

# SHORTWAVE BULLETIN



Nummer: 1581. 22 januari 2006. Deadline nästa nr: 3/2 2006 (E mail 5/2 kl. 0900 SNT)

Tid igen för att sätta sig och sammanställa SWB.

Nu på morgonen är det -14 gr här utanför Ängelholm. Vi har haft ett par dagar med mycket blåst, en del snö och framför allt kraftigt snödrev.

Det kändes i kroppen att det var länge sedan snöskyffeln varit framme.

Nu tyder prognoserna på att den kommande veckan kommer att bli kall så det är bara att ställa om sig för kyla.

Var över i Herning på mässa tis – ons. En hel del danskar kör fortfarande runt i snöyra med sommardäck. Det finns ännu inte någon lag på detta.

En kollega som tagit god tid på sig från Frederikshavn svarade när jag frågade varför han inte hade vinterdäck, att skulle sådana monterats, hade det blivit den dyraste delen på bilen... Ja, ja, tro't den som vill.

Keep on ....

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R e d a k t i o n:

Thomas Nilsson  
Mardalsv. 372  
262 93 Ängelholm

Tel: 0431-27054

E-mail:  
[thomas.nilsson@ektv.nu](mailto:thomas.nilsson@ektv.nu)  
[\(thomas@mafa.se\)](mailto:(thomas@mafa.se)

## SWB-info

SWB online på HCDX: <http://www.hard-core-dx.com/swb>

Dateline Bogotá: <http://hem.ektv.nu/~ekt035221/Dateline.htm>

SWB hot stuff: <http://hem.ektv.nu/~ekt035221/> (på denna sajt ligger alltid senaste SWB).

SWB member information: <http://www.hard-core-dx.com/swb/member.htm>

Jubileumstidskriften: <http://hem.ektv.nu/~ekt035221/> (html- + pdf-version).

### MEDLEMSAVGIFT 2006 (membership fee 2006):

Medlemsavgiften för 2005 är SEK 75:- för internetbulle och SEK 250:- för pappersbulle. För utländsk medlem, som betalar direkt via postgirot, tillkommer SEK 30:- för att täcka den avgift postgirot tar ut. Betalning till Bengt Dalhammar, postgirokonto 51 84 47 - 8. Medlemsavgifterna skall vara betalda senast 31/1 2004.

Membership fee for 2006 is SEK 75:- for internet version and SEK 250:- for paper version. Payment to postal account 51 8447- 8. Add SEK 30:- to cover postal costs.

(Foreign members please contact the editor regarding other ways to pay.)

## QSL, kommentarer, mm.

Christer Brunström: AIR Gorakhpur 3945 med kort blev första kortvågssvaret för år 2006.

**Stig Adolfsson:** De goda MV-konditionerna har fortsatt och i viss mån har detta också varit gynnsamt för kortvågens lågfrekventa del. Översänder några hörigheter som kanske är lite typiska för årstiden.. Snart är det för ljust här i mellansverige för att dessa stationer (PNG) skall kunna höras dagtid. Undrar just om de har förlängt sändningstiden någon timme....

**Olle Bjurström:** Här kommer några bidrag som jag lyssnat på när jag har utvärderat en K9AY antenn som jag satte upp före julhelgen.

Mina intryck av antennen jämfört med c:a 80 meter långa båvrar är att den hävdar sig väldigt bra. Signalen är i allmänhet något lägre, men även bruset. Jag uppfattar det som att S/N ofta är bättre än för båvrarna.

Jag har monterat identiska 20dB förstärkare dels vid antennen och dels inomhus vid mottagaren och finner att man får i stort sett samma resultat trots 50 meter koaxialkabel till antennen.

Senaste två veckorna har det nästan varje morgon hörts US stationer på mellanvåg här i Roslagen, om än oftast med fladdriga signaler. Bifogar några tips från kortvågen ofta avlyssnade med K9AY.

(*Olle, kan du dela med dig vilket schema du använt till bygget av förstärkarna eller är det ev. inköpta från nån leverantör? Många av våra medlemmar är intresserade av så mycket info som möjligt avseende denna antennkonstruktion då den kräver minimalt utrymme. /red*)

**Björn Fransson:** Eftersom mellanvågen varit så pass givande har det inte blivit mycket nyhört på kortvågen. Men ändå detta! 73 från Björn, som åter sett snön vräka ned över Gotland – just som det blivit snö- men inte isfritt!

**QSL:** Radio Caroline Eifel via Ulbroka-9290. Brev med påtryckt dekal, v/s: Roman L (16 år!). 1 m. Central Weather Bureau, Taipei-5170 och 8171. Personligt brev med inbjudan att komma och hälsa på + kylskåpsmagnet med stationens logga på! Man hade inte fått någon rapport "from so far away" förut, vilket kan tolkas som minst SM-1, kanske till och med EU-1! Kul! **Radio Goes, holländsk pirat-6290** heter så efter staden den sänder från. E-mail, v/s: Marcel och Wim. SM-1. WWL, The Big 870, som reläade **United Radio Broadcasters of New Orleans** under orkanen horde jag via WHRI, Cypress Creek, SC-5835. Svarade med ett snyggt kort, undertecknat av Joe Polett, Chief Engineer på WWL Radio, och broschyrer om hur URBONO skötte verksamheten under katastrofen. QSL nr 10. **Adventist World Radio via Wertachtal-7110** med kort, v/s: Adrian Peterson.

# LOGGEN - ALL TIMES ARE UTC

3234.998	14.1	1400	<b>Radio West New Britain</b> , Kimbe med populärmx. Cd 1404 med National Anthem. 2-3 SA
3235	19.1	1323	<b>PNG, R. West New Britain</b> med önskeprogram och trevlig musik. C/d 14.04. 2-3. OB
3325	12.1	1545	<b>Palankaraya</b> med inhemska mx 2-3 LRH
3325	19.1	1400	<b>RRI, R Palangkaraya</b> torde det ha varit, men avvaktade inte på frekvensen. 2. OB
3330	10.1	0615	<b>CHU</b> , Canada tickar på som bäst i dessa NA-kondstider. S 3. BEFF
3334.996	15.1	1355	<b>Radio East Sepik</b> , Wewak spelade John Denver. Cd 1400 med National Anthem. 2 SA
3335	15.1	1333	<b>PNG</b> med det nationella programmet. C/d 14.00 med ID men nämner bara 4890 frekvensen. Troligen R East Sepik som testade något utanför sina ordinarie sändningar. I övrigt fin och stilla musik. 2-3. OB
3578.731	14.1	1315	<b>Radio Suara Pemerintah</b> , Ngada med prat, prat. Stängde 1328. 2 SA
3810	10.1	0615	<b>HD210A</b> , Ecuador har jag inte hört så många gånger. Nu S 2-3. BEFF
3815	14.1	2058	<b>Grönlands Radio</b> med musik. Nyheter på danska kom 2200. 2 CB
3815U	11.1	2100	<b>Grönland</b> mest prat, alltid kraftigt störd av olika trafikslag 2 LRH
3935,07	12.1	0740	<b>Radio Reading Service (Tent)</b> svagt igenom med mest prat, även kvällstid vid 1630 tiden men lika svag 1 LRH
3960,50	12.1	1535	<b>Palu</b> med blandat px, på rätt plats igen och med en god 3 LRH
3985	19.1	1355	<b>China Business Radio</b> med ID på EE och CC: "Zhongyang Renmin Guangbo Dientai". Spelade en schlager före 1400 och sedan var det full fart på snackandet och ID-andet. S 3-4, men ibland helt borta bakom mycket störningar (det låt som om sändaren knäpptes av och släppte fram störningarna!). BEFF
4604,94	12.1	1430	<b>Serui</b> med härlig indonesisk schlager musik och med bästa styrkan på många år 3-4 LRH
4605	19.1	1410	<b>RRI, R.Serui</b> går bra mest varje dag med trevlig musik. 3. OB
4775	14.1	2305	<b>Radio Tarma (t)</b> med musik. 3 CB
4777	9.1	0530	<b>Radio Gabon</b> med diverse annonseringar på franska. 2 CB
4777	16.1	0502	<b>Radio Gabon</b> med nyheter på franska. Kanske startar man ännu tidigare? 2-3 CB
4789.974	14.1	1305	<b>RRI Fak Fak</b> med skön lugn "musik populer". Ovanligt stark. 3 SA
4809.9	9.1	1925	<b>Radio Yerevan</b> med engelska nyheter. S 3. BEFF
4890	9.1	2000	<b>PNG, Port Moresby</b> med nyheter. 2-3 och ofta "pulsstörning". OB
4950	14.1	2230	<b>Radio Madre de Dios</b> med "Natalie". 3 CB
5005	16.1	0535	<b>Radio Bata</b> med spanska. 2 CB
5020	20.1	1355	<b>SIBC</b> , med BBC relä. Stark 3-4. Sällan hörd, efter nyår, med sina lokala program då signalen före 11.00 är ytterst svag. OB
5030	16.1	0605	<b>Radio Burkina</b> med spänande lokal musik. 3 CB
5050	9.1	1930	<b>R. Tanzania</b> brakade in med ID. 4-5. OB
5470	14.1	2210	<b>Radio Veritas</b> , Monrovia med nyheter på engelska. 2-3 CB
6210	15.1	1710	<b>Radio Farda</b> gick fint //6940. Bäst på 6210. S 3-4. BEFF
6334	7.1	0615	<b>VO Iraqi Kurdistan</b> med en nyhetsbulle om Kurdistan, förstås. S 3-4, men dålig modulation. BEFF
7110	3.1	2000	<b>AWR via Wertachtal</b> med Farsi. Svarade snabbt och fint genom Adrian P. S 2-3, bara. BEFF.
7120	9.1	1045	Låt er inte luras av radioamatörerna på denna frekvens. En dag var jag "säker på" att det var PNG med ett "phone-in"-program, men icke! Det var en Belfastbo som satte och snackade med kompisens i Tyskland – på någon som jag tolkade som "Aussie-EE"! S 2-3. BEFF
9270,15	13.1	1550	<b>OID</b> med tal och korta snuttar av asiatisk mx. Lät som en asiat långt österifrån ,språket lät som kyrgyz . Fadade bort efter ca 15 min. 2 LRH
9820	14.1	2255	<b>Xinjiang PBS</b> med engelsk språkkurs. Flera IDs 2300. 3 CB
15540	21.1	0925	<b>China's Business Radio (CNR2)</b> med anrop på engelska "China's Business Radio - Your Radio". 3. Utstörd av VoR kl 1000. CB
15820	9 & 18.1	0930	<b>Argentinas LTA-feeder</b> har gått bra några dagar (LSB). Idag var det fotboll. Jag har haft svårt att ID-a vilken station som sänder just då. S 3-4 och bra tryck i signalen. BEFF

## Stationsnyheter

**CENTRAL AFRICAN REPUBLIC.** New, **5035.0**, 0525-0610 fade out, 08-01, **R. Centrafrlique**, Bangui (tentative), French conversations, 0557 pop music, 0602 talk (news scheduled); 24131, intermittent CWQRM. Station reactivated on this frequency!  
(ANKER PETERSEN, @tividade DX via DXLD)

**INDONESIA.** **4579, RSPD Maluku Tengah** (tentative) surprised to hear this one on 1/14 while trying to tune 3517 on an excellent night for trans-Pacific DX with man announcer and music from 1313 tune to 1328 abrupt carrier off. SINPO 25332. PWBR lists this as RSPD Maluku Tengah with RSPK Ngada on 3517 but WRTH lists only RSPK Ngada on 3579 and nothing on 3517. Anyone with ideas on the real identity here? (Bruce Churchill-CA-USA, DXplorer Jan 16 via BCDX via DXLD)

**LAOS.** **4678, Sam Neua** with best ever signal here on Jan 14 from 1150 UT tune to carrier off at 1230. Although the frequency was noisy, the signal level was a solid 2 with a radio drama and Laotian songs to 1200, instrumental program music to 1201 then into segments of man and woman alternating announcements until 1229.5 when there was a closing announcement by man followed by woman, then carrier off promptly at 1230 UT. SINPO 25332 (Bruce Churchill, CA, DXplorer Jan 16 via BCDX via DXLD)

**PAPUA.** Hi all, on 7120 I usually have Xinjiang with Kyrgyz until 1230 UT, but **Wantok Radio Light** has been well over the threshold many times lately, today Sat Jan 14, too. Christian songs, some of them with choires singing in a South Pacific style. From 1300 Radio

Romania. Their carrier seems to begin warming up at different times, e.g. 1253, as today, sometimes as late as 1259. 7120 is at times full of ham operators, today with a funny-sounding whistle concert when one of them was, I think, trying to start up a repeater. So there is a "window" to hear Wantok Radio Light between 1230 and 1300. 73/Johan Berglund, Trollhättan, Sweden AOR AR7030 30 m LW (via HCDX)

**PAPUA NEW GUINEA.** All these PNG stations logged on 1/19 with mostly "Pacific island music" plus some news and announcements about Papua New Guinea during multiple tune-ins between 1155-1310. Signal levels for these "PNG's" were highest noted since January 2005 at this midwestern QTH.

PNG. 3205. R. West Sepik. Vaino.

PNG. 3235. R. West New Britain. Kimbe.

PNG. 3385. R. East New Britain. Rabaul.

PNG. 3905. R. New Ireland. Kavieng.

PNG. 4890. NBC. Port Moresby.

A large "thank you" is owed to Bruce Churchill for reporting recent (1/14) excellent Pacific DX reception, including PNG 3205.

Stephen Bass. Columbus, Ohio. Icom 746PRO Transceiver. Wellbrook 330S Loop Antenna. (Via HCDX)

**PERU. 5700, RADIO TRIPLE SH.** San Ignacio. 0148-0232\* Enero 15 !!! Frecuencia reactivada. Nuevo Nombre !!!

Ex-Radio Frecuencia San Ignacio, Reactivación con nuevo nombre y al parecer nueva administración. Presentado largas tandas de música variada. Con algunos comunicados. Muchos anuncios comerciales: Ferretería Señor Cautivo, Confecciones Peña, Multiservicio Karol, Renovadora de Calzado El Diamante. Menciona transmisión en "triple" frecuencia: 99.6 FM, 1200 kHz OM y 5700 kHz OC. "...somos Triple SH..." "...mantenga la sintonía con Triple SH para más comunicados" "...Desde esta provincia fronteriza de San Ignacio, Tierra del café, transmite su Radio Triple SH." A pesar de monitorearla, no capté su dirección postal (Rafael Rodríguez R., Bogotá, condig list via WORLD OF RADIO 1301, DXLD)

**SAINT HELENA.** Re 6-012: Folks, here's further information about what is required to get RSH back on the air, via Robert Kipp in Germany: Radio St. Helena :

The Dream We all now have a singular chance to take part in the revival of the famous international, multi-media (Telephone, fax, Email), listener-interactive (in real time) shortwave broadcasts from Radio St. Helena.

The CEO, the Board of Directors, the Station Manager, and everyone even remotely connected with RSH is hoping very much indeed that we will be successful in this venture. We Friends of RSH will, however, need to fund this "Project" entirely by ourselves.

When these world-wide transmissions stopped in late 1999, the old transmitter and the complete antenna system with towers were scrapped. We are starting with only a dream, but quite often, dreams do become reality.

A technical concept for our "Project" has been decided upon and resembles a high-powered amateur radio station. After many discussions, specific equipment has been selected and suppliers have been found. Used equipment is being sought, when possible. To cut transportation costs, the heaviest items are being sought in the UK.

We are hoping for the donation of two used amateur radio transceivers such as the Yaesu FT-757GXII or similar. If you can help, please send me an email.

This is OUR opportunity to say, "RSH, that's MY station!" The revival of the shortwave programs would spread the word of this wonderful and historic island and lead to increased commerce, trade, and tourism for St. Helena, especially when the planned airport becomes operable. Together we all can make this dream a reality. Let's do it! Let's put RSH back on the shortwaves! More soon.

Robert Kipp RDC-Roberts-Data @ t-online.de (via Walt Salmani, BC, dxldyg via DXLD)

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Well, maybe we need to push the issue and probably as the ("longest"), DX Club away from St Helena. What can we do to help? Regards (John Wright, Australian Radio DX Club, HCDX via DXLD)

Finding a used hf transmitter shouldn't be the problem. But: Is the RSH technician willing to do the technical service for such a transmitter and its antenna? Otherwise it would not make sense to shop for a transmitter, because it would go the same way as many swbc transmitters in f.e. mainland Africa. Regards, (Harald Kuhl, Germany, HCDX via DXLD)

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Here's the third of four information letters from Robert Kipp in Germany. He tells me that in the last letter he will provide information regarding monetary donations, so please stand by: Radio St. Helena : The Project

Our "Project" to put Radio St. Helena back on the air on shortwaves and to revive the famous "RSH Day" interactive broadcasts is still a dream, but day by day this dream is coming closer to becoming reality.

Anyone who has attempted to put together a 1000 Watt amateur radio station with an outdoor antenna system will appreciate the difficulties. We need a receiver, a separate 100 Watt transmitter, a robust 1000 Watt linear amplifier, a sturdy antenna for 27 meters, a heavy-duty rotor, various special cables, an SWR-monitor, a power meter, and a 13 meter tall antenna tower. In addition, about 2.5 cubic meters of expensive concrete for the tower is almost essential. Add to all that the transportation costs for the ship from England to St. Helena, and the fact that the ship only visits England twice per year. On top of all that, we need to coordinate this "Project" more or less remotely from a distance of several thousand kilometers and to turn every coin over twice before we spend it.

We are hoping for the donation of two used amateur radio transceivers such as the Yaesu FT-757GXII or similar. If you can help, please send me an email.

This is quite a nice "Project", and amazingly, it is proceeding fairly well! This may be the first time ever that radio friends have actually helped to build "their own" shortwave radio station! This is really a unique experience. However, without your many donations and some sponsors, we will not be able to succeed. RSH still needs a lot of help from us all. Let's do it! Let's make this dream become reality. More soon. Robert Kipp (via Walt Salmani, Victoria, BC, Jan 20, DX LISTENING DIGEST)

**UNIDENTIFIED.** Re 6-007: ``9270.106, 27.12 1410, unID in AM, the same station I reported earlier, then in American, this time an unID lang (Stig Adolfsson, Sweden, SW Bulletin Jan 8, translated by editor Thomas Nilsson for DX LD)``

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2 x 4635, Tajikistan, Yangi Yul. 1400-1100 UT ?????????? 73 (Wolfgang Büschel, DX LISTENING DIGEST) I think this has already been reported on 3rd harmonic, so looks a good bet. Now SA needs to measure 4635 to three decimal places, preferably when 9270+ is also in. Soon to be blotted by WINB on 9265; see U S A (gh, DXLD)

# Övriga radionyheter

## OVER THE HORIZON RADAR

See <http://www.iarums-r1.org/iarums/sound/main.html> and listen to OHR example tone files (DARC Bandwatch IARU-MS Reg. 1, via Ulrich Bihlmayer DJ9KR Jan 19 via BCDX via DXLD)

## CD LIMITED LIFE???

Did you move all those precious SWL tape recordings over to CD's so they would last? If so, read this bit of wisdom:

<http://msn.pcworld.com/news/article/0.aid,124312.00.asp?GT1=7645>

(Pete Costello, Jan 16, dxldyg via DX LISTENING DIGEST)

In re CD's Don't Last (as long as tape?). I have burned CDs well over 5 years old. No problems with them. I've done nothing special about storage, etc. Perhaps urban legend? (Kraig, KG4LAC, Krist, dxldyg via DX LISTENING DIGEST)

A top high ranking IBM Germany engineer told in German radio last week: CD burning quality depends on high quality burning unit and high quality CD's in use, [stinginess is cool/horny, we say in Germany]. But CD may lose data in 3 to 5 years after burning date. So, let's start to copy these discs again after 3 years time. But he said also: fine quality tape recording of (my professional REVOX) tape machine will last 100-120 years. And bible writing of the Middle Ages still legible after 500 years. 73 (Wolfgang df5sx Büschel, DXLD)

I believe the short life of CD applies to R/W CDs. Normally, CD-R (write once) last a long time (unless scratched). Usually, when reading about CD horrors, R/W vs CD-R is not specified. 73, (Kraig, KG4LAC, Krist, DXLD)

## TV AND FM DX IN EUROPE

Have a look at my web page and feel free to use any pictures from it for the mag. lots of sporadic e captures on band 1 via PC TV cards ... cheers .. my web <http://www.geocities.com/tvdxrools/> (David Hamilton, UK? Monitoring monthly yg via DXLD) ###

## LONGWAVE DOWN SOUTH --- WHAT A NIGHT!

**At midnight local last night** (Jan 20), Europe One was static free on the longwire/tuner, and lit up five LED's on the 2010 "barefoot" with no antenna. The amazing three weeks of longwave reception continues here. Signals seem to peak between 11 PM and 1 AM Eastern local.

I kid you not, Europe One on 183 kHz (1640 meters) sounded as good as a local mw station. The best longwave TA reception I have ever heard. Equal to Russia on 1666 meters (180 kHz), and 1075 meters (279 kHz) when I lived and DX'ed in Hawaii. Since I use so many European radios calibrated in meters, and I am a longwave history buff, I will list last night's reception by wavelength:

### Jan. 19 0500 UT hour

All stations heard on a 2010 with longwire and tuner. Also all stations heard on a WEGA tube radio (1950's) and the longwire/tuner. Europe One and Luxembourg could be heard on European portable consumer radios with no external antenna.

1960-meters-Algeria-Arabic-Fair-153 kHz

1852-meters-France-French-Very Good-162 kHz

1640 meters-Germany-French-Excellent-183 kHz

1587 meters-Iceland-Icelandic-Poor with TV oscillator harmonic on 1588 meters-189 kHz

1515 meters-United Kingdom-Poor under super power "DIW" beacon-198 kHz

1450 meters-Morocco-Arabic-Good-207 kHz

1388 meters-France-French-Monte Carlo studio. Over super power "CLB" beacon-216 kHz

1333 meters-Poland-Polish-Weak-225 kHz

1282 meters-Luxembourg-French-Very Good-234 kHz

1190 meters-Algeria-French-Good-252 kHz

(Germany-1960m, 1650m, 1450m, and Ireland 1190m, all heard before, but absent last night.)

I am going to connect the CD burner to the 2010 through an audio preamp to boost the 2010's low line out into the recorder. I want to record the strong reception of Europe One if it ever reaches the strength it did last night.

I have made a few outstanding longwave airchecks on mini-disc, but the portable mini disk recorder adds "beeps" to the reception and the recording. I guess some logic circuit in the MD recorder falls within the long wave band. Has anyone else noticed this? Regards and good DX, (Brock Whaley, WH6SZ (We Have 6 Zenith Superheterodynes) Lilburn, GA, Jan 20, DXLD)

Besides their nostalgia value, the trouble with metres on LW & MW especially is their imprecision. Starting with which conversion factor do you use --- 300 even, or 298.something, closer to the true speed of light in a vacuum --- but skywave propagation is only partly in a vacuum (gh, DXLD)

## Armed Forces Radio Turns 65

**Back in early 1941**, some cold and lonely GI's at Sitka, in the Alaskan Territory, made a big decision. They rigged up a little radio station and played music to keep themselves entertained in the middle of winter that year. They gave themselves a call sign, KRB. Sitka was a hotbed of radio broadcasting that year, as KRB was soon followed by another GI station, starting as GIN [guess the source] and becoming GAB soon after.

In the fall of 1941, an officer led 'pirate' radio station began broadcasting from Kodiak, using the call sign KODK.

When the servicemen wrote to major US radio networks asking for free records to play, the military powers that be learned 'they' had three 'armed forces radio' stations broadcasting in isolated Alaska.

>From this 'pirate radio' beginning, soon grew the global Armed Forces Radio Service, later known as AFRTS, sometimes known as Armed Forces Radio, sometimes as 'your American Expeditionary Service' station, and by 1945, there were hundreds of stations worldwide.

One of our major ongoing research projects here at the Radio Heritage Foundation [[www.radioheritage.net](http://www.radioheritage.net)] is recording the stories of the many AFRS stations that broadcast within the Pacific region.

We do this for several reasons.

Firstly, it's important to remember the individual broadcasters who made radio 'come alive' in very strange places. Secondly, in many cases, these AFRS stations were the first [and often only] radio stations to broadcast from parts of the Pacific.

Thirdly, although the ranks are getting thinner every month, some of the old time DJ's and engineers from the 1940's are still around, and willing to share their memories, photos, memorabilia and friendship.

Finally, arguably the best American music of the era was recorded just for these stations, and the Pacific resonated to the crooners, swingers, jivers and big bands of a golden age.

In just one place can you find all the stations and all the stories of AFRS radio from this era: [www.radioheritage.net](http://www.radioheritage.net).

Station lists for AFRS Japan, AFRS Alaska and AFRS China-Burma-India, with AFRS Jungle Network, Mosquito Network and Pacific Ocean Networks coming soon.

Memories from WXLG Kwajalein, WVTR Tokyo, WXLE Canton, WVUG Fort Greely, KMTH Midway, WVUS Tontouta, WVUV Pago Pago, VU2ZP Bangalore, and more.

You can help this research expand to cover more stations, more stories, and help us reach vets and their families before it's too late.

Every day, old photos are torn up, old pieces of station memorabilia dumped in the trash, and memories fade a little more.

Keep the memories alive and free for all to share. Please visit [www.radioheritage.net](http://www.radioheritage.net) and make a donation of funds. The Radio Heritage Foundation is a registered charitable trust in New Zealand [#1473801] and all funds are used to support our radio heritage projects.

Warm regards, David Ricquish, Chairman, Radio Heritage Foundation, [www.radioheritage.net](http://www.radioheritage.net) (via HCDX)

## **THE USE OF RF, IF AND AUDIO FILTERS IN SWLing. A filter primer for the beginning SWL (long) by Phil Atchley, KO6BB**

This article is primarily a basic primer aimed at the new or neophyte SWL (Shortwave Listener). It is not intended to be all inclusive of every facet of filter use or design as it applies to radio reception. While it is aimed at beginners, it is anticipated that even the "Old Timer" may find some useful information and tips that he/she may find useful.

Each section consists of a basic explanation of why that particular filter may be of use to the SWL followed by examples of filter use and possibly some commercial and/or home made devices that I have found useful for that application. I DO NOT have any pecuniary interest in any of the products mentioned, (wish I did, grin) but are just some items that either I or others have found to do a good job.

### **RF FILTERS (also known as "front end filters"):**

#### **1. Why do we need a filter in the front end of the receiver?**

The RF spectrum that the receiver "sees" from the average antenna consists of a very wide spectrum exceeding 60-30,000 KHz. Among these signals are very strong ones throughout the Medium Wave broadcast band right up through the shortwave spectrum. If there is no front end "selectivity", (ability to see a narrow bandwidth) some of these signals which are widely separated from the desired signal may overload the front end of the receiver. MANY of the more inexpensive receivers have NO front end selectivity at all while some modest priced receivers can use some help in this area.

#### **2. What effect does front end overloading have on a receiver?**

When the front end of a receiver is overloaded a number of very undesirable things take place. They are . . .

A. The receiver may be "desensed". That is, its overall sensitivity to weak signals will be reduced, often to the point where you will not hear any weak DX (distant stations).

B. You will hear stations that "aren't really there". These are called "spurs", or more correctly IMD (Intermodulation Distortion) products. Especially common are IMD products from MW Broadcast stations audible throughout the Longwave and/or Tropical Broadcast bands.

Examples:

1. A mishmash of two stations on 1480 & 1580 being heard on 100, 3060, 3160 KHz and any number of other frequencies. These are "mixing products" of two stations.
2. A strong station on 1580 KHz being heard on 3160, 4740 etc. These are harmonics of the station in question and may be either transmitted by the offending station OR generated in your receiver itself.
3. Beginners (and some old timers) often make the mistake of calling these various undesirable products "images". That is incorrect as "images" refers to stations heard at frequencies twice the IF frequency removed from the desired frequency and is usually caused by a combination of a low first IF frequency and poor front end selectivity. Modern receivers only rarely have problems with real images and even in cases of older sets images are usually less of a problem to DXing than IMD products if the receiver is overloaded.

#### **3. How do we eliminate these problems?**

What we need is more Front end selectivity or "out of band rejection". By "out of band" I mean that if we are listening in the 90 Meter Broadcast band we don't want stations from the MW wave broadcast band (the biggest offender) hitting the front end of the receiver. How can we accomplish this when all these signals come off the antenna?

A. We can insert an outboard filter between the antenna and receiver. If you want to listen to shortwave, placing a BCB HPF (High Pass Filter) between receiver and antenna will do it. The "roll off" (how quickly it starts rejecting stations) should be quite steep to be effective. It "should" be either removable or "bypassable" for when you DO want to listen to MW BCB stations.

1. Where can I get this device and what do I ask for?

a. Kiwa makes a very good one, available directly from Kiwa or I believe Universal Radio sells it. Ask for their BCB HPF (High Pass Filter) for shortwave.

b. They are quite simple to build from scratch and plans are available either on the Internet at some of the DX sites OR use the filter tables in any late ARRL Amateur Radio Handbook.

c. The typical Ham oriented "Tee antenna tuner" such as the many units by MFJ, Vectortronics and others make VERY effective High Pass Filters by the very nature of their operation. They have the added advantage of being able to match the antenna to the receiver, possibly increasing signal strength significantly on certain bands. THIS IS WHAT I USE, ESPECIALLY IN THE TROPICAL BANDS (an MFJ 949E). For SWLing you DO NOT need a fancy one with dummy loads, cross needle meters etc. The ham transmitting types are better than the receiver only types made by MFJ etc as they have larger coils and capacitors giving them a higher "Q". This leads to less loss and better rejection through the tuner. Many also allow switching between two or more antennas and may contain a balun for higher impedance wire antennas.

### **IF FILTERS, what are they and what do they do?**

Now that we have narrowed the bandwidth down to a single shortwave band or group of shortwave bands we need a way to select one and (hopefully) only one signal out of the hundreds that may still remain. This is the job of the IF (Intermediate Frequency) filters.

Inexpensive receivers may have only a single IF filter or bandwidth determined by the "natural bandwidth" of the transformers and other devices in the IF amplifier. These sets DO NOT fare very well in picking one station out of the many available ones. The result is that the listener is bombarded with a mish-mash of stations.

Better receivers will have a number of filters that can be selected by the listener. Each filter is designed to maximize one aspect of listening, from very broad for "High Fidelity" to very narrow or "sharp" to reduce adjacent channel interference. Let's look at what may be available in the receiver and what you may be able to do to correct a receiver deficiency.

### **1. Bandwidth, what is it?**

In "normal" AM (Amplitude Modulation), the overall bandwidth is twice as wide as the highest audio frequency the station transmits. If station "A" transmits an audio bandwidth of 50-6,000 Hz on 9580 KHz the transmitted bandwidth will be 12,000 Hz, a fairly broad signal. If the listener wants to hear this entire audio range in his receiver he will need an IF filter of 12 kHz (6 kHz either side of the center frequency). The problem is that shortwave broadcast "channels" are typically 5 kHz apart. Now let's assume that Station "B" is on 9575 and Station "C" on 9585. If you are tuned to 9580 with that 12 kHz filter you are going to hear Stations B & C nearly as well as you hear station A.

OK, so you say "enough of this" and switch in a narrower filter, lets say 4 kHz wide instead of 12. Immediately you notice that interference from the adjacent channels is either greatly reduced or gone. Of course the audio of the desired signal is no longer "high fidelity" since there are no audio frequencies above 2 kHz present. But what if your receiver doesn't have multiple filter bandwidths or those it does have are not effective? What can I do without buying a new gold plated receiver?

#### **1. Analyze what your "real" needs are for SWLing. Questions to ask yourself.**

A. Do I primarily want to listen to the stronger stations transmitted from nearby relay points or do I want to chase the weak and elusive DX (distant station)?

B. Is this receiver otherwise a good enough performer making it worth spending a modest amount of money on to "upgrade"? In other words, if this set had better selectivity would it meet my needs for the style of listening I wish to do with it? Is it sensitive enough (ability to hear weak stations), stable enough (not drift all over the place) and RELIABLE enough to upgrade?

C. If the answers to A & B above are all "yes" then the receiver is a good candidate for upgrade. Now, what do I do?

#### **2. Decide what bandwidths you "really" want in your receiver.**

A DXer would primarily want good sharp selectivity. As such, my "favorites" for DXing are primarily 4.5-5 KHz for a "wide" filter and something on the order of 3 to 3.5 KHz for a narrow filter. I also find a narrow SSB filter of about 1.8 to 2.1 KHz VERY useful for DXing when things get really tough!

#### **3. Determine if "optional" or aftermarket filters are available for your receiver.**

Most communications receivers have at least one extra socket or internal location for an optional filter. If this is the case your job is much easier, at least for any empty slots you have. In this case you have the choice of either buying the filter directly from the company who made your set (like an Icom dealer) OR from an "aftermarket" maker of filters. Two such makers of aftermarket units are International Crystal and Kiwa.

International Crystal makes a wide variety of filters in various bandwidths for "most" of the communications receivers, past and present! These have the advantage of "usually" mounting directly into the receiver slot for that receiver. They are also usually cheaper, perform as well as/better than factory units and also usually have a wider variety of bandwidths available.

Kiwa is a little more of a "specialty house". They have "ready to go" filter upgrades for many sets that don't otherwise have replaceable filters, Sony 2010, Sangean products, JRC and others. The upgrade "wide" filter for the Sony 2010 will also work in many other sets. In fact, after the warranty is up I plan on replacing the Horrible (10-11 KHz Wide) AM filter in my new Icom IC-718 transceiver with a pair of these in cascade.

Kiwa also has a series of "Filter Modules" in various bandwidths from wide to narrow that are VERY good and do a good job as replacements of the cheap Murata 455 KHz filters often found in inexpensive receivers. Reasonably priced, these contain internal amplifiers and are "No Loss" meaning that replacing a cheap ceramic filter with one will actually increase the receiver gain a little. I am a GREAT fan of these filter modules and have used a number of them in various sets. They also have "Premium Filter Modules" available with even better ultimate selectivity and shielding. These have a nominal loss similar to the filter they are used to replace.

Kiwa ALSO provides nice instructions for installing their filters in the more common sets and if you have no desire to dig into the guts of your receiver will do a professional install for a reasonable fee. They have other receiver upgrades available too. Check out their website!

### **AUDIO FILTERS, do I need one of these too?**

Maybe. Remarks here about audio filters primarily pertain to the human voice for the SWL, NOT CW for which extreme filtering may often work miracles of signal recovery. The following remarks are primarily directed towards the DXer trying to dig that weak one out of the mud. I have used MANY different types of audio filters for various DXing tasks.

First, let's look at what an audio filter WILL NOT do for you, whether analog or DSP.

1. It will NOT eliminate any problems created by front end overloading of the receiver; only a front end filter will do that.
2. It will NOT increase overall sensitivity of the receiver (though due to narrower bandwidth it may "appear" to).
3. While it might help, it will NOT pull a clean audio signal out that is buried below the "noise floor" (something DSP users often expect of their filters).
4. By their very nature, to do their work they must remove undesired segments from the frequency spectrum. This means they will NOT have a "Hi-Fi" sound. The object is clarity, NOT fidelity.
5. Excessive audio filtering will actually make your reception LESS intelligible as essential elements of human speech are removed. A "peak" in the upper midrange will often increase intelligibility more than excessive filtering of the highs, especially since excessively eliminating the highs will dip down into the vital upper midrange.
6. A GOOD set of COMMUNICATIONS headphones coupled with the audio filter will often complement each other, something I recently "rediscovered" with the addition of a pair of Navy headphones to the shack. Other times the "Hi-Fi" headset may have an edge. What, you don't use headphones? If you really want to DX the weak ones GET A SET! It will effectively cut the distance between you and that DX station at least in half.

### **WHAT WILL A QUALITY AUDIO FILTER DO FOR ME? (Not all filters may have all these features, see the "suggested" filters later for features).**

1. It will allow you to "shape" the audio response that you hear to the actual voice characteristics of the transmitted signal by cutting high and low frequencies and eliminating distracting audio products outside of the essential voice range. It is FAR more effective at this than the simple audio tone controls on receivers and amplifiers.
2. It will allow you to "notch out" offending heterodynes (whistles) and other distracting items WITHIN the desired audio passband. For this to be effective this "notch" should be VERY narrow so as not to remove an excessive amount of the desired voice products. A notch that is too wide may be worse than no notch at all as it can lend a "hollow" sound to the audio, making things difficult to understand. This is common to some DSP units.
3. Depending on the filter design it may have various filter "modes", such as Low Pass Filter (eliminate all highs), High Pass Filter (eliminate all lows), Band Reject Filter (Notch) or Bandpass Filter (Peak) or a combination of the above.
4. If it is primarily a Bandpass filter (with or without a notch/peak filter added) it should, as a minimum, have separate adjustments for the low and high cutoff frequencies and Notch/peak frequency.
5. Many of the better audio filters, either analog or DSP also have a tape output jack in addition to the usual speaker and headphone output jacks. This is a good point to connect your tape recorder or computer audio card to for recording purposes, especially for receivers with no tape output jack.
6. Most audio filters can be plugged into the headphone jack of the receiver if the receiver doesn't have an external speaker plug. The filter can then be used to drive either an outboard speaker or headset.

### **NOW, HOW DO I USE THIS CRITTER?**

1. Connect it between the receiver and the outboard speaker, following the instructions included with your filter (if you have them).
2. MOST audio filters require an outboard 12-13.6 VDC source of power to operate (The Autek QF-1A and a couple others have internal AC power supplies). Do NOT use a cheap wall wart to provide power for your audio filter as most aren't well filtered and may produce hum in your headset. And

since you are trying to get rid of extraneous noise this is something you want to avoid. As most don't require more than 1 to 1.5 amps, the relatively inexpensive REGULATED 12 Volt power supply that Radio Shack sells (or similar) is a good choice to power these units.  
3. Put any selector switches in the Voice, SSB or whatever they call it mode. Some may have selectors like SSB, SSB & Notch or SSB & Peak. (Note, the Autek units work a little differently, read the manual).

- A. To start with, select SSB.
- B. Turn the "Low" control fully anti-clockwise.
- C. Turn the "High" control fully Clockwise. This sets up maximum bandwidth.
- D. Turn volume control (if present) up halfway.
- E. Operate your receiver as you normally would. When you run across a troublesome signal adjust the high and low controls for maximum intelligibility. You'll find rolling off the lows and highs a modest amount can often work wonders, especially when things are REALLY tough. ONLY use the notch when it is needed to eliminate something specific.
- F. If your filter has a "SSB & Peak" function, activate that and try adjusting the "peak" control for maximum intelligibility of the signal.

#### SUGGESTIONS: WHAT FILTERS DO I LIKE, WHAT IS OUT THERE?

First, for SWLing I like good quality "analog" filters MUCH better than the DSP units. They just sound "cleaner" (read better). Cheap analog units such as some of the little "project kits" are better than nothing, but not by much. So what "types" are there to choose from?

**1. Analog filters using Op-amps or transistors.** The oldest of the "active" filter designs, they are, at best, so-so. The Autek QF-1A is probably the best of these and can often be bought for a reasonable price (around 35-40 Dollars). The QF-1A has a variety of High Pass, Low Pass, Bandpass and notch filters. They ring pretty heavily when set for VERY sharp CW bandwidths but that isn't of any concern to the average SWL. Others in this category are units like the MFJ SSB filter (NOT DSP) but I don't feel they're very effective.

**2. SCAF (Switched Capacitor) Analog filters.** These are the newest generation of analog filters and are much more effective than the earlier designs. The best of them compete head on with the even newer DSP units, and to my mind sound much better for SWLing. Here are some SCAF models to look for ranked in what I feel are order of quality (there are others). I have had and used all of them.

**A. Datong FL-2 and FL-3.** These are the "Cadillac's" of analog filters and are both basically the same filter, except that the FL-3 also has an effective "Auto-Notch" function that is nearly as effective as a DSP auto-notch. Both also have a "manual" notch. These both require external 12VDC power and have a very funky DC connector (Sub mini phone plug). Price usually runs 75-125 dollars depending on source/condition.

**B. Heathkit HD-1418 Active audio filter.** This is essentially a CLONE of the Datong FL-2 and is just as effective. It has a couple features the Datong lacks such as volume control (a NICE feature) and input overload indicator LED. It too has a separate manual peak/notch control. It does have SSB & Peak as well as SSB & Notch functions. It also requires an external 12VDC supply but has a decent "standard" DC barrel connector as well as a tape output. THIS ONE IS MY OVERALL FAVORITE AND IS WHAT I NOW USE! Price usually runs 50-85 dollars depending on source/condition.

**C. SUPERSCAF.** This one is quite effective. HOWEVER, it's NOT the easiest one to use as the lower and upper cutoff frequencies are adjusted by two "thumbwheels" each. And the numbers on the thumbwheels don't correspond to actual frequency requiring a separate paper chart to determine frequency response. However, once you get familiar with it the thing is quick and easy to set, is VERY effective as a filter and is a favorite among the EME (Moonbounce) crowd. NO NOTCH FILTER. It does have an internal 110VAC power supply but is difficult to convert to 12VDC for portable operation. Overall good value for the money at usual prices of 25.00 to 40.00 dollars.

#### DSP FILTERS, FOR THOSE WHO NEED THE LATEST GEAR.

OK, here we go, venturing forth into some very controversial territory. I have had and have used quite a few different DSP filters from the very cheap (and lousy) Radioshack DSP-40 to the top rated (and expensive) Timewave DSP-599zx (which is a VERY nice piece of gear). For beacon hunting and other very weak CW work there is NOTHING that will compete with a good DSP unit for Non-ringing, extremely sharp selectivity! But here we go with a few "pointers" and my opinions (and they are just that, my opinions).

##### 1. Internal DSP

Internal DSP in a receiver is a "help" but NOT a replacement for a good outboard audio filter. Especially the more inexpensive DSP's commonly found in the Icom (like my IC-718 Transceiver and R-75 receiver) and Yaesu rigs. The "auto notch" is effective in removing heterodynes (whistles) and works well. The "Noise reduction" is "OK". That is, a small amount of noise reduction cranked in will lower the noise somewhat and is particularly useful when listening to a ham radio net as it quiets things down between transmissions. However, I find that with very much DSP cranked in the audio turns to mush, this because the filters crank in too much high cut (which is how they reduce the noise) and remove essential voice products too.

I don't recommend using the Noise reduction mode of receiver internal DSP's for "real" DXing, if you do, just a LITTLE of it. NOW, I CAN'T SPEAK FOR HIGH END UNITS LIKE THE ICOM 756Pro II transceiver as my budget hasn't permitted me to have one.

##### 2. Timewave DSP's.

**A. Timewave DSP-9.** A basic DSP unit it has preset filters for voice, CW, etc. It has an effective auto-notch (heterodyne elimination) circuit. It requires 12-13.6VDC supply. It is NOT very versatile in filter settings. For its typical price of 60-80 Dollars I would suggest finding a Heathkit HD-1418 analog unit instead.

**B. Timewave DSP-59+ (go for the + model, not the Plain Jane one).** About the MINIMUM that I would buy in a DSP filter anymore. It has effective auto-notch operation, adjustable aggressiveness on the noise reduction, adjustable upper and lower limits on filter bandwidth etc. A nice unit and offers a lot of bang for the buck. Requires a 12- 13.6VDC supply. Expect to pay about 80.00 to 130.00 for one.

**C. Timewave DSP-599zx.** The "Rolls Royce" of audio filters of any genre. This critter can do everything but wash your dishes for you, including all the usual DSP functions superbly with filter frequencies displayed on the lighted LCD display and adjustable in 10 Hz steps! It also is usable as a test instrument to generate test tones, measure audio levels, Detect RTTY signals and send them to your computer (internal modem) etc. Expect to pay anywhere from 230.00 to over 300.00 dollars for a used one.

##### 3. The various JPS NIR DSP units.

I have no direct experience with these, but my understanding is that they usually aren't as user friendly or versatile as the similar Timewave units.

73 from the "Beaconers Lair". (Phil, KO6BB, Atchley, Merced, Central California, 37.18N 120.29W CM97sh, swl at qth.net via DXLD)