

# Some Reflections on LF DX Antennas

During the last two sunspot-minimum periods, my DX-ing interests have usually migrated with the band conditions to the LF bands. I have tried to raise the DX using a number of different aerials, including dipoles, long wires, various vertical systems and single-element quad-type loops (on 7MHz only). The comparison in the performance of my own aerials on the LF bands may be seen in Table 1.

entry in my log book reads as follows: "Called V01FB after his CQ, on clear frequency, his RST 579. NO REPLY!". V01FB calls again. I try again (twice). A later entry reads: "Eventually got a reply from V01FB with help from a friendly G. I got RST 339! This aerial (dipole) is poor for DX!" However, the dipole worked well around Europe.

At about this time, my thoughts turned to vertical aerials, so a simple

looked good, but as these took place during daylight, no long-distance stations were worked. A CQ on SSB raised a GM/M who gave me 58-9 on the vertical and said I was about S1-2 on the dipole. I spent the whole of the next night until about 08.30 in the morning trying the vertical. I may be mad, but the results in the log-book made it all worthwhile: two pages of W and VE contacts, also ZS, PY, YV and, at around dawn, VK and ZL.

A problem with this aerial was that it was a single-band only set-up, and, as the feed point was about 150 feet from the shack, it would not have been an easy task to try an ATU at the feed point. In order to make it possible to work other bands, the fan-of-wire inverted-L shown in Fig.1 was made.

This new set-up was tried out on 80, 40 and 20 metres, giving really very good results as may be seen from Table 1.

I tried adding a quarter-wave inverted-L for 160 metres, but I was unable to raise any of the transatlantic DX that I could hear using it; however, it did work around the UK and Europe reasonably well.

Eventually, the aerial in Fig.2 was evolved; this consists of quarter-wave inverted-L sections for 80 and 40 metres and three-quarter wave sections for 20, 15 and 10 metres. Constructional details are given in Table 2.

This aerial was used in conjunction with a QRP Tx of only 6 watts output for about three years, during which time it gave a very good account of itself. As a result, I feel able to recommend this aerial to HRT readers who are short of horizontal space but wish to work all the bands from 80 to 10 metres. I would also mention that although I found the dipole rather poor for DX it was very useful in pile-ups at the top-end of 80 metres to raise the European stations who seem to 'supervise' most of the SSB DX operation in the evenings.

**Malcolm Healey, G3TNO, assisted by Anne Lambert, G6CXF, gives some practical advice on constructing LF antennas — to suit your favourite bands and fit your back yard.**

Initially, on 80 and 40 metres, dipoles were tried at fairly modest heights, around 45 feet. The results obtained were rather disappointing, particularly on 80 metres. A typical

quarter-wave long inverted-L was tried on 3.5MHz, the vertical section of the L was 45 feet in height, and the dipole was left up as a reference.

The initial tests on this new aerial

TABLE 1

BAND DIPOLE		VERTICAL ('L')	COMMENTS
80	Raised two W1 on SSB. My Report 43.	Same two W1 on SSB. My report 5-7-8.	European QRM noticeably weaker on vertical.
	UL7GW heard at 449. Unable to raise him.	UL7GW heard at 579. Received 579 from him.	Band noise much lower on vertical. Complete absence of TV time base sprogs.
	DL Net Controller for ZL3GQ came back to my first call.	DL Net Controller for ZL3GQ unable to raise DL.	I had to switch aerial to dipole to get into EU pile-up and back to the vertical to hear and work DX.
40	Fine for working EU during daylight but not too good for DX.	Worked two JA's at lunch time 559 and 549. Both inaudible on dipole.	This is typical of the odd notes written in my log book whilst trying the vertical aerial out.
	W5VA report 229 on dipole.	W5VA report 579 on vertical.	W5VA signals nearly buried in noise from B/c stations on Dipole. In the clear on vertical.