

# LW BEACON DX STARTS AT 1,500 MILES

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In the UK, you soon get tired of hearing only European beacons night after night. A reasonably good antenna and receiver will add hundreds of them to your log. 'DX' means 'long distance', but it also suggests a challenge - so, when you feel like a change from 'local' beacons, why not strive for the real DX? Hunt out the LW beacons that are over 1,500 miles (2,400 km) away - in Canada, the USA, the West Indies and beyond, and also in Greenland, and on various Atlantic islands.

## Consider the facts...

\* In the seven months between 1 September 1996 and 31 March 1997 (my last complete transatlantic LW DX season), and listening every night only from 2230 until midnight GMT, I had 821 transatlantic beacon loggings. (The current season is also going well).

\* During those 242 consecutive nights, only 59 nights produced no transatlantic (T/A) beacon at all (and even those poor nights were nearly all at the beginning, or the end, of the seven-month DX season. During Nov/Dec/Jan, there were only 2 nights without T/A beacons).

\* Some nights produced up to 18 Canadian NDBs before midnight GMT.

\* The two most regularly heard T/As were:

**QX 280** kHz, Gander, Newfoundland - heard on 129 nights.

**YHR 276** kHz, Chevery, Quebec - heard on 103 nights.

**ESSENTIAL:** the whole of the signal path between you and the distant beacon *must be in darkness*. When used as navigational aids, LW beacons are short-range transmitters, and their ground wave in daylight may not extend farther than 50 to 100 miles. Night-time propagation is quite different, of course, and, under good conditions, a LW beacon can sometimes be heard several thousand miles away (but don't try to use it for navigation!).

Newfoundland is the nearest bit of North America, and, as the clocks there are 3½ hours behind the UK in Winter, it will be late evening here in the UK before any transatlantic beacons can be received on this side of the Atlantic. Later, as the dusk rolls westwards and moves inland from the Canadian Maritimes, other provinces, and the USA, gradually come within our reach.

So, the first rule is: listen in Winter, preferably after 2230 GMT. In Summer, the entire T/A signal path will not be in darkness until the small hours of the night in the UK (but, even then, it's an uphill struggle because of the high level of static crashes, and the different Summer propagation, so night-birds may find it rather disappointing).

For T/A DXing, forget about the familiar Mercator projection seen in most atlases, and think in terms of Azimuthal Equidistant projection (Great Circle). Canada is closer to us than any part of the USA, so the first beacons to come through, when LW propagation conditions are reasonably good, are likely to be from Newfoundland (e.g., **QX 280**, Gander) or in Quebec Province (e.g., **YHR 276**, Chevery).

**DIFFERENCES:** Learn to recognise a Canadian NDB. Our own marine NDBs send in CW mode, with ID followed by a long 47 seconds dash, while most of our aero NDBs send only an ID and no dash.

Nearly all Canadian NDBs send one ID followed by a 6 seconds dash. The transmission is modulated by a 400 Hz tone - so if I want to hear **QX 280** at Gander, NF, I tune to 280.400 kHz, and NOT to the listed frequency of 280.000. (Most US beacons, however, send ID but no dash, and modulate with a 1000/1020 Hz tone - so, for **CLB 216**, Wilmington, NC, I tune to 217.012 kHz).

That 6 seconds dash is your best friend when hunting Canadian beacons. If it's a weak signal, rising and falling in the noise, that dash stands out even when you cannot read its ID. Hang on to any 6 seconds dash you hear; even if the ID is too weak just then, it may well be more readable in a few minutes time. DX beacons often fade in and out - and you may be tuning in when they're 'out'.

Some Canadian NDBs are on frequencies where there are no European NDBs - and their 6 seconds dash quickly alerts you. If it's weak, hang on for a while (or return in a few minutes time to the same precise setting), and it may then be stronger. Use the dash as a guide to when the ID starts.

When there are one or more European NDBs already on a frequency, listen carefully for any sign of a weaker NDB underneath them sending a 6 seconds dash - it could be a Canadian. Don't be put off if the stronger Europeans blot out the T/A DX at first. As the Canadian NDB is sending a dash after its ID, and the Euro NDB will usually not be doing so, they will drift apart in time, so that the ID of the Canadian can often be read in the brief gap between repetitions of the Euro NDB's IDs. Here, too, the dash is invaluable since it warns you when the ID is about to start. (Happily, it's not always like this. On good nights, T/A propagation sometimes results in some of the Canadian NDBs dominating the frequency, and the usual Euro NDBs there will be much weaker than usual, or even inaudible).

A number of Canadian NDBs live inside our European LW BC band. Our megawatt BC stations will usually wipe out any chances of hearing any DX NDBs that are close to their frequencies - but the extent of this may depend on your antenna & receiver performance, and on whether that night's T/A conditions are exceptionally good or not. BBC Radio 4 (Droitwich, Burghead & Westerglen) on 198 kHz, and Atlantic 252, annihilate several nearby Canadian and US NDB channels. Some LW BC stations, fortunately, close down around 2300 but, alas, not many. One small mercy is that there are very few Euro NDBs within the LW BC band.

**ANTENNAS:** Canadian NDBs are at least 2,000 miles away from the UK, and some of them use very low power to simple wire antennas, so you will stand a better chance with an outdoor LW active antenna. The better your antenna and receiver perform with weak signals on LW, the more often you will hear T/A beacons. Normally, I expect to hear Canadian NDBs on most nights of the week in Winter - and before midnight. My back garden, a few miles SW of Manchester, lacks the space for effective long antennas, and, for some years now, I have used Graham Maynard's ALN-1 outdoor 15 x 15 ft (5 x 5 m) 2-turn active vertical loop. I also have the L-400B LW active antenna from LF Engineering Inc. (a 0-500 kHz vertical mounted on a 9-ft wooden pole in the garden). I keep switching between the two to find the best signal.

**RECEIVERS:** Use your receiver's narrowest IF filter bandwidth. Most of the time, I use the 56 Hz IF filter bandwidth on a Watkins-Johnson HF-1000, but many of the DX signals I hear are still quite readable at the more usual 250 or 500 Hz 'CW' IF filter settings. When DX conditions are rather poor, an outboard audio filter (e.g., Datong FL2/3, or MFJ & Timewave DSP) may resolve a weak ID for you. Headphones always bring you 'nearer' to the DX.

Canadian NDB channels are spaced at 1 kHz intervals - but don't forget to add the 400 Hz offset to the listed frequency when you tune. Try for the Canadian NDBs listed below - they are the ones most often heard in the UK. You may not hear any of them for some nights - it will depend on your equipment, and on T/A propagation conditions - but once you hear that very first T/A NDB, you'll be hooked. And finding the next one will seem much easier.

**YOUR 'BEST BETS' IN CANADA (September to March)**

<b>kHz</b>	<b>ID</b>	<b>Name</b>	<b>Province</b>
220	BX	Blanc Sablon,	Quebec
263	QY	Sydney,	Nova Scotia
276	YHR	Chevery,	Quebec
280	QX	Gander,	Newfoundland
281	CA	Cartwright,	Labrador, Nfld
323	YWP	Argentia,	Newfoundland
340	YY	Mont Joli,	Quebec
347	YG	Charlottetown,	Prince Edward Island
356	AY	St Anthony,	Newfoundland
360	PN	Port Menier,	Anticosti I., Quebec
374	SA	Sable Island,	Nova Scotia
378	HO	Hopedale,	Labrador, Nfld
379	CM	Channel Head.	Newfoundland
385	NA	Natashquan,	Quebec
390	JT	Stephenville,	Newfoundland
396	JC	Rigolet,	Labrador, Nfld
404	YSL	St Leonard,	New Brunswick
414	BC	Baie Comeau,	Quebec

For some years, my 'Transatlantic LW DX Season' has run from September 1 to March 31, and during these seven months I listen for T/A NDB DX every night between 2230 and midnight local time (and sometimes a bit later). As well as looking for new beacons, every previously-received T/A NDB frequency is checked at least once every night. On this regular nightly basis, the 'sound and feel' of each NDB channel becomes very familiar, and it gives me some idea of what to expect that night.

Check the solar data, propagation reports and forecasts from WWV, or from DK0WCY on 10144 & 3579 kHz (every five minutes on CW), or on the Internet (such as Jan Alvestad's excellent site at: <http://dxlc.com/solar/>). Treat them as useful guides to conditions - but remember that T/A DX is sometimes heard even on supposedly bad nights. Occasionally, when conditions seem hopeless, and no T/A at all has been logged during my Dxing session, I have suddenly heard a rarer NDB like **LT 305**, at Alert, up at the top of Ellesmere Island in the Canadian Arctic (Lat. 82 32 North - the nearest Canadian NDB to the North Pole). So... don't give up too soon.

**WHERE ELSE?** As well as the North Americans, there are NDBs in Greenland, on various island groups in the Atlantic, in Africa and the Middle East, that can be heard in the UK. The first 'over 1,500 miles' beacons that I check every night are:

**SAL 274** Sal Island, Cape Verde (off the West African coast). No tuning offset. Sends dash. 2762 miles / 4445 km away. Although SAL is further away from me than many Canadians, it is amazingly consistent. During the whole of 1997, there were only 7 nights when I didn't hear it - and on 4 of those nights it was due to ear-splitting noise from a faulty lamp in the road outside.

**OZN 372** Prins Christians Sund (near southern tip of Greenland). 400 Hz offset. No dash, and sends one ID only every 30 secs. Often louder than Euro locals BV and ODR. 1593 miles / 2564 km away.

**SMA 323** Santa Maria, Azores. 1020 Hz offset. No dash. 1575 miles / 2535 km away.

**SAL 274** and **SMA 323** are heard almost every night round the year (propagation conditions are VERY bad indeed if neither is heard - which is very rare).

**OZN 372** is heard before midnight on most nights from September to April - and, being three-quarters of the way across the Atlantic, is a good indicator of each night's possibilities. If the 'Big Doughnut' of polar absorption is stretching as far South as OZN that night, and I don't hear it, Canadian DX may also not get through.

To further whet your appetite for Canadian DX, amongst those I heard during December 1997 were: **YCO 372**, Coppermine, NW Territories at 67 49 North, 115 49 West (on 4 nights). **LT 305**, Alert, NWT (on 15 nights). **YZS 362**, Coral Harbour, NWT (on 7 nights). **UX 378**, Hall Beach, NWT (on 2 nights). **YQ 305**, Churchill, Manitoba (on 3 nights). Up in the frozen North, **JAN 362**, Jan Mayen (on 10 nights). Down in the USA, **CLB 216**, Wilmington, North Carolina, was heard on Christmas Day. Almost all of these were heard before midnight GMT, so you don't have to stay up half the night - but you might hear even more DX if you do...

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