Supplementary materials

Here, in the experimental measurements we used a printed dipole-type antenna (Fig. S1). This antenna is based on [61] ("generic antenna"), which describes the dimensions, materials used and parameters of the antenna in full detail. In addition to these materials, we present here the calculated antenna radiation pattern (Fig. S2). Antenna patterns in elevation and azimuth planes are shown in Fig. S3. The antenna radiation pattern is toroidal. Fig. S4 shows the results of measuring parameter S11 for the experimental antenna. The parameter S11 was measured in the 100kHz…6GHz range using a vector analyzer. As can be seen in Fig. S4, the operation range of the antenna starts from 3 GHz and extends to at least to 6 GHz, which includes the range of the emitted chaotic signal (3…5 GHz).



Figure S1. Printed dipole-type UWB antenna.

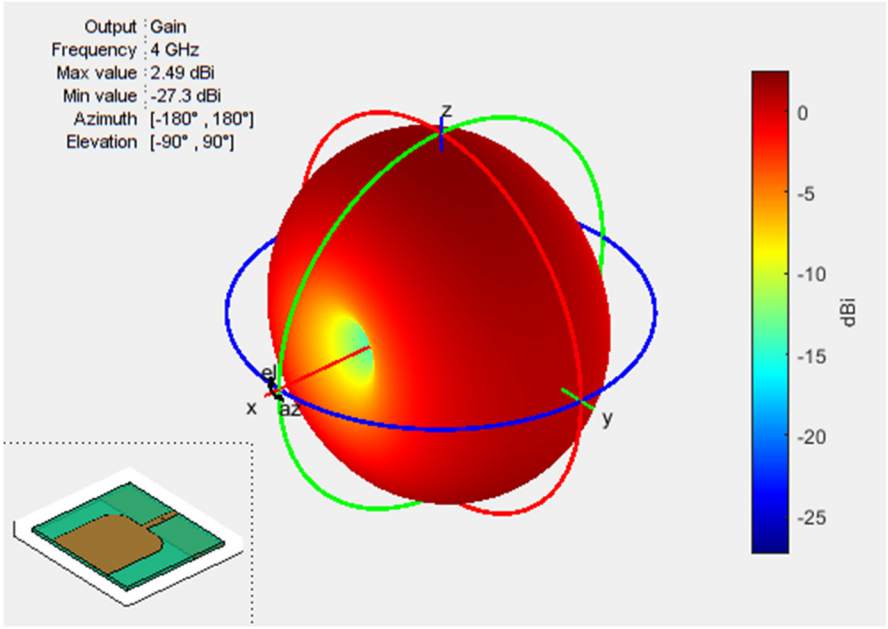
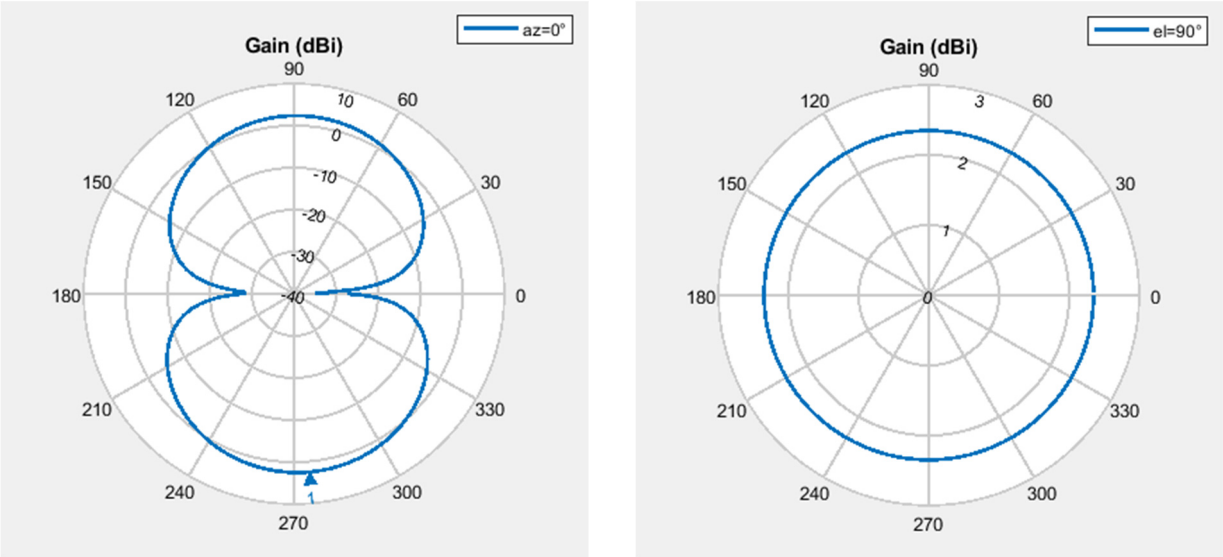


Figure S2. Radiation pattern of the antenna (simulation).



(a) **(b)**

Figure S3. Antenna patterns in elevation (a) and azimuth (b) planes.

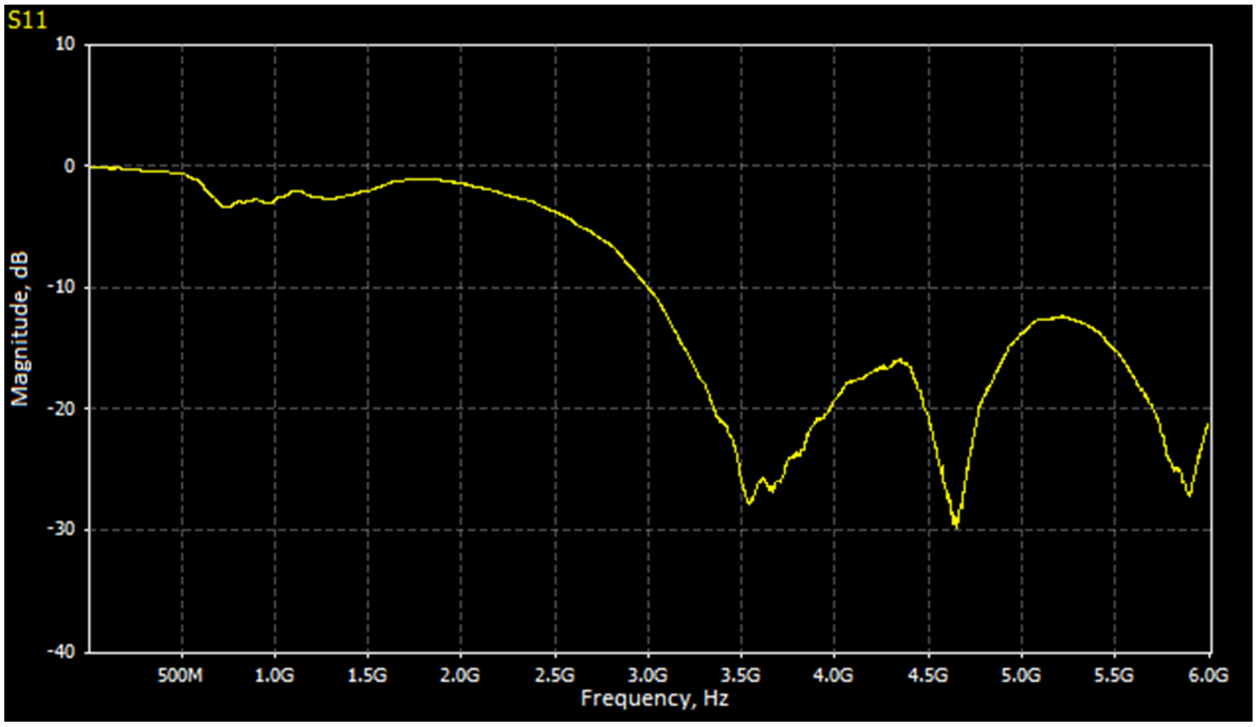


Figure S4. Measured S11 parameter of the experimental antenna.