

Shortwave Notes

Here's is some of the 'advertorial' written to flog radios for AOR UK:

Music on Short-Wave?

Picture this. The DX session has gone on through dawn and you are sitting there in the early bright with a well-earned cup of coffee. The logbook needs updating and you must QSL that Peruvian rare DX who was running three watts into a dummy load when you heard him...

Can you find a little light music for background to the task? The idea of listening to music on short-wave with it's fade and phase is not such a good idea. Or is it? The new generation of synchronous detectors in the AOR AR7030 not only tune the radio for you but cancel out the worst effects of the ionosphere. What you hear is what was transmitted.



Out of Morocco, try Medi One on 9575 where East meets West in a blend of Eurotrash and Moroccan Roll. Germany gave us SWF 3 on 7265 during the day. Listen for the RDS pulses that switch a million car radios to SWF for traffic updates in a mix of music we don't get over here. And we miss it...

Out of Africa, test the north-south path around midday with Africa #1 from Gabon on 17630. Another interesting propagation indicator is All India Radio. Evenings on 7410, daytime on 11620 and check if the 10MHz Ham Band is open by checking for the Domestic Service on 10330. Listen for the evening ragas - long improvised sitar pieces. I can't afford a full-size instrument, mine's a baby sitar...

Antennas Revisited

Above me, I can see thirteen aerial reference books, most of them unread. The reason for this is practicality. The man who designs the estate has decreed that the smallest distance between two houses will be called "the garden" and a long-wire aerial stretched to that distance will not resonate at any frequency you want to listen to. That's life.

In the end you put up piece of wire as long, as high and as neighbour-compatible as possible. You push the wire into the centre of the SO239 aerial socket and hope to hear something. You will, but it can be better.

Our AR7030 will take on the range of impedances and signal levels presented by the average garden long-wire and provide a much better match than using the SO 239, a co-ax connector strictly for 50 ohm resonant aerials. We use a carefully designed input transformer to get that

match and provide a reassuring measure of static protection.

Long wires work best with a good earth connection. Traditionally, this was made to the rising water main but as so many repairs are now made with plastic fittings, it's just not reliable any more. Try Dracula impressions by banging a metal stake into the garden and connecting to the radio ground point with the shortest possible length of heavy-duty wire.

Tidy the mains lead to the radio by winding as much of it as possible around a ferrite ring. This should raise the impedance enough to leave the mains noise behind and leave a clear path from aerial to earth.

Cabbage Crates in the Briny

There is a classic Monty Python sketch where a bunch of RAF types are talking ten to the dozen and nobody understands a word of what was said. "Sorry, Old Boy, just don't understand your banter..."

Air Comms have improved a great deal but what would I know, the last plane I flew on was so old, I sat next to the rear gunner. "What's the problem, Chalkie old boy?" "Sorry sir. I didn't see you come in. He got clean away with it, you know, Sir" "Yes, I know. Heard it on the Ops Net. War is hell, Chalkie." "But after all these years, they still let him get away with it, Sir". "Get it out of your system, old thing".

"Thank you, Sir. Damn it all, Sir. In fact I'll have a triple serving of damn with a damn on the side with roly-poly damn and custard to follow..."

"That's enough I think, Chalkie. More than enough."

"Sorry, Sir. But AOR is getting a reputation for forefront HF technology and they still let him get away with that old rear gunner gag..."

There will be those who have come to our hobby from the Services. There will be pilots and ground crew who want to keep in touch. There will be listeners, fascinated by what they have heard on VHF via an AOR hand-held receiver. They may have something that is bothering them. The Tower gives them clearance for take off, sees them safely into the wild blue yonder then we never hear from them again...

Don't worry, Chalkie old bean. Our aircraft never die, they simply go trans-oceanic.

As the VHF only provides a local service, they use HF on the long haul Stateside. Having come under control of its nearest ATC (Air Traffic Control), the aircraft sets its heading and calls the ACC (Area Control Centre) before requesting trans-oceanic clearance via the OACC (Oceanic Area Control Centre) on HF. We shall deal only with this HF traffic here, but for completeness the full chain of command on radio follows this pattern;

- Obtain take-off permission from the Tower and local weather conditions either from the Tower or regional Volmet on VHF.

- Establish flight level and heading on leaving our airspace on VHF.
- Establish contact with nearest ACC on HF.
- On leaving range of ACC, establish contact with OACC on HF.
- Request trans-oceanic clearance.
- Establish contact with nearest ACC in your country of destination, HF circuits at present favouring Atlantic routes.
- Establish contact with recognised air lanes over that country via local ATC on VHF.
- Establish contact with airport tower on VHF.
- Request landing clearance and put down on allocated runway.

The chosen runway and terminal building are always the farthest from the car and space did not allow me to document the six hour delay due to the wrong kind of snow at Kennedy in our idealised scheme of things. Aircraft don't fly high enough to avoid the effects of the ionosphere, so provision is made at 3, 5, 8 and 13Mhz to allow for the daily changes in reception and the longer term seasonal changes.

Our most audible OACC in the UK is at Shannon in Southern Eire. Signing as "Shanwick", the 5 and 8Mhz transmissions listed below are a good starting point during daylight conditions.

"Shannon Volmet" is a weather service. Announced in computerised speech, regular listening will show a fixed pattern to these broadcasts. Temperature, dewpoint - the temperature at which water vapour condenses back to water - wind speed and direction are followed by QNH. This is the ground setting for the altimeter. Cloud cover at fixed flight levels are given in "octas". Consider, if you will, the pilots field of vision to be from the centre of a large cake split into eight slices. Then "three octa" would be three eighths cloud cover at that height. The CAA would like to hear from any listener reporting "Hundreds and Thousands at one o'clock".

Stable weather conditions will be reported as "No-Sig" at the end of the bulletin. This is short for No Significant Change. The catchy heading of "Information in Plain Language Concerning Certain Meteorological Phenomena" or SIGMET is usually given in a single word, "Snow", "Rain", "Sleet", a plague of boils or what have you.

Some frequencies to try in USB:

5505KHz: Shannon Volmet.

5616KHz: Shannon ATC. Answerback on 8864.

5649KHz: Shannon ATC. Answerback on 8879.

6622KHz: Shannon ATC

5680KHz: Plymouth and Edinburgh Rescue Co-ordination Centres.

Gather around the radio, boys and girls

No prizes if you can remember that.

Short-wave radio is split into broadcasting seasons. Traditionally, these have been from September to April for the Winter Season and April to September for the Summer Season. All the stations try to get frequency allocations in all the bands so they can move to lower frequencies in

Winter in a desperate attempt to be heard in the target country.

Conditions during my time at AOR have been so unreliable as to warrant mid-season changes. Like those for Belper Athletic, they have had limited success. This push for higher powers on the lower frequencies set the design criteria for the AOR 7030. A front-end to take the signal levels and a range of self-aligning filters to keep your signal from the power-house next door. Try for the latest from Croatian Radio on 9.830 at 0700GMT and hear that just because it no longer reckons in your local station's news agenda, the problem has not gone away. The news is repeated at 1400GMT.

A station getting a reputation for reliable reporting is Monitor Radio. Try 13.770 in the very interesting 22 metre band for the Evening Broadcast backed up on 15.665.

41 metres is good to the USA in the mornings, try 7.535 and a raft of evangelical stations 200KHz on either side.

How far can you go?

Test your ECSS skills and the AOR filter menu as you go for Radio Australia on 7.330 in the evenings. Daytime is easier on 15.530.

No real DX'er would log The Voice of America as a find, but now they no longer officially broadcast to Europe, we have to find transmissions that leak from other areas. Late afternoon listening on 10.424, a lower-sideband feeder will test both sensitivity and stability. AOR's are such that you can listen to music on sideband.

More conventional listening can be done on 15.455 in the evenings. This is the African service providing vital news to a continent that the rest of the world really doesn't want to hear from right now.

The drive for efficiency at the BBC means that even World Service is a DX catch in Western Europe. The European Stream will test anyone's sync detector, the best of the bunch being 9.410 and 12.095. The BBC themselves recommend 15.575 for daytime listening. The African Stream is clear in Europe on 21.660 daytime, and 15.400 evenings.

Whoever you end up listening to, let them know. Your favourite station is just dying to hear from you. If you let them know you are out there hanging on their every word, they will put you on the mailing list for programme information and the latest frequency releases. Dying to hear from you?

Yes. If a station can't prove to its government that it has an audience by analysis of its listener correspondence then that station can be threatened. Audience power works; look at Radio Canada's reprieve. Listen for them on 5.995 in the evenings.

And finally

In a very informal review of all the stations heard during this month's writing session, only about 18% are in English at any one time. Or is that the island mentality striking again...

Utilities Greatest Hits

Take a deep breath then try for the classic clock on 60KHz, MSF Rugby; the weather on 117.4Khz from Mainflingen and the news on 139; embedded data on 198KHz, BBC Radio 4LW switches a million Economy 7 installations; non-directional beacons around the coast on 284.5, 287.3 and 356.5KHz; slow Morse on 484KHz from The Humber and Calling on 500; all at sea on 518KHz for NAVTEX and Calling on 2.182MHz with 2.381 for Commercial Traffic Watch; 2.638MHz for Inter-ship Safety and navigation warnings on 2.670, Land's End Radio; 2.702 for Coastal Control; searching in the dark on 3.023; this Royal Navy FAX sender, nicely embedded in Eighty on 3.652MHz; go for 4.125 Marine Calling/Distress if it goes wrong; Portishead calling CW on 4.274 and 4.286; 4.340 for NATO Distress; 4.384 for Portishead Radio voice; weather on 4.489, Bracknell Met Service in RTTY with 4.489; the RAF on 4.707, 4.710 and the weather on 4.715, keeping watch on 4.742MHz; control the East Coast on 5.080 and 5.113.5; for that Alaskan emergency; weather on 5.505; air traffic control on 5.529, 5.532, 5.598, 5.616, 5.649, rescue on 5.680, more planes on 6.604 and 6.622, marine distress on 8.291; 8.331 for fax from Royal Navy Northwood; 8.634 for Ships Survival Craft; 8.764 for Portishead Radio and 8.764 for the US National Weather Service, in fact the whole range of Utilities can be heard in this sub-band up to 9.032 for RAF Flight Watch; then 9.251, "The Lincolnshire Poacher", classic "English" number station; New York weather on 10.051; so much stuff around 11MHz including the USAF on 11.141, 11.175 and 11.179 with our boys on 11.204 and the classic 11.234; news on 12.212 RTTY from Tanjung Press Agency, Belgrade and China on 12.228; 12.392 for Marine World-wide Calling and Distress and just so much at 13Mhz, including 13.146 for Portishead Radio; 13.205 for Berne; 13.227 for NASA Launch Support; 13.270 for Gander; long distance Ops on 13.327, 13.330, 13.333, 13.336, 13.339 and 13.342; then 15.035 for St Johns Airforce Base, Canada; last but not least, a rash of long distance working when conditions allow on 17.916, 17.919, 17.922, 17.925, 17.928, 17.931, 17.934, 17.937 and 17.940.

That lot should keep you listening for now while I phone the Guinness Book of Records for the longest sentence ever to appear online

Number Stations

"For you, Tommy, zer vor iz over...

Competition Time. What have 5.301, 5.630, 5.745, 10.180, 5.205, 4.270, 5.130, 5.371, 7.871, 12.167, 13.533, 17.410, 10.715 (not another one of his lists) 6.849, 6.688, 4.822, 14.750, 10.125, 13.920, 7.740, 14.622, 10.970, 9.130, 10.820, 6.853, 10.255, 15.682, 6.270, 4.665, 4.880, 6.959, 8.127, 11.545 and 11.072 have in common? They are all Number Stations, so we get to keep the prize.

Fine, but what are they? After years of speculation as to what the endlessly repeated chains of numbers mean, it can now be revealed that the codes are for the benefit of "agents in the field", the decode coming from a "one-time" pad, no doubt to be got rid of in the time-honoured fashion with a little salad and a pert white wine. So it is according to Spycatcher, the book that rocked the world a few years back. The return of the number stations may have a lot to do with conditions, but the routines suggest mere testing of old equipment, a lot of transmissions being in AM and riddled with modulation hum, a sure indicator of superannuated kit.

So, please, don't blame AOR if they sound rough or off-channel. We can only faithfully reproduce the audio they send. Classics include "The Lincolnshire

Poacher" on 9,251 and 11,545. The old folk tune interrupted by groups of numbers, heard here in the early evenings. Some other explanations include weather information expressed in five-figure groups. These transmissions are disappearing as NAVTEX on 518KHz becomes the standard. I first heard Number Stations around 4MHz on a 52 Set in the early Sixties. They came with a stage German accent, all I needed to get the impression I was Onto Something Big. Whatever they are for, the spy theory is my favourite and by far the most evocative.

After The News, a Look at The Weather

Don't worry. We know all about the METEOSAT downlink on VHF. AOR first came to the market with a range of VHF/UHF receivers and soon became the brand leader. One of our sets and suitable aerial and you're away. Too easy. No, the real stuff comes after the satellite image has been received, weather and location information overlaid and the image forwarded in FAX mode on LF, or long-wave if the radio the AOR 7030 replaced had valves in it.

We hear Prague, signing as OLT21 on 111.8KHz - that's kilohertz, remember - and the two most audible in the UK, the Mainflingen senders on 117.4 and 134.2KHz. Winter season listening can only improve reception but at this point in the sunspot cycle will be subject to deep fades.

You need an efficient antenna at these frequencies. The longest long-wire possible with some attempt at matching. AOR owners already have a WIRE input matching the generally high impedances found with wire antennas and the generally low impedances used in JT's relay-switched input circuits. Electrical noise is the enemy down here, so with AOR's policy of 2-Wire mains connection, you can use the best earth you can without looping into the hash from your house supply.

Go for an earth spike, banging it into frosty ground is the best post-Christmas aerobics session you could wish for. Loop or ferrite rod antennas are worth a try as they only react to the magnetic part of the radio wave, leaving noise, mostly in the electrical part, behind.

And Here's One We Prepared Earlier

When I started this piece, I was going to rant on about people buying black boxes, the noble art of home construction being lost and the next answer coming out of a cardboard box. Then I decided the audio from my AOR 7030 was too good to miss and it should be routed across the shack to the Quad II. Yes, it can stand "The Closest Approach to the Original Sound" - valves and all. Mail me if you remember that slogan...

So I came to solder a 5-pin DIN plug. After trading in the soldering iron for a computer mouse three years ago, I found I couldn't do it. Thirty years of experience at the workbench lost in three...

So, my project is a Back-to-Basics Special. Get a yellow ferrite ring from that Rally Bargain Bag. Get a length of enamelled copper wire. Wind four turns on the ring and bring out the ends. Make a second winding of twelve or so turns. Connect the 12-turn winding to your long-wire and a very good earth. Connect the 4-turns to the 50 ohm antenna input of your radio.

At a stroke, you will have a better match to your radio and full static protection. The AOR 7030 already has this and John Thorpe will have given it a lot more thought than I just did. Happy listening!

More from The Captain's Log

As this Issue is devoted to chapter-and-verse on how the signal gets here, lets see what we can hear when it arrives. One you won't hear is the BBC on 15070. Try around there at dawn and dusk for Aeronautical DX but the Beeb has set up camp at 15575 daytimes. Contact Us above if you can hear a reliable frequency for World Service around midday...

Try your strong-signal handling on 3955 after 1700 in the UK. This AOR user finds it all too reassuring that this BBC TX is strong enough to cause his 7030 to drop the PREAMP function without leaving the armchair.

Wait for night. While the sunspot count is low, try for the BBC in Hong Kong on 3915KHz. If the local QRN allows, try for Ghana on 3366. If you can hear that, Eighty should be a treat. Keen SWM readers know you can check for the MW DX chances by listening for Newfoundland on 930KHz. Those of us already feeling the benefit of the AOR 7030 front-end will hear Moscow Home Service on 171KHz, the choice of filters will keep France Inter's copious sidebands at bay.

Contact us if you can hear VOA. Apart from the skill needed to hear it on a sideband feeder on 10454, this listener catches up on life stateside via AFN Frankfurt on 873. Winter conditions mean this is strong enough for car radio reception in the late evening. Whatever you listen to from wherever in the world it comes, keep in touch with us.

Bonjour, matelot

It was The Trawler Band on the radios of my youth. So were the great romantic radio names like Daventry and Hilversum but as we leave the medium-wave, radio takes a professional stance. British Telecom operate a network of Coastal Radio Stations to provide broadcast information to ships and radiotelephone services.

In Europe, try for:

Navigation warnings at 0603GMT and 0633GMT with a Weather Bulletin at 0703GMT. 0903GMT for Gale Warnings. Navigation warnings at 1003GMT and 1033GMT. Also at 1803GMT, 1833GMT, 1903GMT, 2103GMT, 2203GMT and 2233GMT on **1883KHz** or try **1856KHz**.

More weather and navigation information can be found at 0733GMT, 0903GMT, 9033GMT, 1333GMT, 1433GMT, 1733GMT, 1833GMT, 1933GMT, 2103GMT, 2133GMT and 2233GMT on **1834KHz**. A general weather forecast for shipping is also carried by Radio Four LW, a station we have never forgiven for scrapping "Sailing By" before the midnight bulletin. So great was the outcry they had to restore it, bless them...

Keep an ear on **2182KHz**: Coast Station Distress, Urgency and Calling. The listening mode is AM compatible USB. To get the best out of whichever mode is in use, use USB. **AOR** users will note that ships audio comes in a range of colours and sizes. It *is* them, not you. Listen here for weather updates, navigational warnings and the traffic list, a run-down of ships with calls waiting. Once a

call has been made to the coast station, the operator will assign a clear frequency. In the golden days of yore, in a time before fishing quotas, the frequency would be announced in kilohertz. Now they use a simple letter code.

I must go down to the sea again,
To the lonely seas and the sky
They've changed all the numbers for letters,
Will somebody tell us why?

Ellis after Milligan after Masfield

There May Be Trouble Ahead

For a pilot at 32,000 feet, with the HF on 5450kHz, a comforting sign that he is on his way home is the still small voice that says, "This is Royal Air Force Volmet..." from West Drayton. This is the Royal Air Force Weather Service. "Volmet" has its root in French and appears officially as "Meteorological Information for Aircraft in Flight" Catchy, but I still don't see the connection. Weather conditions are given by pre-set voice samples. The voice they used is old-school RAF, the stuff of Ealing Studios circa 1952. When announcing maximum visibility one night, we were half expecting: "Moonlight can be cruelly deceptive, Amanda..."

New utility listeners can try 4742kHz for RAF Flight Watch.

Architect is the Flight Watch callsign. Despite all the new technology, the main enemy to flight operations is the weather. Listen for these codes to précis weather to pilots preparing to fly between British airbases. An airfield is **Status Blue** when visibility is 8km or better, cloudbase is 2500ft, **White** at 5km visibility and 1500ft cloudbase, **Green** at 3.7km with cloud at 700ft and getting tricky **Status Yellow** at 1.8km with cloud at 300 feet. Try your luck landing **Status Amber** with hardly a kilometre visibility and cloud billowing at 200 feet.

Less than 0.9km is **Red** and **Black** is a no-go. From this we will learn that a **Wattisham Blue** has little to do with being an all-round good egg while up at University, but "Forever Amber" is a good status for most of my holidays in Wales.

Whatever Happened to Radio Moscow?

There was a time when you really did not need a receiver to hear Radio Moscow. Hi-fi fans found that the inductance of the pick-up coil and the capacitance of the cable to it produced a resonance around 7MHz causing it to come out of the record player. Such was the power radiated in our direction.

The size of the Russian land mass meant transmitter sites could be placed to get the best signal almost anywhere. When the USSR became the CIS, most of these sites were lost as the new countries did not want to carry the voice of an old regime. The economics in the new regime can hardly support the powerhouse transmitters and a recent name change to The Voice of Russia adds to the confusion when looking for the old war-horse.

Try AOR's big-signal capability on 7,400kHz late in the evening and our sensitivity circa 17,780 and 15,560 around 1300GMT.

Some of the sites are still fed by a sideband link. Test our self-seeking filter symmetry on 12,175 USB, daytime and the selectivity on 4,860 via Tver as night falls bringing in all the European mobile comms co-channel.

And, of course, listen to Media Network from Radio Netherlands buying air-time on 1386, The Voice of Russia via Kaliningrad, Thursdays around 2152GMT.

We get our radio news and views and Moscow gets badly needed revenue. Funny how things change...

Whips and wires

The antenna stages of an AOR radio will exhibit some kind of electrical characteristic. This is a Complex Impedance, usually edited down to "impedance"- the resistance offered to the radio signal - for the sake of common usage. If you follow the suggested designs in the instruction manual, then the burden of thought rests with the set maker and the aerial will be a good match. This has little to do with Dateline - our "good match" is the best transfer of energy from the aerial to the radio which is all we are trying to achieve. This can be done without the slightest knowledge of the radio's input impedance, offering more reassurance to the beginner.

The AOR Whip Antenna Option, a small telescopic antenna will deliver a signal, albeit at a very high impedance and at a low level, to input stages designed to cope with all this. No antenna wires leave you free to listen anywhere, locations near windows giving best reception without the screening effects from any metalwork used in the building.

The best reception is to be had from an outdoor aerial, as we get away from electrical interference inside the house - we always recommend The Long Wire. This is a simple single length of wire of a thickness strong enough to support its weight, insulated or not, as long and high as the local geography allows. Technocrats will call this an Inverted L as the longer limb of the capital letter L is the bit that runs down the garden, the shorter limb swinging down to form the downlead to the radio.

Technophobes will say it is easy to put up. Simply use insulators at each of the three points of the L and you are away. If you feel this prose is labouring toward a "What the 'L' punchline, then there it is, with all the feeling of inevitability...

Sounding Good?

AOR have gone overboard to get the best audio quality. But all AM broadcasters are now using some form of audio processing to improve the signal-to-noise ratio. There was a time when the quality of the sound from your radio was determined by how much you were prepared to pay for it. Now, in world radio, audibility is the key. And, to be honest, it can sound dreadful - even on an **AOR**.

The problem lies in the audio processing that has slowly changed the sound balance since Abba were in the charts. It started with wide-band compression. The BBC lead the field with a limiter that gently reduced the dynamic range of all audio frequencies present by the same amount, giving an overall impression of loudness enough to counter reasonable domestic noise. Then came

the active systems.

A bank of filters carve up the audio into anything up to six pass-bands. These are then compressed at different rates pre-set by the broadcaster, the reconstituted audio then going for transmission. As processing has no musical analogy, it can lead to listener fatigue simply due to the saturation of the sound.

Engineers say processing is here to stay. Radio marketing men will tell you that he who shouts loudest gets the largest audience and so gets to keep the money. That's fine up to a point but with the CD and Digital Audio Mass Storage setting new standards for source programming and radios improving markedly with each generation - this must be the time for the broadcasters to reassess their use of processing to allow the final level of fidelity to align with the listeners level of investment in equipment.

In other words, you'll get what you pay for. With the 7030, you'll hear what they are sending.

A Life On The Ocean Wave

My only real experience of life at sea is a Dutch ferry. I travelled with my nautical chum who bored me rigid on the journey to the docks with tales of tying your sheets to the binnacle with the seacocks aft. As we pulled out he took his position on the poop, arms akimbo and said this was the life for him.

"I suppose you are still playing with your little radios, then? Can't we get up on the bridge - see what kit they have got?" His tone suggested revenge was called for.

"Well, let me talk you through that little lot", I said, gesturing to the aerials on the gantry.

"Nothing to worry about", said I with a staged concern, "but the long rod with like a spring at the bottom. That's for calling or distress on 2182. Can't see it getting very far, the loading coil's corroded." The colour drained from my friends face.

"And that dipole for 156 megs. Not enough gain for these waters. I would not leave port without stacked yagis and a rotator." I understand my fisherman's friend decanted his Seafarer's Platter into the sink and never left his cabin for the whole voyage.

There was, of course, nothing wrong with the ship's aerials.

If you are in the AR7030 class, key in 2182 after nightfall. Set the filter one higher than the USB default to get all the audio and listen. The Calling Channel is USB but AM is still allowed. Turn the bass up a bit to see how many ships are off-channel and leaking carrier as you hear the beat notes. Find out how many fist-mikes have been dropped or left swinging against the bulkhead in a Force Ten as you wrestle with appalling audio.

Remember, your 7030 is only telling it exactly like it is, think of the poor operator at the coast station.

Get Them While They Are Hot!

The good news is that the world's radio media are agreed that the next Sunspot Cycle has officially started. This means the higher frequencies, those above 12MHz say, will again come to life. We have great listening in store.

The bad news is that the lower frequencies lose their DX edge. I put my 7030 to the test down on 90 Metres where faint DX competes with our Coastal Operations. Late evening seemed the best time to listen, also sadly the best time for the interference - both co-channel and TV.

AOR's front end took the signal levels, both wanted and unwanted, while the tenacious sync detector recovered Africa's Greatest Hits. See if the band is open by trying for Ghana on 3366. If that is "fair readable", listen around. As I write this, I can hear the BBC from Mayerton on 3255. Good audio too, and I'm having to sync on one sideband as World News gets clobbered by RTTY.

3290 and 3270 seem to be coming out of Namibia, perhaps. Much higher up on 15575, I can hear Korea as I reach for the bedtime coffee at 2150GMT. A sign of sunspot recovery to hear 19 Metres open for DX at this time?

I would like to think so, but I reckon they have just hired airtime at the BBC site just up the road. Don't you hate it when that happens!

Waiting for Baudot

Thousands of words have been written about the role of computers in our hobby. Like it or not, there has been a steady invasion of PCs into the home and into the shack. I've tried using mine to decode RTTY with great success, but:

A few years ago, this listener would move house to stay clear of PC noise, but now the situation is getting better. Not much - but it is getting better. It's a trade-off. PCs are getting quieter while **AOR** are making their receivers more sensitive.

By thinking ahead, you can do a lot to reduce computer noise. Always use shielded computer cables. The ribbon types are a multi-way transmitting aerial for noise. Get the aerial impedance down to 50 ohm as near to the long-wire (or whatever) as possible. Try balanced aerial systems. Use a good co-ax to deliver signals straight to the back of the set.

Make sure the RX has a **very** good RF earth and try to raise the impedance of power/speaker/comms leads with clip-on ferrites. Loads of room for experimentation here. Plastic-cased ATUs invite noise. Debate, please.

Try to arrange for the PC monitor to be as far as possible from the antenna entry point. And, if the PC is just logging a file, switch the monitor off - or set it to time-out after a few minutes in the Energy Saving set-up.

Humber Radio Remembered

In the summer now gone, for a hay fever sufferer, a quick and jolly solution is to make it to the coast, which is, for the most part, pollen free. AOR is gaining recognition by marine users and, as a supplier, could not be further from the sea. If you live around here, you head for the English East

Coast and the haven of Sutton-on-Sea. Steel yourself with a stiff scotch in The Baccus Hotel, climb the sea defences into the on-shore drizzle and look for aerial masts.

The ones on the horizon belong to BT Humber Radio, an MF/HF site for marine users. A 24 Hour watch is maintained on 2182 with voice working on Channels Q, R and S. Ships hear these on 1925, 2684 and 2810 respectively, all USB. Channel Q ship-to-shore is one of the reasons why 160m LSB ham operation is power-limited, a great test for filter shape-factor in the AR7030.

Weather and Navigation info are broadcast on the half hour on 1869 USB. Night propagation will take this signal well inland. Listen at 2103GMT for a Gale Warning, the real thing.

It would be nice to think the massive tee aerial nearest the sea wall carries this, transmission at its purest. Eighty-metre hams know they share their band with Humber and other Coast Stations, a radiotelex service tests the local receiver front-ends, AOR included, on 3607.3

The eerie thing about this station is that it is unmanned, control comes from Portishead. The shape of the central building suggests an era when radio operators routed calls looking out sea before these defences were built. A smaller outbuilding still bears the legend RADIO STATION, but there is nobody here. Did Humber stay on-air during the 1953 floods? Which mast does what? Enough for now. I've been told I've got to enjoy myself at the funfair in Mablethorpe....

Well Over Nine?

There is one problem with having a calibrated S Meter. If the meter in question is on an **AR7030**, then rest assured, it will be accurate as long as the antenna impedance has been matched to 50 ohms. But, once you know it's telling the truth, we all seem hell-bent on bending it around the end-stop. Longer long-wires, better Beverages, radical rhombics, daring dipoles, quintessential quads, whimsical Windoms, gee-whiz G5RV's and indescribable impedance matching conspire to red-line the meter.

More is better, surely? Not necessarily. And don't call me Shirley. Our ability to hear a signal is not just based on strength. It is the ratio of that strength to any noise degrading your enjoyment of it. Therefore, go for the best signal-to-noise ratio. Users of loop and balanced aerials will have already noted that signal levels are generally down compared to a long-wire, but the noise levels are greatly reduced. The signal-to-noise ratio has been improved not by increasing the signal level but by dropping the noise floor. OK, the S Meter is down but the signal is clearer. In real terms, audibility is up.

As long as the signal is strong enough to quiet the receiver - not really a problem with an **AOR** - then if it's there to be heard, you'll hear it. Having said all this, there is still something magical about going for out-and-out signal strength. And an **AOR AR7030** can take it - within reason, of course...

Things Can Only Get Better

I write this on a wet Sunday afternoon with nothing on the horizon but the deadline. Nearly as dead as the radio. An **AOR** it may be, but it has been dragged down to the level of the competition

by SID.

A Sudden Ionospheric Disturbance has killed radio propagation and the BBC World Service has, bless them, apologised for it. Sure, I can check it's sensitivity and small-signal handling on what signals remain or try lower frequencies - but this SID is a big SID, so I shall leave the radio for later.

Looking for inspiration, I pick up an old logbook from the early eighties. The BBC are using 25650 to Africa and RSA reply on 25790. The one I remember well was VOA on an unbelievable 26040KHz. Up here, all on its own, no attempt was made to limit bandwidth from Greenville. Hearing Willis Conover playing Jazz Classics in near-FM quality was what radio was all about. Sadly, both Willis and that exceptional 11 Metre outlet are no longer. But will we hear that sort of thing again?

Perhaps. All the physical evidence suggests we have started the long climb into Sunspot Cycle 24 and soon broadcasters could consider using 11 Metres again. In fact, all the congestion on the lower bands the **AR7030** was designed to deal with, will get better as the broadcasters "spread out" to the higher bands. So, here's to the future... - and if you are a Transmission Planner, let us know how high you are going to go. On a wet Sunday at **AOR**, we are ready for the challenge.

Cost Effective?

If, for some unaccountable reason, you decide to read this month's Short Wave Magazine from cover to cover in one sitting and it takes you a day to do it, the world will have spent \$3,400,000 on getting its message to you. That's only transmission costs for broadcasting stations.

Add to that production costs, salaries, all the other usual commercial overheads and you can safely double it. Add in the utilities, the marine, aero and tactical, the number stations and everything else we hear between the broadcast bands and I reckon, speaking very generally, that the world's HF operations don't get much change out of \$20M a day.

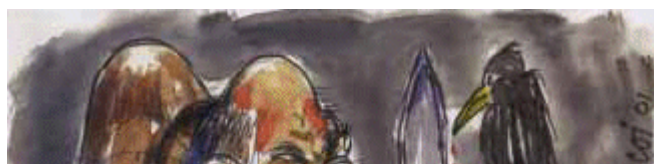
Over the holidays, the crystal-set bug got me again. An improvised short-wave coil found me about half a dozen stations at head-phone strength. Not so good for DX, though.

Our AR7030 has to handle the world's wattage, great, small and the very, very tiny. And there are parts of the spectrum where the great and tiny are side by side. The sub-band 7000-7500kHz, for example, contains a ham-band with tiny DX signals next to power-house broadcasters.

In Europe, we have to deal with this dynamic range and AOR make this a design point. And having designed it in, all you have to do is enjoy it. With this tremendous daily investment, I see my listening as a tax rebate...

Can Designers learn anything from Service Engineers?

We think so. During my time "in another place", some 12 miles north of here, I fitted hundreds of 500 and 270Hz filters in



receivers for the keen CW man.

Given that the IF signal was stable and within spec after warm-up, I could not help but notice the change in timbre of the note as the filter got up to the same temperature as the radio surrounding it. And this was after trimming up the carrier insertion frequencies.

AOR's filter tracking takes out not only this error but also acknowledges the manufacturer's own errors declared in their spec. This feature is most noticeable (and useful) in the narrow bandwidths but the assurance of sideband symmetry in the wider AM modes can only reduce phase-cancellation artefacts. Sorry - what I mean is, it distorts less and sounds better!

Hearing traffic on 5610 USB shows what a well set up sideband filter can sound like. AM Station AFN/AFRTS on 873 from Frankfurt is clearer now as evening falls, BBC Africa on 17830 has just faded out...

A call to PORTISHEAD RADIO on 4384 is very strong. 6950 may well be China, as could 6933. And possibly for the last time as we climb into higher Sunspot Counts, BBC Hong Kong on 3915.

That's the trouble with the AR7030. I have been asked to write a full technical review of it but all I've done is listen to it all day. And now they want to borrow it to see what I have got in the memories!

Picture this...

It is a late evening in early Autumn. A fetid fog rises from the Derwent lapping languorously at the doors of East Mill. A lone figure, collar turned against the Stygian gloom, eases up to the side door. He taps the Secret Knock, known only to the few. It is A O R in his best 12 words\minute. He will get that M Licence if it is the last thing he does...

A pause. Then a hatch in the door slowly opens. A dusky maiden (here the imagery falls to the ground as the chances of finding a maiden in Old Belper Town are, at best, remote) peers out expectantly. As their eyes meet, she speaks.

"Yes?"

"Richard sent me"

"One moment, please"

As the massive steel doors creak open, the figure slides inside, pausing only to look up and down the alley. We negotiate endless stairs and corridors until we find one that has an end.

A little over the top? Well, yes, but there was a real sense of the covert operation as I picked up my demo AR7030 from AOR a few weeks ago. Few receivers have attracted so much attention in my thirty years plus of listening and as I write this, column inches are still being drafted by "those in the know" when it comes to the close analysis of radio specs. This reviewer would get kitted out to measure large signal handling only to find himself hooking up the best antenna he can and tuning for a big signal to hear what the radio actually sounds like.

This Is The Life!

I am sitting at the Millfields end of Carsington Reservoir in Derbyshire. For our readers abroad, this is a favourite part of the English Midlands, twenty minutes from the AOR HQ. Just me, this PC and

a large flask of coffee.

And I'm cursing because I forgot the radio. Not that I expect to hear more due to the high elevation around here. I know the real DX will have been reflected down from the ionosphere, so my height will have little effect.

All this water will help with ground wave propagation and if I were to go mad and set up a one-man DX-pedition, receiver grounding would be fantastic in the damp soil. The book for the AR7030 says its performance is down a bit if I run it on the car's 12v battery. To keep that linearity up and the 3rd-order products down, the mains PSU delivers some 15 volts. We need current in the front-end for performance and less of it for good battery life. It's trade off with the AR7030 coming down on the side of performance. More coffee. As the nominal terminal voltage of a well maintained car battery is some 13.8, the compromise, in real listening terms, is small. And no supply noise problems.

OK, save this copy and watch the sunset. As usual - all this coffee and the toilets are on the far horizon. Suppose that now I've filed copy for AOR, I could do a tour-guide of all the on-site conveniences, a Who's Loo. I thought Reservoir Bogs is a good working title...

Making Shopping Fun

There comes a time in the affairs of a radio man when conditions make DX at the flood but he still gets dragged down to the Superstore shopping. Radio opportunities at Sainsbury's? Oddly enough, yes.

We are always happy to get your mail, electronic or snail. One topic that comes up regularly is aerial wire. What's best? Well, it should be strong enough to support its own weight. Here in the hardware aisle, I'm looking at a steel-cored washing line for £2.99. It has a very thick plastic coating and looks as if it will stand up to anything.

My Scandinavian chum has allowed an HF radio in the kitchen as long as there "are not wires everywhere". OK. The plan is to replace her washing line with this steel-cored one, bringing in the end nearest the house through a neat little hole in the window frame. The insulation seems tough enough to deal with this, a few cable clips tidy the line to her specifications and the termination is made to the WIRE input on the AR7030. Voila!

As dusk falls, we get the Radio Sweden MF power-house on 1179. During the day, it was fair on 9705 - the usual 6065 was fading. Finland (she says, it's all foreign to me) is "good-readable" (to her) on 11735. And the antenna for all this is our little secret. Not perfect but great for domestic harmony.

And not for transmission. Although it would be interesting to see what happens to the SWR plus laundry. Blanket coverage?

Listening around 80 Metres on another wet Sunday morning...

The AR7030 was coming in for some criticism. They said it was "hard to operate." Really? It's true

that it is Menu Driven and the approach is different from a traditional radio, but if we go back a bit...

Nothing could have been simpler than a crystal set. All you needed to do was wind a coil, make a tuning capacitor from individual plates you made earlier and hope you found an active area on the crystal with the cat's whisker. The first valves made it easier. Do all the above, connect the crystal to the grid, put a pair of headphones in the anode circuit and all you have to do to hear anything is set the filament current and the grid bias. Add another winding on the tuning coil for positive feedback and you can triple the gain and do away with the temperamental cat's whisker. Real progress, as long as you don't mind getting the phase of the winding right, setting the Regeneration, retuning slightly and hope to keep the system stable by constant monitoring of HT, LT and bias. Superhets standardised the receiver design leaving us free to try different control technology.

If this means nothing to you, it's just the jargon of it's day. Now, the AR7030 is so highly developed it needs digital control with all its buzzwords, not only to get the best from it but also to meet your expectations. And it will - once you get used to it...

Heard On Eighty Metres...

Forty years on, your scribe still takes pleasure from a daily trawl from the DX'ers at the top of the band down to the key-bashers toward the bottom. The things he hears:

...can't get out to give you a reading from the rain guage. It's too wet...

...you are five and nine plus. Real arm-chair copy. Great audio. Did not catch the callsign...

...aerials? The perfect garden for me would be 1 foot wide by 132 feet long...

...the rig is a Kenwood 570. That's an Icom 570...

...G8 is a novice call, isn't it...

...I call it a quad because it's a loop with three sides...

...I've got two children and seven koi carp...

...getting QRM from the dog...

...just because I asked for breakers does not mean you can come in...