

# VWOA NEWSLETTER

Email Issue #57

Francis T. Cassidy Editor

2010



**VWOA Treasurer Mike Shaw**

In August of 2009 your VWOA Editor received the following UPDATE Message from VWOA Member and Coordinator of the ARRL 500-kHz experiment Frederick H. (Fritz) Raab, Ph.D. which gave rise to a series of new personal developments disclosed by our VWOA Treasurer, J. Michael Shaw. The developments portray the enthusiasm of those connected with Wireless Transmission and Reception and their experiments in trying to continue the historically demonstrated, unique transmission characteristics of 500 kHz to all the Nations of our World.



**J. Michael Shaw K2LRE WD2XSH/42**

-- Original Message --

From: "Frederick Raab"

To: "Frank Cassidy"

Sent: Sunday, August 09, 2009 3:04 PM

Subject: WD2XSH 500-kHz operations expanded

Greetings:

On July 28, the FCC approved a modification that expands the ARRL's 500-kHz experimental license WD2XSH.

The expansion includes:

Frequencies from 495 to 510 kHz (previously 505 - 510 kHz);

Increases the number of stations from 23 to 42; and

Allows portable operation within 50 km of the designated QTHs.

The new stations (blue triangles) expand geographic coverage, especially in the western US, Alaska, and Hawaii. Some stations have reduced operating bands to ensure that they do not interfere with nearby NDBs. We will not be using 500 kHz itself to ensure there is no conflict with the heritage stations on that frequency.

One of our new stations is VWOA member Mike Shaw, K2LRE. He could probably communicate with several New England stations by day and much of the northeast at night.

73, Fritz, W1FR

Coordinator, ARRL 500-kHz experiment  
Frederick H. (Fritz) Raab, Ph.D.

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From: [Francis T Cassidy](mailto:Francis.T.Cassidy@arrl.org)  
Sent: Sunday, August 09, 2009 6:24 PM  
To: [Shaw, J. Michael](mailto:Shaw.J.Michael@arrl.org)  
Subject: Fw: WD2XSH 500-kHz operations expanded

Mike:  
Congratulations on your participation in the ARRL's 500-kHz experimental license WD2XSH

In what way will other VWOA Members participate or is it just your participation?

Frank

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From: [k2lre@aol.com](mailto:k2lre@aol.com)  
Sent: Sunday, August 09, 2009 8:09 PM  
To: [ftcassidy@optonline.net](mailto:ftcassidy@optonline.net) ;  
Subject: Re: WD2XSH 500-kHz operations expanded

I spoke with Fritz at the VWOA Luncheon when he gave his lecture about 2 years ago. I followed up with an application with a personal resume with 500 KHz experience, etc. He accepted it and passed it on to the ARRL for inclusion in their next license modification. It took all this time for FCC approval. My new experimental call sign is WD2XSH/42.

I acquired a WW2 Navy aircraft transmitter this summer, a Collins ART-13 with a rare L.F. oscillator so it will cover 500 KHz.

I have a 125 FT. long-wire antenna and with a little grounding work on the antenna it should work. (the Tx is run by a 24 volt dynamotor...).

Many of the participants built higher power amplifiers and run Rx antenna spanning several hundred feet, but that's another story.

They also run special Rx detectors that pick up signals that are below the noise level, some trick.

Fritz picked up on our association with the AMBROSE and thought it might be a good test using the ships antenna. We never discussed it since the Luncheon. I think using a museum ship for testing would help his cause.

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I don't think I could lug the 75 lb Collins with its 25 lb dynamotor plus batteries to the AMBROSE. Also it would be too much work to fire-up one of the transmitters on the AMBROSE. Many of the parts are dried up. I don't believe its AC power supply is on board. It needs 2000 volts DC plus 12 VDC, etc. But working on one of them did cross my mind. Traveling to South Street Sea Port and parking doesn't make it a pleasant job however.

I planned to advise you and Wendell after I completed restoring the Collins and put it on the air. It would make an interesting post-script in your Newsletter.

I don't know if our membership would be interested in doing some listening on 500 kc, if they had an Rx at home. You would have to ask Fritz that question. I just don't know where to take that idea.

So no VWOA money is needed or requested, right now it is only my personal experiment. If you think this would be some sort of VWOA project, let me know.

I will send you a recent list of licensee's. I'm the only station in NJ and the NYC area. Hope I can contribute something, Fritz's goal is to prove 500 kc can be a good public service frequency and disaster warning freq etc., on a regional basis.

73 de Mike

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## 500 is ALIVE By J. Michael Shaw K2LRE WD2XSH/42

It was a cold and dreary winter night when I sat down at the key while the warm glow of filaments lighted my desk. I slowly tapped out VV VV DE WD2XSH/42 on 502 kc. Yes, there I was on the once most important band in marine communications, "500". Under the whirl of the battery-powered dynamotor, I felt like Marconi himself attempting to cross the pond 100 years ago.

This January test culminated a year in restoration and preparation to get a signal on 500. My transmitter is a 1940's vintage Collins aircraft set, model ATC (ART-13). The antenna is a 135 ft, end-feed EL- long wire with 165 ft of "counter poise" wire run around the property in New Jersey. The Tx runs about 100 watts DC input with an estimated 50 watts out. Without a steel deck, floating on water, acting as a ground plane, the effective radiated power (ERP) is much less. So I guess the signal is equivalent to a ships emergency Tx.

I am part of the ARRL sponsored and FCC approved Experimental License Group authorized to transmit on 495-499, 501-515 kc. My individual identifier is slash 42. The director is Dr. Fritz Raab, W1FR.

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See the VWOA 2008 Yearbook at VWOA URL: <http://www.vwoa.org/2008Pubs.htm> and Email VWOA Newsletters #33 and #37 for a picture, story and read the attached press release (Page 7 of this Newsletter) by Dr. Raab at the end of [500 is ALIVE.](#)

I had a CW QSO with WD2XSH/31, Brian in Lynchburg, VA and WD2XSH/5, Dale in Bow, NH. (Both within a 350-mile radius). Both stations gave my rig a 568 signal report, (QSA 4). They also reported my CW note had a whoop-whoop on my dots and dashes. Ah, music to my ears.

Brian is running a homebrewed MOPA, (master oscillator-power amplifier) with tubes from the 1920's into a Marconi "T" antenna. Dale is operating a (get this) ITT Mackay Marine 2012 Tx with a 3020 Rx. His antenna is a vertical wire with top loaded radials strung between two trees. He also operates a vintage Collins ART-13 like mine. Other Group members have modified ham transmitters or have built a synthesized one from scratch. They operate with sophisticated computer software that can decode our signals deep into the noise level.

All members of the VWOA and any interested parties can participate in this experiment by listening to the 500 band and filing a reception report to our on-line web site at [www.500kc.com/reportinfo.htm](http://www.500kc.com/reportinfo.htm) . All reports will be added to our database. So give a listen this winter. Many of us are "Beaconing" or as

marine ops say, "Running the Wheel" all evening long. QSL/SWL cards are available from most members. Maybe you'll hear me. 73 de Dah dit dit Dah dit 42, Mike Shaw  
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*The following messages portray the  
J. Michael Shaw WD2XSH/42  
excitement of the 500 kc events.*

From: [k2lre@aol.com](mailto:k2lre@aol.com)  
Sent: Monday, February 01, 2010 9:21 PM  
To: [wa1zms@att.net](mailto:wa1zms@att.net) ; [ftcassidy@optonline.net](mailto:ftcassidy@optonline.net)  
; [f.raab@ieee.org](mailto:f.raab@ieee.org) ; [stivison@earthlink.net](mailto:stivison@earthlink.net)  
Subject: Re: QSO?

Brian, We did it, your MOPA and my 60 yr old ART-13. What fun, ur my first QSO on 600M. I am writing my QSL now. Pse advise Dave N2AAM of this QSO, he'll love it.. Imagine, all winter and band is quite, tonight we get QRM.. go figure.

I will pass this on to Fritz, I will write a short piece for my Veteran Wireless Operators Association Newsletter. Our members can send SWL reports to our site.....

(FYI, Fritz, tonight /31 and /42 had a nice QSO.. do you know of a web site that computes a LOP, line of position/distance between lat/lon points, I guess Brian and I are 300 miles apart...))

73 de Mike /FartyTwo

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From: wa1zms@att.net  
To: k2lre@aol.com  
Sent: Mon, Feb 1, 2010 8:29 pm  
Subject: RE: QSO?

Mike-

I'll call you at 8:30pm. If you answer then I know you got this e-mail.

If not, we'll try again at 9pm.

-Brian, WA1ZMS

-----Original Message-----

From: [k2lre@aol.com](mailto:k2lre@aol.com) [mailto:k2lre@aol.com]  
Sent: Monday, February 01, 2010 8:18 PM  
To: [wa1zms@att.net](mailto:wa1zms@att.net)  
Subject: Re: QSO?

Great, I just turned the rig on and your a 549/559 , I'll listen for you first....  
GL de Mike/ 42

-----Original Message-----

From: [wa1zms@att.net](mailto:wa1zms@att.net)  
To: [k2lre@aol.com](mailto:k2lre@aol.com)  
Sent: Mon, Feb 1, 2010 8:03 pm  
Subject: RE: QSO?

Mike-

The beacon is running now on 508.7KHz. I'll keep it running and will call you on that frequency at 9pm. We'll have a quick CW QSO and I'm looking forward to it.

-Brian, WA1ZMS/4 & XSH/31

-----Original Message-----

From: [k2lre@aol.com](mailto:k2lre@aol.com) [mailto:k2lre@aol.com]  
Sent: Monday, February 01, 2010 7:26 PM  
To: [wa1zms@att.net](mailto:wa1zms@att.net)  
Subject: Re: QSO?

Brian,

9 PM sounds good, if I hear you I'll e-mail before then, I can slide up to 508.7 or so. My freq counter has dead batteries but I'll zero beat you. It should be fun, thanks,  
73 de mike /FartyTwo

--Original Message---

From: [wa1zms@att.net](mailto:wa1zms@att.net)  
To: [k2lre@aol.com](mailto:k2lre@aol.com)  
Sent: Mon, Feb 1, 2010 2:31 pm  
Subject: Re: QSO?

Mike-

A QSO sounds fine to me. We can pick a freq and call each other (i.e.: WD2XSH/42 de WD2XSH/31 ) or if you want to listen for my beacon first on 508.7 and if you hear it, just send an e-mail to me and I'll call you at top of the hour or half-past....whatever works. I'm usually tied up until about 8pm with family. So if after that works for you, just let me know.

-Brian, WA1ZMS/4 & XSH/31

--Original Message---

From: [k2lre@aol.com](mailto:k2lre@aol.com)

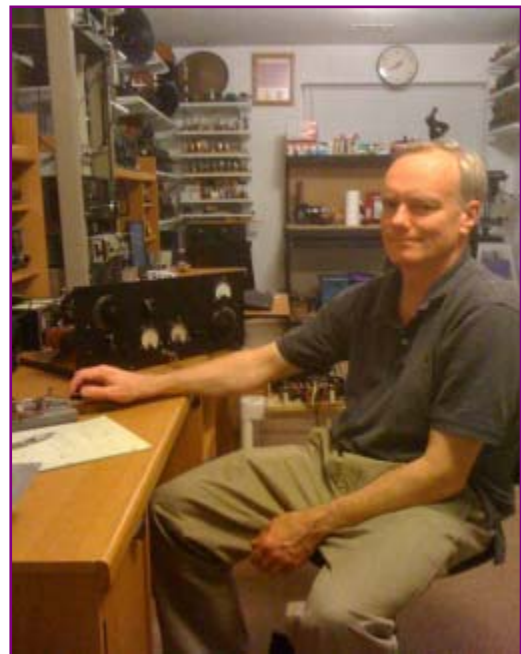
- > Brian,
- > Your beacon was 5/3 or better tonight in N.NJ FN20. I beamed and got a rpt from /37 Bob in N.C. so maybe we can QSO Monday night??
- > How do we do this, zero beat each other/ Call CQ (is CQ allowed?) or
- > whatever. I can go to 508 or what do you suggest?
- >
- > 73 de Mike /FartyTwo (K2LRE)  
[K2LRE@AOL.COM](mailto:K2LRE@AOL.COM) or 500kc reflector.



Dale Gagnon KW1I WD2XSH/5 NH



Tom Mackie W2ILA WD2XSH/9 RI



Brian Justin WA1ZMS/4 WD2XSH/31 VA

THE CONCLUSION OF  
500 is ALIVE  
By J. Michael Shaw

# THE ARRL 500-kHz EXPERIMENT

## WD2XSH

Under the experimental license WD2XSH, a group of radio amateurs has begun exploration of the 500-kHz band. Our objectives are to apply modern technology to this classic frequency, to demonstrate that we do not cause harmful interference, and thus to pave the way for a new amateur band at WRC-12.

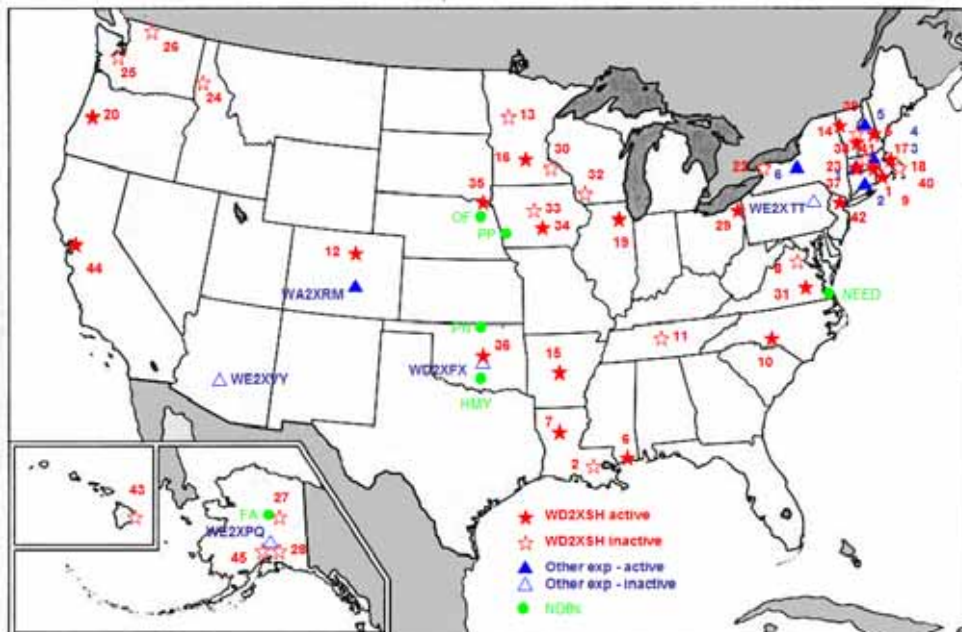
The classic 600-meter band provided for maritime calling and distress communication for nearly a century, but has now fallen into disuse because of the transition to the satellite-based GMDSS system. As an amateur band, it can continue to serve much the same role by providing reliable regional emergency communication via ground-wave. Such communications are omnidirectional and not subject to disruption by the state of the ionosphere.

Since issuance of the license in 2006, WD2XSH operators have accumulated over 40,000 hours of interference-free operation. Reception and QSOs at distances of 500 to 1000 miles are routine. QSOs have been made at distances of 3713 mi, and reception has been reported at 6679 mi.

Amateur/experimental stations are now operating on 500 kHz in eleven different countries, including Canada. Several stations are also operating under a second U.S. license, WE2XGR. The frequencies range from 493 to 515 kHz. The modes of operation include CW, slow-speed CW, PSK-31, and WSPR. In the eastern USA, stations can be heard almost any evening.

In the best tradition of amateur radio, our operators have used a wide variety of technologies to put their stations together. The transmitters include modern solid-state designs, modified vacuum-tube equipment, and vintage equipment. The antennas are mostly top-loaded verticals, but loops and some other antennas are used as well.

We welcome reception reports via our website [www.500kc.com](http://www.500kc.com), which has additional information on the experiment.



Frederick H. (Fritz) Raab, Ph.D.  
Coordinator, ARRL 500-kHz experiment  
provides the following remarks:

Additional sources of information:

[www.500kc.com](http://www.500kc.com)

(also this is where you can file reports).

F. H. Raab, "ARRL 500-kHz experimental  
license WD2XSH," QEX, pp. 3 - 11,  
July/Aug. 2007.

F. H. Raab, "Amateur radio exploration of 500  
kHz," Platinum Jubilee Yearbook (J. Belrose,  
Ed.), paper T2, Radio Club of America, Nov.  
2009.

I should also note an amateur band at 500  
kHz will provide a home for operation of both  
vintage equipment and heritage stations like  
the MRHS KPH. I think we are making good  
progress, and am keeping my fingers crossed  
for WRC-12.

Thanks for publicizing our project in the  
VWOA. We would be delighted to have more  
reports!

I just received the attached article yesterday.  
It is written from the perspective of a former  
RO who is also a ham who is active on 500  
kHz. I thought it might be of interest to the  
VWOA and help to produce interest in the  
current 500-kHz activities, so I have secured  
permission from Finbar for you to reprint it.  
He asks only that you cite the source

(Echo Ireland, publication of the Irish Radio  
Transmitters Society) and give his  
e-mail address as:

"Finbar O'Connor EIOCF"

<[beachwood@eircom.net](mailto:beachwood@eircom.net)>

73, Fritz, W1FR

GREEN MOUNTAIN RADIO RESEARCH CO.

77 Vermont Avenue, Fort Ethan Allen

Colchester, Vermont 05446 USA

Tel./Fax.: +1 (802) 655-9670

Home: +1(802) 862-0997

E-mail: [f.raab@ieee.org](mailto:f.raab@ieee.org)

The Report from Finbar O'Connor EIOCF is  
attached as Pages 11 and 12 of this VWOA  
Email Newsletter #57

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### *WENDELL'S NEWS CORNER*

From: James Griffith w5xp

Date: February 6, 2010 3:19:24 PM EST

To: "Wendell R. Benson"

<[wenben@nyc.rr.com](mailto:wenben@nyc.rr.com)>

Subject: Re: VWOA member James Griffith w5xp

WW2G: I was glad to hear from you the other  
day. We had a good QSO on the land line. It's  
been a long time since I was pounding brass in  
the merchant marine or even earlier in the US  
Navy. You mentioned WPD in Tampa during  
our conversation. I lived in St. Petersburg  
during the time I was sailing in the MM and



would pass some traffic to WPD when I could. I'm sure nobody would remember me as I only stopped by the transmitter station in Tampa a few times. But they may remember my old sidekick Walt Treftz. We were in the Navy together and he was the one who helped me into getting my license and sailing in the MM.

Also I'm not active in ham radio anymore. Made the mistake of moving into a neighborhood with the no antenna restrictions. Tried a few makeshift attic units but they didn't work out too well, so I worked the 2-meter crowd for a number of years until I sold my PU truck and took the unit out. With all the traveling the XYL and I do there is not much time left to do much else. So much to see and so little time to do it.

73 W5XP

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From: Wendell R. Benson  
<[wenben@nyc.rr.com](mailto:wenben@nyc.rr.com)>  
To: James Griffith W5xp  
Sent: Fri, February 5, 2010 10:51:46 PM  
Subject: VWOA member James Griffith w5xp

I told him I spoke to you yesterday - Wendell  
ww2g

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Begin forwarded message:  
From: "Don Berger"  
Date: February 5, 2010 11:45:00 PM EST  
To: "Wendell R. Benson"  
<[wenben@nyc.rr.com](mailto:wenben@nyc.rr.com)>  
Subject: Re: VWOA member James Griffith w5xp

Reply-To: "Don Berger"  
Thanx Wendell - the mention of WPD (and Hoffman Island) always brings a spurt of joy to my heart.....  
73 Don

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**VETERAN WIRELESS  
OPERATORS ASSOCIATION**  
**Eighty-Fifth Annual Banquet**

**June 5, 2010**

**Seamen's Church Institute  
New York, New York**

**Reserve this DATE on your  
Social Calendar**

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We sadly report that we have received notice recently of the following SK VWOA Member:

Life VWOA Member  
LAWRENCE E. KEANDER W1DJK  
SK 02/25/10

Date: February 26, 2010 12:11:01 PM EST  
To: <[wenben@nyc.rr.com](mailto:wenben@nyc.rr.com)>  
Subject: silent key

This is to inform you, that my grandfather, Lawrence Keander, W1DJK, a member of VWOA, has passed away.

He died peacefully last night.

If there is anything else needed, please let me know:

Lori Feenstra  
[feenstras4@comcast.net](mailto:feenstras4@comcast.net)

Frank:

He was a LIFE member who was 99 years old.

Re: Lori Feenstra who made the report: She is his granddaughter and is an extra class ham "KB1KFJ"

I acknowledged her report.  
Wendell Benson

# 500 kHz - The Historical Band

by  
Finbar O'Connor, EI0CF

A Winter night, the wind blowing in off the Atlantic, snow on the mountains nearby. Inside, the warm glow from radio equipment in a radio station perched on the edge of Ireland's North coast.

I pulled the Morse key a little closer, peered at the small message notepad on the desk, glanced at the big radio room clock, watching the second hand tick ever closer to midnight. It was the night of the 31st December 1988, a bit of history in the making. Malin Head Radio, callsign EJM was going off the air, for the last time on 500 kHz, and I was the guy rostered to do the honours.

An hour earlier, my fellow Radio Officer, who was manning 2182 kHz and the various VHF channels, glanced at me in surprise as Scheveningen Radio PCH, in Holland, suddenly came up on 500 kHz with a huge signal and announced they were closing down on 500 kHz and 2182 kHz with immediate effect. To say we were surprised was an understatement. Along with Norddeich Radio DAN, in Germany, they were the dominant and most powerful signals on MF. We had long suspected they were running huge amounts of power to a massive antenna. Indeed for a time, Scheveningen Radio had caused us an amount of grief, since they shared our working frequency of 421 kHz and their traffic list broadcast coincided with our 0848 utc weather broadcast.

Imagine how we felt when ships complained that our 1 kW signal was being blotted out by PCH, way off the north west coast. Our signal was not behind the door, we did get out well to the west, north and the south Irish sea, yet we were trounced good and proper by our Dutch friends, who, obviously, had access to transmitter power well beyond what we had available. So we were surprised to find that they had just taken themselves off the air, just like that, 'in an instant'.



## EJM

Malin Head Radio, callsign EJM with two 50 metre towers, backup "Tee" antenna for 1.6 - 30 MHz operations. Wire "Tee" antenna strung between the towers for Navtex on 518 KHz.

The main receive antenna is located on the hill seen beyond the station, 1 km distance and fed to the radio station by 600 ohm open wire feeder.

Picture - Finbar EI0CF

During daylight hours 500 kHz provided solid ground-wave coverage, an excellent system for distress coverage.

The provision of numerous coast radio stations, like Malin Head and Valentia Radio, EJK, plus the many thousands of ships all manned by trained Radio Officers, meant that 500 kHz had many many pairs of ears, all listening for any distress, urgency or help, in return.

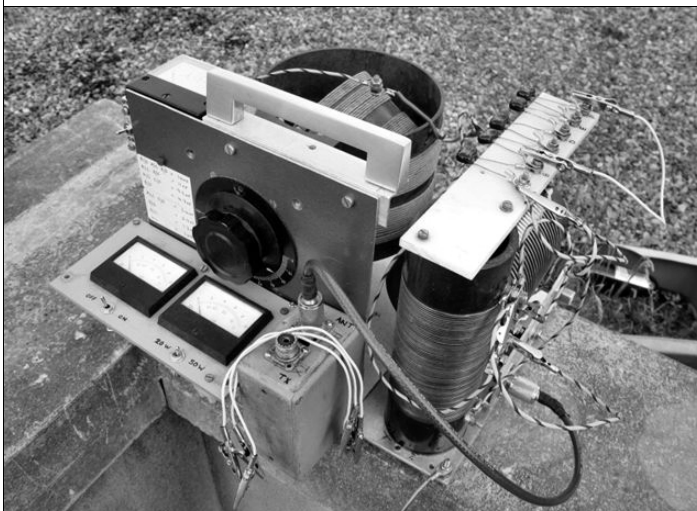
On the 31st of December 1999, all requirements for the use of 500 kHz ceased, many coast radio stations closed down completely and ships were no longer required to have a radio officer. Most ships had already been fitted with satellite communications equipment for distress and normal ships business, supplemented by short range VHF and Digital Selective Calling on 2187.5 kHz, plus the Navtex system of broadcasting weather and navigational warnings on 518 kHz and 490 kHz.

However, those of us who had sailed at sea and served ashore in marine radio, mourned the passing of a service on 500 kHz that had proved it's worth and had helped in the saving of many lives since its inception nearly a hundred years before it's eventual closure.

Down in the transmitter room, or High Tension room, as us old timers called it, the big all valve 500 kHz transmitter blowers whined away, masking the gusts of wind beating against the windows. Two banks of Pye 512 kHz 500 kHz and 421 kHz rigs, main and standby, all nicely lined up. A bright warm glow from one cabinet, the common modulator section for all three channels, was visible through a glass panel. The pair of one foot tall, 4212e Triode valves, the output stage of the modulator, produced 500 watts of audio, at a tone of about 800 hz, to fully anode and screen modulate the final stage of the 1 kW transmitters.

The much smaller SSB transmitters, in a row, at the far end of the room, kept silent and waited in respect for their bigger brother's time in history.

(Continued on page 21)



This picture shows a combined L match 500 kHz ATU, complete with an antenna current meter, a croc clip selection of shunt capacitors, ranging in value from 1 nF to 14 nF. The inductance is readily varied exactly with the ex Decca Variometer of 260 uH and fixed coils, which are also tapped, of 150 uH and 30 uH. This combination of components should match most wire antennas, fed against a reasonable ground.

(Continued from page 20)

Once again I adjusted the Morse key on the 500 kHz desk, the notepad with the close down message was scanned.... again. The 3 minute Silence Period, the time, twice in an hour, when all stations remained just that, SILENT. A chance to hear weak distress calls, from 15 to 18 and 45 to 48 every hour. 2348 utc, a weak CQ from the Black Sea, Bulgaria on the air, then a rapid stream of Morse from Trieste Radio IQX, belting out his traffic list announcement, followed by Mariehamn Radio OHM, up in a frozen Finland, then a gap.

It was time....

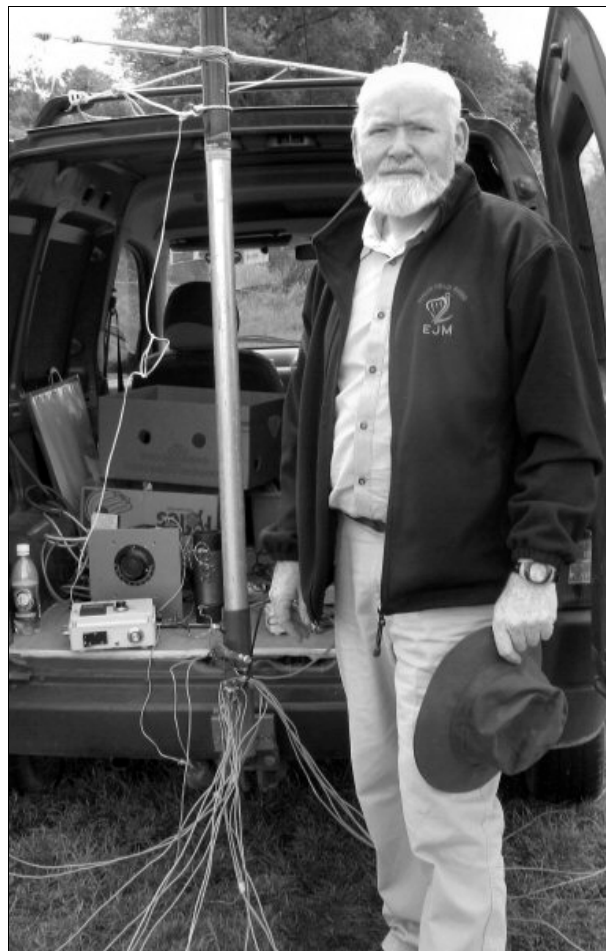
CQ CQ CQ DE EJM EJM EJM .....

My hand firm on the key, yet inside a mixture of emotions, glad I had been given the chance to send this final transmission, yet very very sad, that we were going off the air on 500 kHz, forever.

The transmission finished, 500 kHz burst to life, ships and coast radio stations, calling, wishing us good luck, thanks for our service over the years, best wishes for the New Year, one even commenting that their time would also soon be upon them.

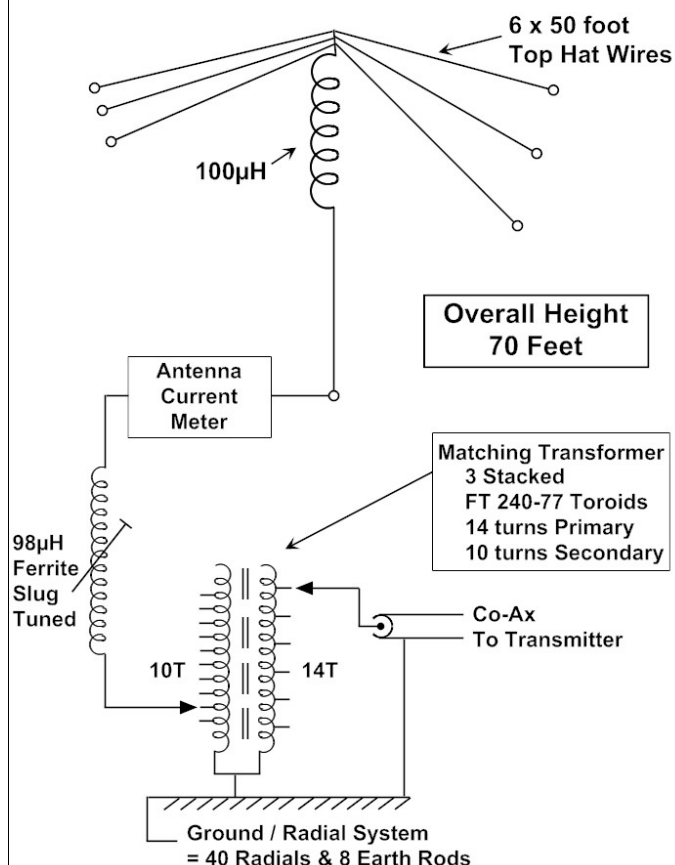
Fast forward to 2008 and the IRTS announces their intention to apply for permission for Irish amateurs to operate near 500 kHz, in the 501 - 504 kHz band.

Permission is granted by ComReg and I dash off my application for a licence. Imagine how pleased I am to receive permission to put a signal out on 501 kHz all these years later. To say that the band has not disappointed is an understatement. It has given me immense pleasure and pride to radiate a signal



Finbar EI0CF at his portable set-up

## EI0CF 501 - 504 kHz Antenna



there, once again. Working across the Atlantic to Canada and the USA, to Sweden, Norway, Denmark, Holland, the UK. Cross band, usually to 80m on 3566 kHz, with France, Germany, Ukraine, Finland etc, has been a terrific experience. Ireland is on the air again on MF CW.

I would urge those considering operating on 500 kHz to have a go, it will widen your operating horizons. Don't imagine that Morse will be sent at a very fast speed. It is a most leisurely rate, sent by people who would just love to welcome you aboard and help you reach your new radio destinations.

If digital and data is more of an interest, WSPR is quite popular, and the WSPR programme and help files are easy to download. My reception of weak signals from the UK, Europe and the USA prove it is a viable means for those with low power, small antenna or minimal ERP. Set your receiver to 502.4 kHz USB and let the WSPR programme decode the results. You can then upload what you have received to a common site and those experimenting can see how far their signals are radiating and at what time. Many more countries are joining those already allowed to operate on MF.

Let me take this opportunity to thank the IRTS for their work in making all this possible on 501 - 504 kHz.

Finbar O'Connor, EI0CF  
Malin, County Donegal.