

Alinco's new budget priced rig!

The DX-SR8 HF Transceiver

I've always enjoyed using Alinco equipment as it's well-designed, well-made, easy-to-use and provides value for money. Many readers will know that I own an Alinco DX-70TH (my original DX-70 was stolen from my shack in March 2009) and that I was one of the earliest users of the transceiver when it was first introduced in the UK around 15 years ago. However, the original tried and trusted transceiver now has a 'new rig on the block' to contend with – the DX-SR8, the first new high frequency (h.f.) model from Alinco for many years.

A new model such in the pricing range as the DX-SR8 – around £500 – should be an ideal 'first rig' for many Radio Amateurs and possibly a second transceiver for portable and mobile use for other operators. So, how did it perform? Read on to share my experience of the 'new rig on the block'.

The Overall Design

The Alinco DX-SR8 is an h.f. only transceiver covering all bands from 1.8 to 30MHz, with the inclusion of the 5.3MHz band. Nevada will enable transmission on this band for Amateurs with the appropriate Notice of Variation (NoV). The rig provides c.w. for Morse operating, amplitude modulation (a.m.), narrow band frequency modulation (n.b.f.m.) and single sideband (s.s.b.) operations.

Transmission is only enabled for the Amateur Radio bands. The tuning scale employs a large easy-to-read liquid crystal display unit (much larger than the DX-70TH model), with a pale grey background and a light black contrast alpha-numeric display. The backlight settings can be varied using the main menu control system.

The transmitter section provides a radio frequency (r.f.) output of 100W when operating on the c.w., s.s.b. and n.b.f.m. modes. The power output can be varied (via



Rob Mannion G3XFD evaluates the latest h.f. rig from Alinco and discovers it's a remarkable budget-priced package!

the on screen menu) between 100W (High), approximately 10W (Low) and approximately 1W using the menu system. **Note:** It's also possible to lower the r.f. output to the milliwatt range, by opening the transceiver casing and making a small adjustment.

The transmitter's r.f. output – when it's operating in the a.m. mode – is a maximum of 40W (High), 4W (Low) and 0.4W (400mW) (S-Low). The modulation systems employed are balanced for s.s.b., low-level modulation for a.m. and reactance modulation for n.b.f.m. Maximum deviation on n.b.f.m. is ± 2.5 kHz.

The Alinco DX-SR80's receiver is a double conversion superhet design with a first intermediate frequency (i.f.) of 71.75MHz and a second i.f. of 455kHz. The receiver has the usual audio frequency (a.f.) front panel control, and another for varying the i.f. passband (to help overcome adjacent channel interference) and a front panel controlled radio frequency (r.f.) attenuator, which allows zero attenuation, and steps of increasing attenuation. There's also an adjustable squelch control.

Unusually, for a modern commercially produced transceiver, the DX-SR8 is fitted with a narrow-band audio filter for extra selectivity, rather than by using a crystal or ceramic resonators (as used by the Alinco DX-70 series).

Note: Although I haven't seen a fully detailed circuit diagram, the specifications, as announced by Alinco and provided in the manual, are reproduced in the side panel.

The transmitter is provided with a hand-held microphone (the EMS-64) and the receiver has (unlike the DX-70 series) a small loudspeaker on the detachable front panel. An extension kit EDS-17 (not available for the review) is required if the panel is to be separated for remote operation – perhaps for a mobile installation.

Direct frequency input is possible through the control pad to the right of the main screen.

The transceiver can also be controlled by a PC through the serial interface, using the optional PC interface cable. Once set up the frequency, mode, power and memory can be selected via the computer.

The manual is to the usual good quality Alinco product, although there are several slightly amusing phrases due to the huge language barrier between written Japanese and English. Despite this, I feel that it's generally very helpful and well up to the usual 'friendly' Alinco standard.

The design also incorporates 600 memory channels for the use of the operator. These can be registered in three banks, with 200 channels per bank. Each of the memory channels can store the operating mode filter setting, split frequencies, a.g.c. setting, attenuator or pre-amplifier settings, noise blanker settings, etc.

For those who enjoy chasing the DX, split frequency operation is possible and there are scanning facilities. On the whole the SR8 is certainly not presented as a budget receiver – judging by the facilities provided.

On The Air

After I had familiarised myself with the rig I certainly enjoyed using it on the air and – inevitably – I was continually comparing the new transceiver to my Alinco DX-70TH. I listened on all bands, but kept my operations to the 3.5, 7, 10, 14 and 18MHz bands, as conditions weren't that good. I operated on c.w., a.m., s.s.b. and n.b.f.m. The a.m. and n.b.f.m. transmissions took place on 70MHz (via my 28 to 70MHz transverter and the audio reports were very satisfactory).



Though the display looks blue in the heading shot, this is a 'trick' of the photography, in reality the display looks blue/black text on an almost pure white background.



The simple back panel has little more than sockets for the power, antenna, accessories, Morse key and external speaker along with a coaxial socket to add in an external ALC voltage.



The whole front-panel pivots off for remote operations after releasing two screws – various length leads are available as extras.

Most of my s.s.b. contacts were achieved around the 100W level, although I carried out one short test at 1W with my friend and *PW* author **Phil Ciotti G3XBZ**, but even though it was on a noisy 3.5MHz band, we are very close neighbours radio-wise! Incidentally, to achieve power levels of less than 1W (milliwatts) the SR8 has to be opened up and a pot-style control adjusted (I didn't do this as the rig was on loan).

As part of my tests to check the transmitted audio quality, I again had the help of Phil G3XBZ, who lives on the opposite side of Bournemouth to me. Despite being less than 8km (5 miles) apart, conditions on 3.706MHz (obviously ground wave) s.s.b. contact weren't too good, although Phil commented favourably on the audio quality.

Despite the favourable report, I was a little disappointed because normally I receive excellent audio reports – especially when I'm using my Alinco EMS-14 desk microphone. However, we had another QSO later after I had realised that the built-in speech processing was inadvertently switched on (not really necessary for local contacts) and the noise (we were both affected by a persistent noise on the band, not local to us) on the first QSO had abated. So, during our second test contact Phil gave me the sort of report that seems standard for Alinco h.f. transceivers. "Excellent audio Rob, very well rounded, definitely you and a pleasure to listen to!"

The report came after I had changed microphones several times – from the supplied hand-held microphone to the EMS-14, Phil said that the desk microphone sounded better than the first microphone. This isn't surprising, as I tend to speak rather loudly into a hand-held microphone whereas I – speaking farther away – don't tend to overload the EMS-14 so much! The reports I received from QSOs on all the bands operated on were all very favourable using the hand-held microphone – but after establishing contact, for my own convenience I switched over to the desk microphone.

The receiver's sensitivity is excellent, more than adequate for the h.f. bands and the selectivity is also adequate for today's crowded bands for s.s.b. operating outside of contest periods. During one of my QSOs with Phil G3XBZ – because of adjacent channel interference – I selected the audio filter 'on' via the main menu and it certainly helped reduce the QRM by reducing the audio bandwidth.

Unfortunately, in common with all fixed bandwidth audio filters the SR8's filter affected the audio quality I was receiving from Phil. So, as soon as the QRM eased (as band conditions changed) I switched the filter out to regain the pleasing audio I had enjoyed before the adjacent interference began.

Unfortunately, during the review period the 14 and 18MHz bands didn't provide much DX opportunities but I worked stations all over western Europe, gaining many more favourable comments on the transmitted audio. From my end I found the receiver delightfully easy to use and the large, display was pleasant to use and although the brightness can be varied, I preferred to leave it at the default settings.

On several occasions during s.s.b. QSOs on 3.5 and 7MHz, I found that it helped if I wore my headphones, but (again to my surprise) I found that was rarely necessary

because of the extremely efficient – and cleverly designed – speaker and enclosure. Indeed, I was so impressed at the performance of the small-sized front panel speaker (after some comparison tests) I preferred it to the extension speaker I use with my Alinco DX-70.

The placing and the performance of the built-in loudspeaker may, at first, not seem to be important. However, with careful design the built-in speaker and enclosure may save us having to take an extension speaker for portable/mobile operations – and Alinco's carefully thought out design has led to one of the best quality communications speaker I've ever come across. I found it was a great help on the noisy Amateur bands (see later section for general coverage receive comments).

The front panel controls for the stepped r.f. attenuator and pre-amplifier were very useful although, as the sensitivity on the 'SR8 is excellent, the extra gain from the pre-amplifier wasn't needed. Indeed, I found the r.f. attenuation was much more in demand because of the high noise levels on the bands. The built-in noise blanker also proved useful in reducing the annoying clicks that are so prevalent at this time of year as badly designed thermostats do their job!

Unusually, there wasn't a contest on during the review period. This meant I didn't get the opportunity to see how well the receiver coped during the free-for-all and jumbled everyone-on-the-same frequency melee that we've all experienced during a contest! Time will tell – but the rig seemed to perform very well on the busy h.f. bands.

On The Key

As a keen c.w. operator I was looking forward to operating the 'SR8 on c.w., even though I'm not so good on the key nowadays due to arthritis. Because of the arthritis I've gradually been operating more often with a separate electronic keyer with my own Alinco DX-70TH, but that's brought its own problems because of nerve damage in my hand, effecting my sending accuracy.

However, the vast majority of Amateurs I work are very forgiving of any errors I make. So my message must be – even if you're not too sure of yourself on c.w., have a go, you'll be made most welcome by other operators. We can also be sure to get a c.w. QSO at any time of the day on the h.f. bands!

The built-in electronic keyer on the 'SR8 intrigued me – just what would the key be like on such a budget priced rig? I needn't have been worried – it coped extremely well with my sometimes erratic 'paddling'. No details of the type of keyer design is given in the manual by Alinco but I wouldn't be surprised to discover that it's based on the well known Curtis keyer integrated circuit (i.c.).

I'm not a fan of menu operated rigs and can honestly admit that I'm very old fashioned, preferring as many controls to be immediately available on the front panel. Years ago rigs had very crowded front panels! Again, despite my initial disappointment that the SR8's keyer's controls – particularly the speed control – weren't on the front panel, I immediately found that even my slow old brain became accustomed to adjusting the speed via the menu system.



The supplied hand microphone attaches to the remote-mountable front panel rather than into the main unit. This means no extra microphone lead is needed to use it this way.

It turned out to be the proverbial 'piece of cake' and my reluctance quickly melted away.

The keyer has a comprehensive range of settings, covering speed, keying dot-to-dash length 'ratios' (we tend to refer to this as 'weighting' as we place a slighter or heavier emphasis on the dashes (usually referred to as dits and dahs) – more than enough to satisfy someone being introduced to 'luxury Morse' – as one old Telegraphist said to me when I demonstrated one of my first keyers many years ago!

The sidetone frequency is adjustable from the main menu and is very simple to change. However, I found that the keying sidetone volume level to be far too loud for me on the default setting. Unfortunately, this feature isn't controlled via the main menu and as I didn't want to open up a brand new rig (to adjust the level), on loan to me for a short period, I gently placed a small towel over the speaker grill. This reduced the sidetone volume effectively and – if necessary I could then adjust the main receiver volume using the a.f. gain control.

Once on the air, I found that I was most comfortable operating at around 12 to 14 words per minute (w.p.m.) but the keyer will work very well indeed up to around 30w.p.m. for the 'machine gun' operators if they so wish! Incidentally, in days past I was quite comfortable operating at around 20 to 25w.p.m. but because my handwriting is so slow nowadays

and I prefer to copy everything down in block capitals – as the Royal Navy trained anyone they taught Morse – I prefer to operate at a slower speed. Even then, I struggle to write everything down fast enough!

There's a choice of sending and receiving change-overs offered on the 'SR8, ranging from full break-in, where it's possible to listen in on your transmitting frequency, to semi-automatic, with pre-set (menu controlled) delays. And this is where I came across my first real little 'niggle' with the transceiver – the clattering relays!

When full break-in is selected, the SR8's internal relay system seems to be relatively noisy compared to the Alinco DX-70TH. In fact, I found it to be quite distracting – although I'm sure it would eventually fade into the background as I got used to the rig.

To get over the problem I used the main menu settings to introduce one of the pre-set delays, which enables the receiver to drop back into receive after a key-up delay. This turned out to be very successful and after experimenting with different delays, I settled on one that gave me about two seconds or so 'key up' before the rig turned to receive. So, no problems and the relay clatter was minimised!

During daytime operations on 3.5 and 7MHz I had some enjoyable QSOs – at the same time playing around with the



The unit on the bench in Rob's shack gives a good idea of its size.



The single-board r.f. power amplifier stage and relay-switched band filters.

various menu settings for the keyer until I was comfortable with the rig. I think that even the inexperienced operator will find their way around this transceiver very quickly indeed, If I can, anyone certainly will because – as I've already mentioned – I'm not 'menu friendly'!

Operating on the crowded 3.5 and 7MHz bands on c.w. demonstrated the problems associated with the transceiver relying on a fixed narrow bandwidth audio filter to supplement the basic selectivity provided by the filters in the 'heart of the rig', the s.s.b. generator. On these bands I found that strong 'close in' adjacent stations seemed to be 'pumping' the automatic gain control (a.g.c.). With the audio filter selected, some strong close by (3kHz or so) stations were registering on the bar graph style S-meter, even though they they were barely audible on the frequency I was working on, due to the action of the filter.

After a while I realised it was better to avoid using the audio filter whenever possible. Instead – with careful adjustment of the i.f. passband control and the stepped r.f. attenuator – I found that the rig could cope quite well with the crowded conditions that we can easily find on the 80 and 40 metre bands at weekends! In fact, I had to continually remind myself that this beautifully made transceiver (it's superbly constructed inside and out) is a budget priced rig.

General Coverage Receiver

During the time I had the SR8 in my shack I used the general coverage receiver (GCR) a lot, as I had it running in the background as I worked on my bench building a project. The GCR is excellent and the version I had on loan went down to the lowest broadcasting channels on the long wave band. There are no breaks in coverage and it was interesting to listen to the various slow Morse navigational beacons below 500kHz.

The sensitivity and selectivity are ideal for general broadcast listening and as I've already mentioned – I preferred listening to the radio using its internal speaker. Incidentally, one trick I learned with tuning the SR8, was to select a.m. on the Amateur bands, so the faster tuning rate could get me up and down the band quicker. It's a useful little trick as the a.m. tuning rate is much faster and it's a moment's work to return to the slow tuning rate provided for c.w. and s.s.b.

If you're like me and enjoy a weighted, freely spinning tuning knob – you'll enjoy the control on the SR8. Unlike the DX-7-TH's it's really free spinning and a delight to use over many hours of operating. I think the the SR8 may even appeal to the non-transmitting Amateur as the receiver side is so good. However, I do far more listening than transmitting myself and the excellent GCR wouldn't be wasted!

In My Shack?

After reading my appraisal of the Alinco DX-SR8, I'm sure your final question would be – will the transceiver be found in my shack? And, of course, the answer is that I will be buying one! The rig offers truly superb value for money. Where else can we buy a ready-made, professional manufactured transceiver with all the facilities the 'SR8 offers? In my opinion it's an ideal starter or second rig and will be very useful for driving my 70MHz transverter and general 'rag chewing' and portable operations.

The low power settings – easily accessible via the menu, make the 'SR8 ideal for for operating lower power or QRP. The built-in keyer was a surprise on such a modestly-priced transceiver and I will certainly find this feature to be very useful when I'm operating /P on my own SR8.

However, despite the built-in keyer and Alinco's promotional material extolling this feature, I don't think the transceiver will appeal to the truly dedicated c.w. operator. These operators will go for a rig fitted with multiple specialist facilities, including adjustable narrow band filters, perhaps even including Digital Signal Processing (DSP) – in other words a transceiver with a much higher specification and a much greater £1000 plus price to match!

Despite my reservations and although it's not as selective as the DX-70TH, I think that the Alinco DX-SR8 will appeal to the operator who may like to enjoy an occasional stint of c.w. operating – perhaps on the bands at a time when the QRM that makes state of the art filtering necessary – especially during contest time.

It's most certainly a rig to buy and to enjoy using on the bands and I think that the 'SR8, like the Alinco DX-70 series, will carve a name for itself as 'the starter rig' with an amazingly good price. Well done Alinco – you have another winner!

My thanks go to **Mike Devereux G3SED** for the loan of the review transceiver. I'll be very reluctant to return it!



The Alinco DX-SR8 costs £499.95 plus p&p. More information from **Nevada, Unit 1, Fitzherbert Spur, Farlington, Portsmouth, Hampshire PO6 1TT**. Tel: **023 9231 3090**, FAX: **023 9231 3091**. E-mail: **sales@nevada.co.uk** website: **www.nevadaradio.co.uk**

Manufacturer's Published Specifications (Abridged)

General

Operating modes:	J3E (l.s.b., u.s.b.), A3E (a.m.), A1A (c.w.), F3E (n.b.f.m.).
Memory channels:	600 channels (simplex).
Antenna impedance:	50Ω unbalanced.
Frequency stability:	±1ppm.
Power requirements:	13.8V d.c. ±15% (11.7 to 15.8V).
Grounding:	Negative ground.
Current consumption:	Receive 1A max, 700mA (squelched). Transmit 20A.
Operating temperatures:	-10°C to 60°C (+14°F to +140°F).
Dimensions:	240 (w) x 94 (h) x 255 (d) mm (9.45 x 3.7 x 10in).
Weight:	Approx. 4.1kg (9lb).

Transmitter

Transmit frequency coverage capabilities:	Amateur Bands 1.8 to 30MHz (see note in text ref. 5.3MHz).
Power output: (c.w., s.s.b., n.b.f.m.)	100W (Hi), Approx. 10W (Low), Approx. 1W (S-Low). 5.3MHz 50W max pre-set. a.m. 40W (Hi), Approx. 4W (Low), Approx. 400mW (S-Low).
Modulation:	Balanced modulation (s.s.b.), low level modulation (a.m.), reactance modulation (n.b.f.m.).
Spurious emissions:	Less than -50dB (less than -45dB in the 10MHz band).
Carried suppression:	More than 40dB.
Unwanted sideband:	More than 50dB down (at 1kHz).
Maximum deviation n.b.f.m.:	±2.5kHz.
Microphone impedance:	2kΩ.

Receiver

Receiver freq. coverage:	30kHz to 345.999MHz.
Receiver design:	Double conversion superhet.
Intermediate frequency:	First 71.75MHz, Second i.f. 455kHz.
Selectivity:	c.w., a.m., s.s.b. (narrow) 2.4kHz/-6dB, 4.5kHz/-60dB a.m., n.b.f.m. 6kHz/-6dB, 18kHz/-60dB.
Sensitivity:	c.w. (1.8 to 30MHz) -12dBμ (0.25μV). a.m. (150kHz to 30MHz) +20dBμV (10μV). s.s.b. (150kHz to 30MHz) 0dBμV (1μV). n.b.f.m. (28 to 30MHz) -6dBμ (0.5μV).
Spurious & Image rejection ratio:	More than 70dB.
Audio output power:	More than 2W into 8Ω at 10% threshold of distortion.
Receiver RIT range:	±1.2kHz.

Mike Devereux G3SED MD of Nevada comments

Thank you for the copy of the Alinco DX-SR8 review. I'm glad you like the new radio, it has been designed to give no nonsense operation with easy to use controls at an affordable price. The QRP output will appeal to many especially as the radio has the built-in c.w. keyer with full break in. Alinco are keen to build on this radio and would always welcome feedback on how they might develop their products for the UK market. Regards **Mike G3SED**.