

BBC R4 LW Experiment near Berlin 12th and 13th September 2025

The BBC broadcasts Radio 4 on Long Wave from Droitwich.

Long Wave transmissions are set to shut down in September 2026.

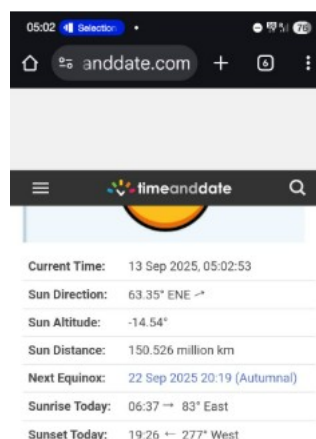
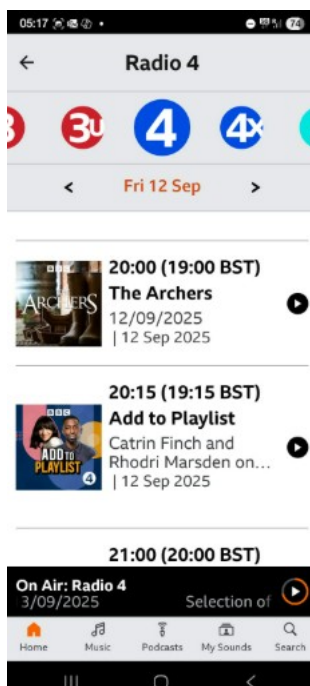
I planned to test these ideas when I travelled to Berlin between 11th and 15th September 2025.

- Using an ordinary consumer Long Wave radio, BBC R4 will not be received as far east as Berlin in Germany during the day. It is too far from Droitwich to receive LW by “ground wave” effects, and “sky wave” reception cannot happen during the daytime.
- After sunset, LW BBC R4 **might** be received in Berlin. Apparently, the ionosphere D-layer starts to dissipate, and Long Wave begins to skip from the higher F-layer (“sky waves”).
- Day or night, a “tuned passive loop” may improve reception enough to be audible day or night.

The third idea could not be tested. Before I travelled, I began to fabricate a suitable passive loop 60cm in diameter, with an air gap variable capacitor. I abandoned construction; a future write-up may include details why.

The first two ideas were proved correct.

During the daytime in Erkner near Berlin, BBC R4 could not be received at all on 198 kHz Long Wave.



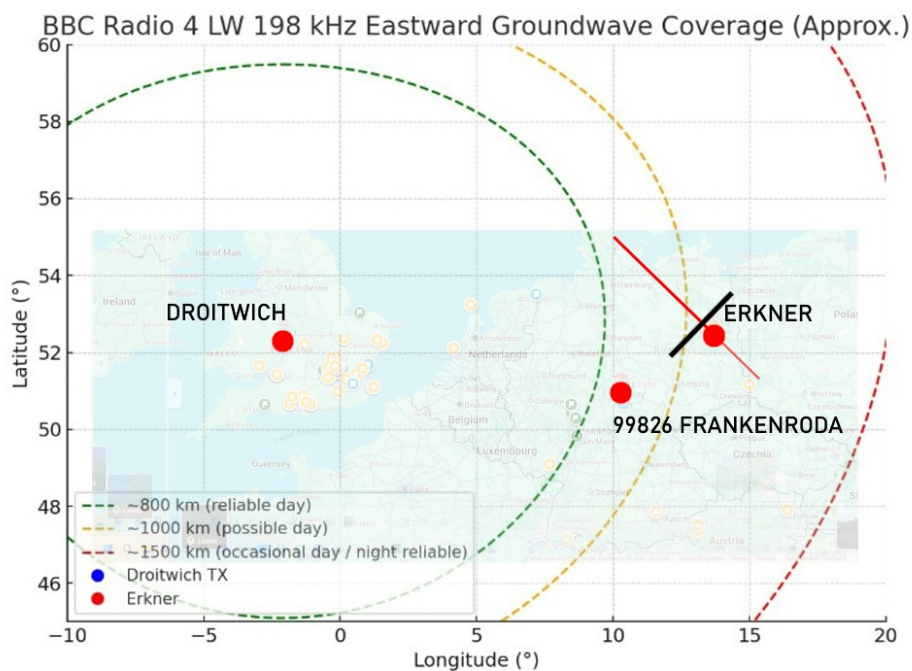
At approximately **half an hour after sunset**, 8pm German time on 12th September, a conversation with two male voices was just audible above the static. This matched what was on Radio 4 at the time (The Archers via streaming) but it was not clear enough to be conclusive.

At approximately **one hour after sunset**, 8.30pm German time on 12th September, a male voice, a female voice and a piano was just audible above the static. It was a little better than earlier, and again matched the program on Radio 4 via streaming. The signal was still not clear enough to be conclusive.

The following morning at 04:48 German time, over 8 hours after sunset, 12 minutes after the start of Astronomical Twilight, and 1 hour 49 minutes before sunrise, Radio 4 could be heard very clearly. Attempting to record the speaker output with a smartphone caused additional interference, but still captured very clear and understandable speech.

In long wave mode, this radio uses a ferrite rod with turns of copper wire as an antenna. Reception changes when the radio is pointing in different directions.

As a very rough measurement, the ferrite rod was perpendicular to 315° in azimuth. That means the rod itself was roughly oriented like the black line in the diagram. Using a smartphone compass in this way is too imprecise to make it worth converting from magnetic north to grid north.



Help and advice for this experiment was provided by two radio enthusiasts, Jürgen Simon and Simon Lloyd Hughes. I have previously compared reception strength of the Droitwich LW signal in London, and Frankenroda in Germany where Jürgen lives. He has a 45m antenna in his garden and monitors a number of UK broadcasts. Simon Lloyd Hughes provided additional details about improving reception.

CONCLUSION

On this occasion, with this radio, BBC R4 on LW from Droitwich cannot be received during the day by either ground waves or sky waves as far east as Erkner near Berlin.

After a sufficiently long interval after sunset, it can be received via sky waves.