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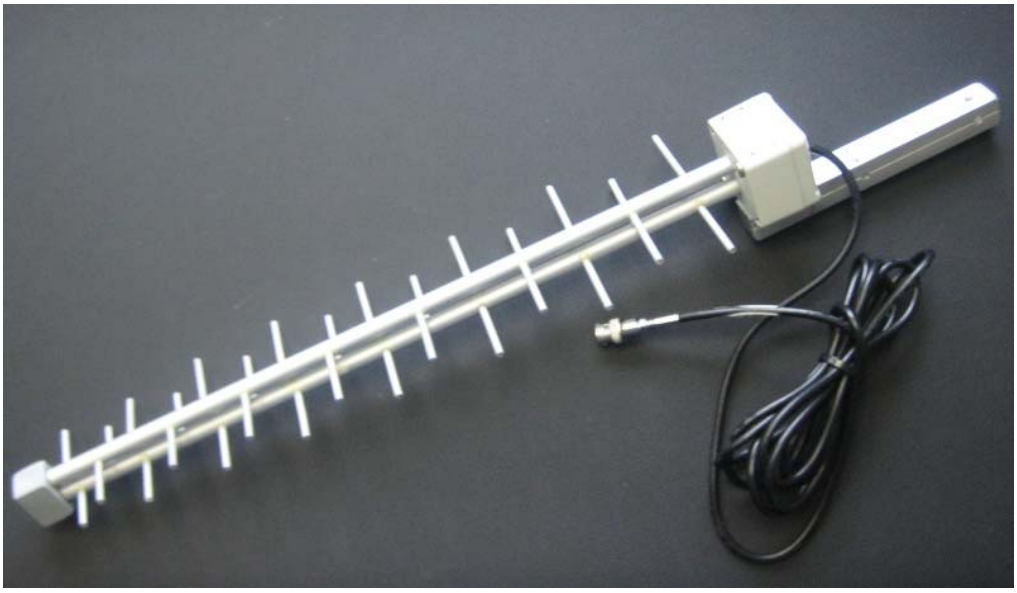
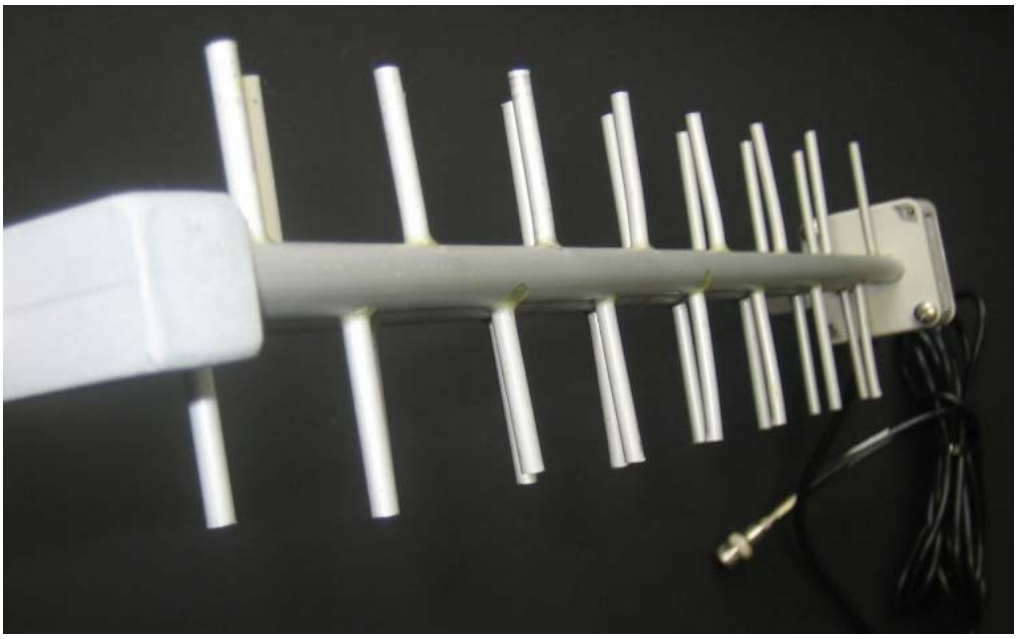
A “strange” Logper Antenne – a short analysis

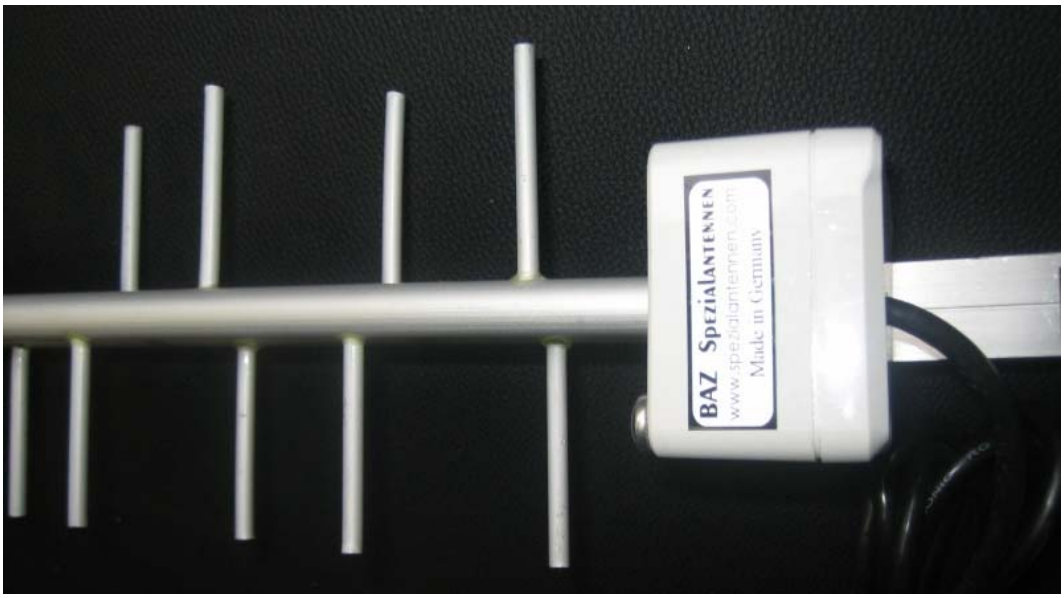
Hello,

some time ago I bought second hand a logarithmic periodic antenna. The specified frequency range is 1700-2200 MHz. Its target applications are GSM/PCS/DCS (1710-1880 MHz), DECT (1880-1900 MHz) and UMTS (1900-2200 MHz) with a specified gain of 9-11dBi. The total length of the antenna is 58cm, without the mast clamp (antenna only) it is 45cm. The antenna has a RG-58 cable directly attached which is about 3m long and features an FME connector on the tail end. I added an adapter FME to BNC to be able to use it with my typical equipment.

Here are some pictures of the antenna:

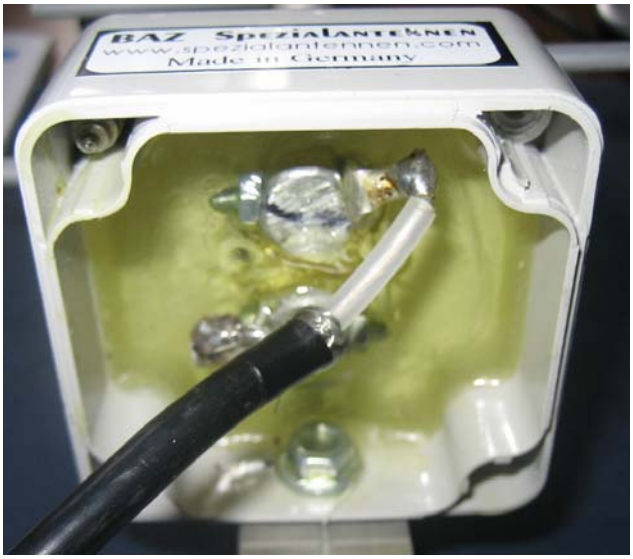






I guess so far everything looked like to be expected. Actually the mechanics of the antenna seemed to be made quite well. As you can see from the pictures a label identified the source as “BAZ Spezialantennen” in Germany. I visited their homepage at www.spezialantennen.com and found their “UMTS/LOG-1” type antenna which looked at least “very similar” to this antenna.

As I am a curious person I wanted to see how the antenna was matched to the 50 cable and thus opened the plastic box. Here is what I found there:



Looks interesting, doesn't it ? The black coaxial cable is straight connected to the 2 booms. No balun, no matching circuit and the cable is connected straight to the ends of the two parallel antenna booms !? All this does not match to my maybe limited knowledge of the typical construction of a log-per antenna. I found it at least "very strange". All of a sudden I was no more sure about the source of the antenna and suspected it might be a plagiarism and someone might have copied a professional antenna without understanding its principle. Thus I wrote a letter to "BAZ Antennen" and they responded friendly with the following text:

„Die von Ihnen genannte LPDA wurde eventuell als Testreihe für ein griechischen Auftrag vor ca. 4 Jahren gefertigt und ist wahrscheinlich kein Plagiat. Die Ankopplung des Speisepunktes kann bei kleineren LPDA's am vorderen Ende durchgeführt werden, da die Resonanzanpassung und Anpassung des Impedanzwiderstandes durch den Abstand der beiden Boomhälften dieses Antennentypes durchgeführt wird. Ein soganannter Balun bzw. ein Anpassglied werden bei LPDA's nicht eingesetzt, da der Fusspunktwiderstand bereits 50 Ohm ist. Die LPDA dürfte aber auf jeden Fall durch diese Baukonstruktion funktionsfähig sein. Erwähnt sein noch, dass die Bauform LPDA fast ausschliesslich für den Empfang Verwendung finden, da aufgrund der physikalischen Eigenschaft der hohen Breitbandigkeit das VSWR nicht mit einer Yagi- oder Quadbauform mithalten kann."

So they confirmed that the antenna is most likely from them, it had been built for a Greek project and further on they tried to explain to me why there is nothing wrong with the construction. However very frankly I have a hard time understanding their "concept" and it was indeed all Greek to me. If there is anyone out in the world who can help me understanding this "interesting" construction or maybe even verified the function of this antenna by own measurements I highly appreciate any feedback.

In the meantime I can only recommend to be a little bit careful when considering to buy a "logarithmic periodic antenna" from this specific source.

Best regards

Matthias Bopp

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