

# SHORTWAVE BULLETIN

Issue no. 1622 Aug 19 2007.

Deadline e-mail next issue: 0900 SNT, Sept 2, 2007.

De flesta har väl nu återgått till arbetslivet efter en förhoppningsvis skön semester trots det myckna regnandet.

Det tar några dagar innan man är uppe i varv igen.

SWB kommer något senare på söndagen än vanligt. Både lördag och söndag har ägnats åt målning av klädesbrädor till gaveln på södersidan där panel och fönster måste bytas ut. Vädret i Skåne tar hårt med blåst och omväxlande sol och regn. Sjuttioalshuset hade väl heller inte det bästa materialet.

Detta nummer blir aningen tunnare då bara några få bidrag anlänt.

Hoppas nu att hösten kommer att ge en del fina hörigheter så vi kan få en fin tipsspalt även från våra svenska medlemmar.

Keep on ....

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## 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).

## QSL, kommentarer, mm.

**Christer Brunström:** För några veckor slet stormigt väder ner nedledningen till min longwireantenn. Söndagen den 12 augusti fick jag åter antennen i ordning mycket tack vare hjälp från Rune Arnell.

Nya QSL: **The Mighty KBC 6255** kort, **Radio Zodiac International 6313** två kort från denna holländska pirat som sände med 40 watt.

**Börge Eriksson** har haft en ganska turbulent sommar. Först var det dags att hjälpa äldsta dottern och hennes familj att flytta från Borlänge till Skövde den 1 juni. Sedan en underbar vecka på Gotland i mitten av juni med bl.a. en superb middag hemma hos paret Fransson med litet vanligt DX-snack. Därefter var det dags för frugan att lägga sig på operationsbordet igen. Detta avlöpte dock bra denna gång. Den 4 augusti drog vi på en veckas rundresa i Skottland som blev mycket lyckad tack vare ett underbart väder. Enligt guiden var det första gången i sommar hon inte behövde använda sina regnkläder. Edinburgh Military Tattoo var en mäktig upplevelse. Detta har man ju bara sett på TV tidigare. Och så whiskeyprovingarna förstås och pubkvällarna. Radiomässigt var det dåligt då jag inte hade någon radio med. Såg dock BBC Scotlands byggnad. Och nu håller vi på att sälja huset. Hade visning i onsdags. Visst är det hemskt att tänka på att en massa folk går runt i ens hus och synar allt. Själva fick vi inte vara hemma. Efter 60 år i Borlänge skall vi nu flytta till Hedemora där en av våra döttrar har ett tvåfamiljshus och vill att "gubben och gumman" flyttar in i den lediga lägenheten 1 oktober. Det har varit en kvalfylld tid att bestämma sig. Man får väga för- och nackdelar mot varandra. Men vi blir inte yngre och genom frugans ohälsa blir bl.a. trädgården eftersatt. En del underhåll av fastigheten är det också dags att göra igen. Min aktiva antenn (som jag köpte av Stig Adolfsson för 20 år sedan) är nedmonterad och kommer med i flytten. Hur DX-läget är i Hedemora vet jag inte, men huset ligger centralt i staden och har kabel-TV med bredband indraget så jag misstänker att läget inte är helt störningsfritt. Men kanske kan man få en nytändning för hobbyn genom att få ett nytt QTH att provlyssna på. Jag har rensat litet i gamla lager. Bl.a. åkte pärmarna med SWB i sopbingen. Det kändes att kasta 46 års DX-historia, men det mesta finns ju kvar i jubileumsskriften från 2001. Däremot står lådorna med gamla DX-tidningar från 50 och 60-talen kvar. Har katalogiserat litet och kommer troligen att skänka dem till auktionen som DX-vännerna brukar ha vid Parlamenten. Likaså finns WRTH-samlingen från 1954 och framåt kvar, men den går nog också till auktionen om ingen annan är intresserad.

Apropå bidraget i förra numret: Det var alltså Ronny Forslund som var i amerikanska södern och inget annat. Var Lars Skoglund höll semester, det har han inte avslöjat ....

## DX-PEDITIONS

"DX Clams" DXpedition webpages. This year's "DX Clams" (Rockport, MA, USA)

DXpedition report with pictures, logs, and commentary has been assembled by Bruce Conti and is hosted by the Boston Area DXers chapter of NASWA.

It can be viewed at the following link: <http://www.naswa.net/badx/dxclams07.htm>

For the 2006 report, see: <http://www.naswa.net/badx/dxclams.htm>

For the 2005 report with maps of the site and links to all previous reports:

[http://home.comcast.net/~dx\\_lab/dx\\_clams\\_2005.htm](http://home.comcast.net/~dx_lab/dx_clams_2005.htm)

(Mark Connelly, WA1ION - Billerica, MA, USA, Aug 7, HCDX via DXLD)

## LOGGEN - ALL TIMES ARE UTC

2485			<b>VL8K Katherine</b> NT simply blasting in at 1056 with rock vocal. 2310 and 2325 same time only fair signals. 7 August [Wilkner-FL]
3172.64			<b>Radio Municipal</b> , Panao a regular by 1000 with poor signal; July and August. Best at 1035 on 7 August with local music and om [Wilkner-FL]
3220			<b>HCJB Pifo</b> 1036 noted with strong signal and lively music 7 August [Wilkner-FL]
3250	5.8	1915	<b>Pyongyang</b> med folkmx // 3220 2-3 LRH
3291.13			<b>"Voice of Guyana"</b> GBC Sparendam last heard in mid July 0100 with weak audio. Silent since then. GBC has a history of returning to shortwave and may again return. "Guyana You've Been So Good to Me" is an anthem often played on this station. Guyana has been good to me! [Wilkner-FL]
3292			<b>Spy Numbers</b> 0230 yl en espanol 6 August [Wilkner-FL]
3329.53			<b>Ondas del Huallaga</b> , Huánuco a regular by 1000 to 1100 and 0000 to 0200 ; July and August. ID at 1040 by om on 7 August [Wilkner-FL]
3905	5.8	2002	<b>R New Ireland</b> (Tent) med prat och mx 2 LRH
3925	15.8	2040	<b>Nikkei</b> med klockringningen (ffg i höst på kvällen) 2 LRH
3987,1	10.8	2040	<b>Manokwari</b> kommer igenom ibland vid denna tiden 1-2 LRH
4045			usb continues to be a good frequency for logs of Caribbean sailing vessel checking in at 1045 for wx condition. [Wilkner-FL]
4045usb			Florida 1045 hurricane wx report on 15 August and then discussion with sailing vessels; same 16, 17 August [Wilkner-FL]
4052.5			<b>Radio Verdad</b> , Chiquimula 1130 with om in English "moving ahead a little bit in our programme.....". 6 August [Wilkner-FL]
4650.23			<b>Radio Santa Ana</b> , Santa Ana de Yacuma 2358 noted with fair signal. 12 August [Wilkner-FL]
4732			<b>Radio Universitaria</b> , Cobija, Pando <i>seems</i> off the last few days, rty at 0100 on 6 Aug and 0045 7 August but no sign of Radio Universitaria and the same 1000 to 1100 on 6 August. [Wilkner-FL]
4732			<b>Radio Universitaria</b> , Cobija, Pando may have been a short term experiment. Nothing for the last few days 1000-1130 and 0000 to 0200. rty is still there :- ( This may be similar to Bolivia 4728.2, Radio Aripalca, Aripalca, Depto. Potosi, which was broadcasting 1000 to 1100 in February of 2007 and then off. [Wilkner-FL]
4750	10.8	1715	<b>CNR 1</b> , Nanning sof mx //4460. Slutade 1730 2-3 LRH
4763.23			<b>Radio Chicha</b> , Tocla, caught at 2355 to 2358* just at sign off, weak audio no anthem [Wilkner-FL]
4790.20			<b>Radio Visión</b> Chiclayo, Radio Visión gone since late July [Wilkner-FL]
4835.6v			<b>Radio Marañon</b> , Jaen off the air both 1000 to 1130 and from 0000 to 0200 since the middle of July 2007. [Wilkner-FL]
4876.3			<b>Radio Difusora Roraima</b> Boa Vista This one is very irregular at best and check the frequency regularly; have heard nothing for last few weeks. [Wilkner-FL]
4886.59			<b>Radio Virgen del Carmen</b> Huancavelica or another Peru station noted several times a week 1055 to 1110 during fade out period. [Wilkner-FL]
4894.94			<b>Unid.</b> carrier at 1100 on 7 August [Wilkner-FL]
4909.19			<b>Radio Chaskis</b> , Otavalo signs on 1050 to 1110 with excellent Flauta Andina, which is less evident on the tropical bands as the remaining Latin Americans tend to be run by religious organizations. 1025 suddenly up with the most intriguing Flauta Andina. Truly beautiful music from the land where Tuesday the 13th is unlucky. :- ) August 12th [Wilkner-FL]
4925	11.8	1610	<b>Jambi</b> med lite mx (ffg i höst på em) 2 LRH
4949.9			<b>Radio Madre de Dios</b> , Puerto Maldonado, 1030 to 1040 with very weak signal, August 1 through 12 [Wilkner-FL]
4976			<b>Uganda</b> presumed at 0230 with weak signal 6 August [Wilkner-FL]
5019.92			<b>Unid.</b> from 0900 most local morning with weak audio. Not Peru [Wilkner-FL]
5580.2			<b>Radio San Jose</b> . San Jose de Chiquitos 2350 to 2355 with fair to good signal, CP music 7 August [Wilkner-FL]
5952.402			<b>Radio Pío XII</b> , Siglo XX 2315 to 2332 with co channel stations, need very narrow filter to hear from this QTH. Signal used to be much stronger. 5 August [Wilkner-FL]
5967.68			<b>R Nacional de Huanuni</b> , Huanuni, 1050 being murdered by co channel stations, very narrow filter for om en espanol with marginal signal. 6 August [Wilkner-FL]
6079.96			[ <b>Tentative</b> ] <b>Radio San Gabriel</b> , La Paz yl at 1050 to 1105 in espanol but no ID or mention of Bolivia, 6 August [Wilkner-FL] This thanks to Arnaldo Slaen log 29 July.
7295	8.8	1832	<b>Traxx FM</b> , Kajang ID och pop mx 3 LRH
9745	17.8	0710	<b>R Bahrain</b> med AA-mx 2 LRH
12000	12.8	1100	<b>Radio Habana Cuba</b> med "Servicio de Noticias". 2-3 CB
12085	12.8	1000	<b>Voice of Mongolia</b> med spännande lokal musik presenterad på engelska. 2-3 CB
15476	9.8	1905	<b>LRA36 Radio Nacional San Gabriel</b> hördes svagt med non-stop musik. CB

### Flauta de Ecuador

<http://www.youtube.com/watch?v=rH9QjDV8hBE>

<http://www.youtube.com/watch?v=RYYuWN1HRBk>

# Stationsnyheter

## Bhutan Broadcasting Service new 100 Kw Txer Inaugrated

**Bhutan Broadcasting Service Corporation inaugurated the new 100 kilowatt THOMSON TSW 2100D DRM short wave radio transmitter on 10th August, 2007.**

The inaugural ceremony of the installation of the new transmitter was attended by the Indian Ambassador to Bhutan, Sudhir Vyas. Also present were the Information and communications minister, Lyonpo Leki Dorji and other government officials.

Addressing the gathering, the information and communications minister Lyonpo Leki Dorji said Bhutan being a mountainous country with rugged terrain, isolated and inaccessible settlements and far flung communities, BBS radio remains the most powerful medium to inform, educate and entertain the masses.

Speaking at the function, the Managing Director of the Bhutan Broadcasting Service Corporation, Mingbo Dukpa said Radio and TV are powerful tools of communication. He said any development to further enhance the capacity of the broadcast media marks an important milestone in the development of the country.

BBS radio has come a long way since it was established as an amateur radio station in 1973. BBS Radio today broadcast 100 hours of News and Programs in 4 languages in a week. The short wave transmitter was installed with financial support from the Indian Government.

This DRM capable 100 kW transmitter was installed in Sangaygang, 2660 meters above sea level and test transmissions were already going on. One of the station engineer informed that transmitter was not being operated on DRM mode due to problem with the RF Exciter. However the same has been rectified & they are having occasional DRM tests during txn b/down times with power output of only 25 watts. Related links: <http://www.transmitter.be/tbm-tsw2100d.html>  
(Regards, Alokesh Gupta, New Delhi, India, via HCDX.)

**FINLAND. On 25.0 MHz a station with time pips** heard with very weak signals at times, no identification yet (Des Walsh, Ireland, Aug World DX Club Contact via Alan Roe, DXLD)

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The time signal station you heard is probably the Finnish station mentioned in last months DX News. There's some information on it on the web at: [http://www.mikes.fi/documents/upload/ursi2004\\_sent.pdf](http://www.mikes.fi/documents/upload/ursi2004_sent.pdf) The address is Centre for Metrology and Accreditation (MIKES) Otakaari 7 B, FI-02150 Espoo, Finland, email: kalevi.kalliomaki @ mikes.fi tapio.mansten @ mikes.fi or ilkka.iisakka @ mikes.fi

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Time and frequency laboratory of MIKES (earlier VTT/AUT) has taken care of Finnish official time and frequency since 1976. Finnish broadcasting company (YLE) as a partner disseminated the time signal using audio channels and frequency with the aid on TV synchronisation signal. The accuracy of frequency obtained was better than 10 to the minus 11 as a relative value. Digitalisation of TV links caused random delays at every link station and the accuracy of the frequency became 100 times worse than earlier when analogue links were used. Calibration of high quality oscillators needed a better easily available reference. That is why MIKES designed and constructed its own transmitter and a suitable receiver. 25 MHz was selected for several reasons. First, when using a high frequency the antenna size is convenient. Second, 25 MHz lies in the short wave band, which means that one can use cheap, commonly available receivers. In 1977 they tried to use 250 MHz for transmission, but with little success due to lack of receivers. The third reason was that they could utilise 27 MHz citizen band components. More information at the weblink (Mike Barraclough, England, ibid.)

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But, but, local range on 25 MHz will be very limited and skywave, on rare occasions it happen, will skip entirely over Finland (gh, DXLD)

**MEXICO. 9599.23 Radio UNAM**, Mexico City, 0550-0635+, August 10, Classical music. ID at 0605. Also heard at 0135-0205+ with Spanish talk and heard on 9599.28 at 2100-2140+ with classical music & talk. Fair level but audio slightly distorted. Must use ECSS-LSB to avoid various stations on 9600. (Brian Alexander, PA via HCDX)

## MICRONESIA:

From the Pacific Missionary Aviation (Micronesia) homepage <http://www.pmapacific.org/ministries/radio/index.php>

*"Our station has its official permit from the Department of Communications & Transportation, FSM National Government. Both FM and short-wave transmissions have been on the air for testing purposes during the months of February and March 2007. Since July 2007, the FM station is on the air permanently. The short-wave station will be broadcasting the same program."*

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So possibly also SW 4755 will soon be back. The logo on that page shows "The Cross" - maybe that name is used as an ID. Their current FM schedule seems to be 6 am - 12 pm local (1900-1300 UT).

(Jari Savolainen, Kuusankoski, Finland via HCDX)

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Web site is definitely different than when I checked a week ago or so. I can just imagine working thru the bureaucracy in Palikir to get such permission.

They don't seem to be answering emails... I sent one a week or so ago, asking about their plans. With this new wrinkle, maybe I'll call them... and start checking a bit more at 4755.

I doubt if they know what is going to hit them once they get on the air regularly. They really should work with someone to set up a QSL bureau or something. The plane from Hawaii arrives three times a week... they'll probably be getting their own mail sack!

I see from their location in Kolonia that they are on the north side of the island, good for lots of would be listeners. To the south is Mt. Nahna Laud, the highest point on Pohnpei, at 798 meters.

Incidentally, Pohnpei is the home of the municipality having the shortest name of anywhere on earth: U.

(David Norcross via DXLD)

**PAPUA NEW GUINEA.** Vanimo is on the air again, 3205 heard well at 1130. Also a good signal from Radio Central, 3290 (Chris Hambly, Victoria, August 8, DX LISTENING DIGEST)

3205, R. Sundaun, Vanimo. Very good in English 1140 on 7/7 (Gavin Hellyer, Ararat Vic, Yaesu FRG-8800, 30 & 80m longwires, FRT-7700 ATU, Aug Australian DX News via DXLD)

Reactivated for elections, Pidgin 1130 on 27/7 (Chris Hambly, Box Hill Vic, Icom R75, Dipole, Aug Australian DX News via DXLD)

Update of election results in English 0959, 19/7 (Phil Ireland, Tuckers Rocks, near Urunga NSW DXpedition, Aug Australian DX News via DXLD)

Running late with election coverage, 1425, as was 3260, 3290, 3325, 3335, 3365, 17/7 (Craig Seager, Tuckers Rocks, near Urunga NSW DXpedition, Aug Australian DX News via DXLD)

3290, R. Central, Boroko. Reactivated, 2000 on 28/7 (Chris Hambly, Box Hill Vic, Icom R75, Dipole, Aug Australian DX News via DXLD)

News in English, ID 1006, 19/7 (Phil Ireland, Tuckers Rocks, near Urunga NSW DXpedition, Aug Australian DX News via DXLD)

3335, R. East Sepik, Wewak. Election results roundup 1015, 19/7 (Phil Ireland, Tuckers Rocks, near Urunga NSW DXpedition, Aug Australian DX News via DXLD)

Listed as inactive in WRTH, but is in fact back on, Pidgin news 0824. Other PNG stations active this night: 3220, 3260, 3275, 3290, 3305, 3355, 3365, 3385, 3905.

**Inactive:** 2410, 3235, 3245, 3315, 3325, 3345, 3375, 3395, 4890, 9675, 19/7 (Craig Seager, Tuckers Rocks, near Urunga NSW DXpedition, Aug Australian DX News via DXLD)

## Övriga radionyheter

### Re: Today's Understatement

I recently came up with a list of eBay phrases with their real world translations...here are some to give you a chuckle:

"Not tested" = DEAD

"Mint" = FISHED OUT OF A DUMPSTER, RUSTED SHUT, NO BATTERY BOX

"Works" = Makes a scratchy noise at full volume

"Rare" = FIRST ONE THIS WEEK

"NIB" or "LNIB" = CIGARETTE SMOKE STAINS, NO ACCESSORIES, DIRTY SWITCHES

"Worked last time I tried it" = BUT NOT NOW

"Better than new" = MODIFIED, BUTCHERED, RUINED

There are more but you get the idea.

(Jay via HCDX)

### RUSSIAN WOODPECKER ANTENNA

This is the website for the photo. I don't know Russian so I can't verify. But it's a heck of an antenna.

<http://foto.cqham.ru/showphoto.php?photo=3571>

Hope this works (Gordon Levine, Aug 8, swl at qth.net via DXLD)

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Gordon, Great web site, click on the "British" flag on the home page and it translates the site into English for us! Pretty neat, (Dave, K2DP, via DXLD)

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I don't see any UK flag; really about OTH radar? In case you're wondering, per Google Russian-Beta translation, woodpecker is ``dyatel``, tho I doubt the Soviets ever called it that themselves (gh, DXLD)

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Go to: [http://pripyat.com/ru/internet\\_photo/chernobyl\\_2/](http://pripyat.com/ru/internet_photo/chernobyl_2/) for more photos (Osamu Hazawa, Japan, via DXLD)

### AOR AR7030

**My barefoot AOR AR7030 is now fixed**, after ten years of struggle and prayer. I should have sent it to England in 2002. I received great help from Richard J Hillier, who was Sales Director for AOR. Mr Hillier is a Knight in Shining Armour. He studied my detailed description of my troubles, and deduced what was wrong. It was unusual and complicated and the local AOR technician was not able to solve the problem. Mr Hillier sent me detailed directions and replacement parts.

All this free of charge although the trouble surfaced about two years after I bought the receiver. At last I obtained the services of the AOR technician in Israel. I am very happy now and it feels almost like having a new main receiver.

Here are some tips about buying an AOR AR7030.

The best country in which to buy an AOR AR7030 is Great Britain, because your receiver will arrive direct from the factory and will be up-to-date. If you buy it in another country, your receiver comes from the AOR warehouse in Japan. This warehouse is run on the first-in first-out system, so you get the oldest receiver in the warehouse. Before purchase ask your supplier what is the version of the Central Processing Unit; this is shown briefly when switching on. Then contact the factory and ask then what is the current version. If different, request the factory to send the current version to your supplier, and request your supplier to install it.

I bought an optional Murata filter and its value changed over the years. Maybe a Collins filter would have remained stable.

I think the AOR boxing is primitive. The best place to buy your receiver is at the door of the factory. Don't misunderstand me. My remote control arrived with a small crack. The factory sent me a new remote control, and I believe they now wrap the remote control very well. I am still using the cracked remote control. I still don't like the ACR boxing. The latest model is not always better. My old AOR AR7030 has no hiss on single sideband. Put the latest model Central Processing Unit is likely to have less bugs - or programming flaws. Don't complain too much. Remember the Drake R8B - it was discontinued!  
(David Crystal, Israel, Aug World DX Club Contact via Alan Roe, DXLD)

### **Wellbrook Phased Array**

**I noticed this on the Wellbrook website (<http://www.wellbrook.uk.com>):**

**The Wellbrook Phased Array is a totally new receiving antenna** designed for optimum MW reception. This Antenna system is only Broadband Phased Array to offer a uni-directional pattern similar to the Beverage, over 360 degrees with electronic Null Steering. The design is the result of several years research by Wellbrook's owner and chief design engineer Andrew H. Ikin. Trials of this new array have been performed in the US by experienced MW DXers using the phasing system with high performance Active Vertical and Active Loop antennas.

These trials demonstrated that the Phased Array equipped with elements made from ALA 100 Large Aperture triangular Loop Antennas (one of the world's best active antennas) provided much lower noise and improved side rejection than an identical array equipped with Active Vertical antenna elements. This finding was particularly important for DXers living in urban areas. Moreover, comparative listening tests indicated that the Phased Array was equally as sensitive and directional as a 1000-1500ft Beverage, with the added advantage of deep null steering!

Phased Array Design: The Phased Array provides a reversible uni-directional reception pattern similar to a 1 wavelength Beverage with the added ability for the user to steer up to 50dB nulls around the back of the array.

The Phased Array consists of a Control Unit and two ALA100 Loop antennas. Each loop is triangular with just one support pole. The Phased Array can be expanded to use four ALA100 loop antennas to provide 360 degree coverage.

The Control Unit combines the output of the two antennas using a technique known as "Delay line Anti-phasing" i.e. the antennas are combined in anti-phase plus a Variable Delay-line equal to between 50% and 100% of the spacing of the antennas. This phasing technique provides a uni-directional reception pattern over a very wide bandwidth with only a minor adjustment to the controls.

This has a considerable advantage over the majority other phasing and noise cancelling systems which require constant adjustment even with small frequency changes.

#### *PHASED ARRAY KEY FEATURES*

Uni-directional pattern similar to the Beverage

Simple to erect (no control Lines)

High Front to Back ratio and side rejection

Up to 50dB null steering

High dynamic range amplifiers IOP3 +42dBm; IOP2 +75dBm

Very low noise ALA100 loop antennas

Lower noise than Active Whip arrays

360° with 4 Loops

12Volt DC power, ideal for Dxpeditions

Only requires 40m antenna spacing

(Steve via rec.radio.shortwave)

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I have been DXing with one of the trial units for the last few months on DXpeditions. The unit was also supplied with "head units" (AVA100) for vertical arrays, as well as the loop element (ALA100) version. Overall I found the loops working better, and provided deeper nulls. The null setting stays steady over nearly the entire MW range-- a big advantage.

I expect to be doing further experimenting with this antenna at the WA coast again later this month, including trying some alternate loop configurations and comparisons to BOG (Beverage on ground) antennas.

(Guy Atkins KE7MAV rec.radio.shortwave)

### **What Satellite and Digital TV. August 14, 2007**

**Radio stations in Norway, Italy and Holland** are testing an ingenious way to piggy-back digital radio onto existing analogue FM stations - but it's not compatible with DAB or DRM.

While Britain has set a course to use DAB digital radio technology, European broadcasters are still looking at their options. In the UK, DAB has many critics because it's already outdated and very inefficient.

Among the current front-runners are DAB+, a hugely-improved version of the original, and DRM, which is designed as a successor to long-distance analogue radio broadcasts like AM, Short Wave and Long Wave.

FMeXtra uses a clever old trick and the latest new compression technology to squeeze up to four CD-quality stereo channels or a complete surround-sound signal into empty FM frequencies.

It uses 'subcarriers' - empty frequencies next to a radio station's main FM frequency - small chunks of which are sometimes used for data services like RDS.

Digital Radio Express, the American company which developed FMeXtra, claims there's around 46kHz of spare spectrum in a typical stereo FM signal, and 79kHz with a mono FM station.

That's enough for 64kbits of digital data in a stereo signal or 156kbit in a mono signal.

The latest MPEG-4 aacPlus audio compression techniques can be used to squeeze FM-quality stereo into 24kbit, CD-quality into 32kbit and a complete 5.1 surround sound track into 128kbit. By contrast, DAB requires about four times the bandwidth to match the quality.

Stations testing FMeXtra in Europe include Radio 538, Juize FM, Radio 10 Gold, Sky Radio and TMF Radio in Holland, Radio 1 Oslo in Norway, and Otto FM in Italy.

However, it's early days and there's only one radio available right now, the Aruba, which costs about 126 Euros.  
[http://blog.wotsat.com/page/whatsat?entry=digital\\_radio\\_without\\_the\\_pain](http://blog.wotsat.com/page/whatsat?entry=digital_radio_without_the_pain)  
(Mike Terry via HCDX)