not have copied the entire exchange and therefore it is not a real “contact” so you move on only to work the station again later. They think you are a dupe – but for you it is the first complete QSO. So you log it. In most cases they log it again as well. For them it is a zero point contact – for you it is a full QSO. So don’t overthink dupes. They don't normally count against you anyway, plus the contest organizers typically want you to log all dupes to help during log adjudication. In the old days, there were specific paper “dupe sheets”, now most logging programs perform dupe checks immediately.

This raises the issue of computer logging. There are many logging programs, what separates them is the number of contests they support. Probably the most inclusive contest logging program is N1MM+. It includes a large number of contests and is quite sophisticated so that you can network multiple stations together for a multi-operator, multi-transmitter level of participation. But it is also simple enough for a small, introductory effort. I will dedicate a future column to contest logging software. You might also find that your day to day software has a “contest mode” that might work well for starting out.

Most contest sponsors prefer computer logs. Why? It is easier to enter them all into a master database to check to accuracy of all the logs. This is a great learning experience! You get an email several months after the contest letting you know how accurate your log was.

It lists busted calls and exchanges, NIL or not in log where you think you worked someone but didn't, and other things that you can use to improve your capabilities. Maybe you find that your error rate was on the low bands where you have a noisy location but your accuracy was near perfect on the higher bands where the noise is less. That points you to finding a way to lower your noise on the low bands so you can improve your overall performance.

As you build your station, you will find that better interfaces between the radio and the station computer will make you more efficient and more accurate. Having the frequency directly loaded into the computer log as well as the computer send your CW exchange – or even use your soundcard for a voice keyer where the computer talks over your radio – can make things even more streamlined. Think about shouting into the microphone during the night to work a station only to now use a voice keyer that allows near silent operation at all hours! Just another dimension of how your station can evolve – and we never talked about changing the radio or antennas!

There is also another dimension for another column. Sitting in the chair for hours on end requires you consider the "ergonomics" of your station. How you sit. How you reach for the tuning knob. Can you see all the displays? So stay tuned for some of those considerations in the future as well.

So far I have guessed at what you want to hear. Ask questions. Let me know what you want to know. Pick my brain or even better reach out to other contesters in our club – there are a great number of skilled operators in our midst – take advantage of all those skills to build your own. And let me know what you want for the next column.

Iowa QSO Party

2017 Edition

Paul Cowley KB7VML

When approached by the Ottumwa club (OARC) about our interest in taking over leadership of the Iowa QSO Party (IAQP) for 2017, my initial thoughts were to wonder if someone had been eavesdropping on on-air conversations between Clint Miller, KCØJUO and I. We each make a daily commute that includes roughly 45 minutes of conversations on a couple of central Iowa repeaters nearly every morning. We have operated in the IAQP in the past, but had conflicts with the dates due to overlaps with the Scout Jamboree on the Air (JOTA) in several years. He and I had tossed around ideas about how we might be able to invigorate the IAQP event, and what we might change if we could. We had also been tossing around various ideas for Iowa-centric contests that would get folks on the air.

Ron Nelson, KNØR is a past president of Story County ARC (SCARC) and brought the OARC request to a SCARC meeting. The club enthusiastically accepted the offer to take over leadership for the IAQP and voted Clint as the IAQP Chair. Clint in turn solicited those interested in being a part of the IAQP Committee, which soon included Ron, Jason Skretta KCØEDE, Arnold AG3V, and me.
Recent years have seen in-state participants submitting logs for the last couple of years hovering between 15 and 20, with total participants in the range of 50 to 60. This year was as much a "trial run" for future efforts as anything. We didn't want to change too much or "bite off more than we could chew" so most of the changes were very superficial and addressed only what we saw as major concerns. We recognize that running a great contest is a lot of work, and we're committed to making the IAQP a fun and enjoyable on-air event. In the end, our key objective is to invigorate the event and encourage Iowa hams to get on the air.

The decision to move the Iowa QSO Party (IAQP) event from the previously-scheduled weekend was two-fold: First, we had received feedback that the overlap with peak harvest time across Iowa was an issue for some folks who wanted to participate. Second, the event was in conflict with JOTA - the Scout Jamboree On The Air. While bonus points were offered under OARC leadership for those

contacting JOTA stations, those same JOTA stations were counseled specifically to try and avoid the QSO Party events going on during that same weekend. Additionally, many operators who would have preferred to operate in the IAQP instead volunteered to help with local JOTA efforts and youth outreach. Moving the weekend satisfied both of those issues. In conjunction with moving the date, Jason provided some in-depth analysis of other QSO Party events. This led us to expand the hours of operation for an additional four hours in the evening. We feel like we've moving the right direction. So far, we have 62 logs submitted – just 3 days after the end of the contest.

As with any group effort, the most challenging part is trying to make the IAQP as appealing and satisfying to as many participants as possible. Keeping the number of categories down to a reasonable number while attempting to maintain a level playing field was perhaps the biggest challenge this year. When the number of categories is nearly equal to the number of in-state participants, it removes much of the challenge (and reward!) of the contest - and we wanted to avoid that scenario. As a committee, we also recognize the importance of getting the contest scored and results published as quickly as possible. We have set a goal for ourselves to have all results published no later than November 15th – much faster than in previous years.

SCARC welcomes feedback about the event, and the IAQP Committee will take any suggestions under consideration. Some of the most-requested suggestions have been to separate the Mobile/Portable category into two categories, to increase the QRP power threshold to 10W (from 5W), and to create additional categories for different power and participation levels. As participation grows, we expect to add additional categories, and look forward to what the future holds for the IAQP.

Mark your calendars for next year: Sept 15, 2018

Paul Cowley KB7VML

Upcoming Contests

The granddaddy of contests, the CQWW series are a great way to build your country count.
CQ WW SSB 0000Z October 28 (7PM Friday night local time)
CQ WW CW 0000Z November 25

The always-fun ARRL Sweepstakes series - "WAS in a weekend"
ARRL SS CW 2100Z November 4
ARRL SS SSB 2100Z November 18

If you want something a bit more low-key, try the **CA QSO party**. Always a lot of stations to work and propagation from Iowa is pretty good. Starts 1600Z October 7.

Score summary and commentary

NAQP CW
Call: WØGXA
Class: Single Op LP
Operating Time (hrs): 3
Summary: Compare Scores

Band	QSOs	Mults		
40:	88	31		
20:	145	40		
15:	62	23		
10:	10	5		
Total:	305	99	Total Score	30,195

NAQP SSB

Call: WØGXA
Class: Single Op LP
Operating Time (hrs): 15 min
Summary: Compare Scores

Band	QSOs	Mults	
20:	2	2	
15:	1	1	
Total:	3	3	Total Score *Who cares?*

As my contribution to SMC and our quest to beat PVRC and NCCC, I found my mic and turned in a non-zero log to get the "submitted logs" multiplier. This operation doubled the number of SSB QSOs in my log. I don't intend to make SSB a habit.

Iowa QSO Party
Call: WØGXA

Class: SO Fixed LP
Operating Time (hrs): 3

Summary:

Band	CW Qs	Ph Qs	Dig Qs

Total: 128 0 0 Mults = 65 Total Score = 16,388

Club: Society of Midwest Contesters

Comments:

Part-time effort to work around plumbing problems. Overall, pretty decent activity from non-Iowa stations. I know several IA contest stations who were not on the air due to W9DXCC or personal reasons. Maybe next year.

Kudos for the Story County ARC for picking up sponsorship!

A few words from NØSM:

Worked the IAQP for a short time this morning. Twenty meters was in very bad shape with qsb swings adversely affecting signals. Forty meters wasn't much better until around 10AM and all of a sudden I worked all over the place...CA, OR, WA, AZ, NH, CT SC, NY, NJ, FL, MT, TX. Worked one Iowa station, and a couple each in MO and IL. Later on everything was pretty much dead at the times I was able to be on. No score but felt for the Ames club....what horrible condx for their opening event. Perhaps they should have kept the October date despite the complaints of the New Yorkers. Sure hope they get better condx next year.

73 Steve NØSM

Operator(s): KWØJ
Operator Category: SINGLE-OP
Band: ALL
Power: LOW
Mode: MIXED+DIG

Band	Mode	QSOs	Pts	Mul	Mt2	Pt/Q
3.5	CW	3	6	3	1	2.0
3.5	LSB	4	4	4	1	1.0
7	CW	84	168	33	1	2.0
7	LSB	18	18	9	0	1.0
14	CW	36	72	18	0	2.0
14	USB	4	4	4	0	1.0
	Total	149	272	71	3	1.8

Score: 20,128
Rig: TENTEC ORION II

Antennas: ALPHA DELTA DOUBLE SLOPER FOR 160-80-40 METERS
HI GAIN TH7DX

Band conditions were not very good in my location. My on air were from 11am until 5pm. Unfortunately, I had other commitments Saturday. I did have fun even though activity was a bit slim. (There were several other QSO parties that day too).

The contest was educational for me, as I learned/used more of the features available with N1MM. I attempted 40 and 20 meter FSK-RTTY with no returns to numerous CQs.

I hope participation will better next year. I believe the date changed this year, as it seems to me it had been on a Saturday in October, same weekend as ILQP. Perhaps next time I will have time to be a rover station or multi-county station.

KØJGH
CATEGORY: SINGLE-OP ALL LOW MIXED

Number of Iowa Counties Worked: 4
Number of States Worked: 39
Number of Canadian Provinces Worked: 2
Total Multipliers: 41

Number of Phone QSOs (1 pt each): 146
CW or Digital QSOs (2 pts each): 39
Total QSO Points: 224

Final Score = 10,080

QRM

You knew it wouldn't take long for someone to do a "light bulb as an antenna" experiment with FT-8

How to learn Morse code, semi-consciously

Article is from Scientific America, Feb 1, 2017 - Ed.

Wearable computers delivering tactile cues may off a way to learn manual skills without paying much attention

Learning Morse code, with its tappity-tap rhythms of dots and dashes, could take far less effort—and attention—than one might think. The trick is a wearable computer that engages the sensory powers of touch, according to a recent pilot study. The results suggest that mobile devices may be able to teach us manual skills, almost subconsciously, as we go about our everyday routines.

Ph.D. student Caitlyn Seim and computer science professor Thad Starner of the Georgia Institute of Technology tinker with haptics, the

integration of vibrations or other tactile cues with computing gadgets. Last September at the 20th International Symposium on Wearable Computers in Heidelberg, Germany, they announced that they had programmed Google Glass to passively teach its wearers Morse code—with preliminary signs of success.

For the study, 12 participants wore the smart glasses while engrossed in an online game on a PC. During multiple hour-long sessions, half the players heard Google Glass's built-in speaker repeatedly spelling out words and felt taps behind the right ear (from a bone-conduction transducer built into the frames) for the dots and dashes corresponding to each letter. The other six participants heard only the audio, without the corresponding vibrations.

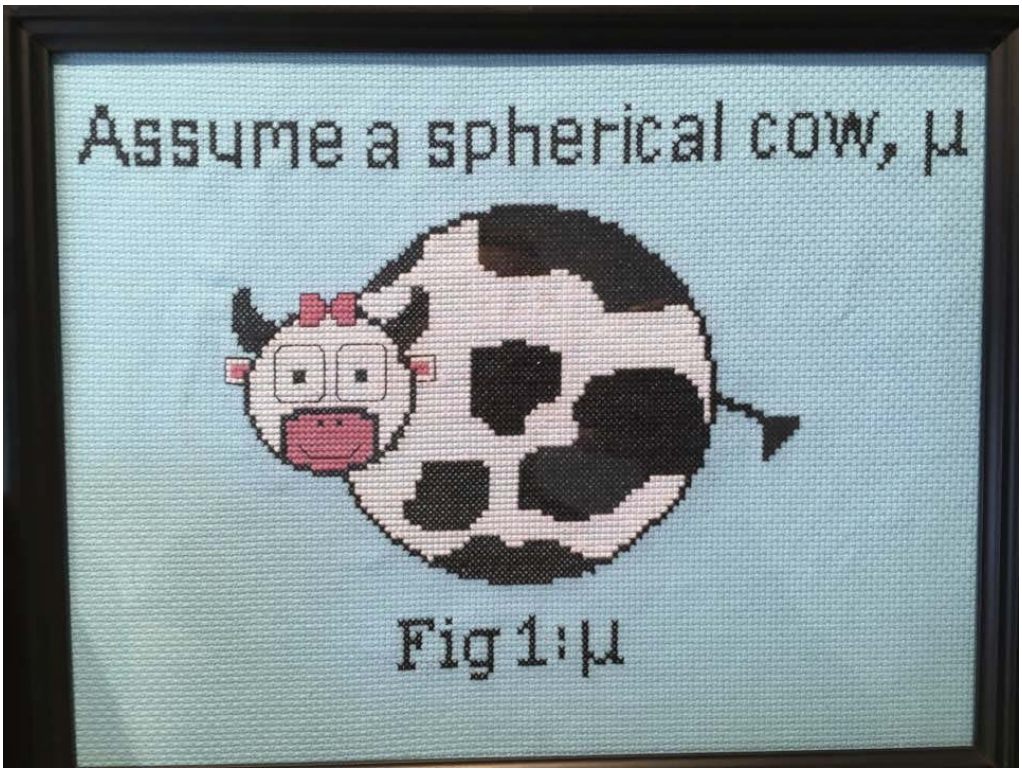
After each run of game playing, all the players were asked to tap out letters in Morse code using a finger on the touch pad of the smart glasses; for example, if they tapped “dot-dot,” an “i” would pop up on the visual display. The brief testing essentially prompted them to try to learn the code. After four one-hour sessions, the group that had received tactile cues could tap a pangram (a sentence using the entire alphabet) with 94 percent accuracy. The audio-only group eventually achieved 47 percent accuracy, learning solely from their trial-and-error inputs.

The work shows that “it is possible to teach a system of typing without the user paying much attention to it,” Starner says. Passive haptic learning could help users quickly master new text-entry methods for accessory keyboards or an eyes-free, Morse code–like system of taps on a smart watch, he adds, noting: “That might really change how people use mobile and wearable devices.”

The results are also “exactly congruent” with other effects of passive haptic learning that the researchers have found in past studies, Seim says. For example, the group has developed computing gloves that deliver vibrations to the fingers to teach the “muscle memories” for playing a piano song or typing Braille.

Although it was small scale, the experiment demonstrates how wearable computers could permit users to “go about your daily business—and while you do that, you can get information to actually learn things,” says Paul Lukowicz of the German Research Center for

Artificial Intelligence, who was not involved in the study. Now if only listening to Mandarin in your sleep could impart fluency.



Final bit of humor. Cross-stitch from my daugther - one of the best birthday gifts I've ever received. Thanks Katie - Bob WØGXA

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