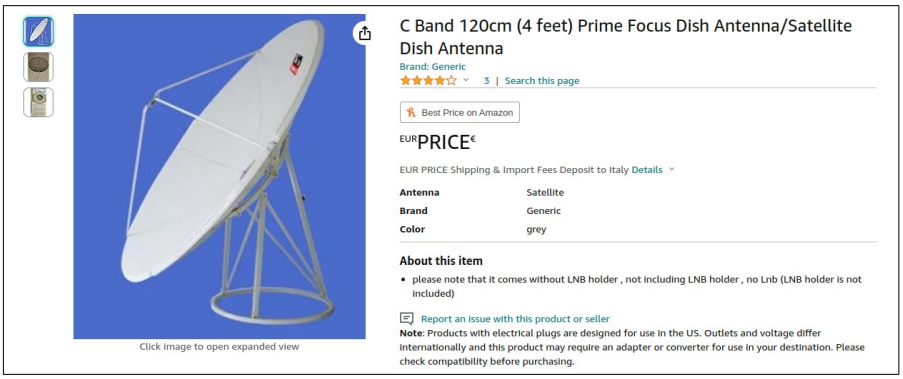
Leonardo Rossoni – 21/04/2024

DEV - RADIOASTRONOMY

Report number 1: Assembling the parabolic antenna

News

In the past few days, I've had the opportunity to order online and then assemble the parabolic antenna for the radio telescope. It has a diameter of 1.2m, a depth of about 20cm, and therefore, a focal point height of approximately 45cm. The antenna was sold with a simple aluminum stand on which to mount the dish and which allows for adjusting the antenna's pointing angle.
The only thing is that it's not sold together with its metal LNB Holder ring. No big deal though, because it's a piece I would have built anyway in order to accommodate my custom receiver (Feed Antenna) which will then receive the amplified radiation from the dish.



Why a parabolic antenna?

Unlike other types of directional antennas, such as Yagi antennas, these allow for the amplification of a much wider signal band.
This will enable the radio telescope to study other astronomical frequencies in the future, as well as the Hydrogen Line.
Moreover, this type of antenna guarantees a high amplification factor while still maintaining relatively small dimensions.
This one in particular is a prime-focus parabolic antenna, meaning that the focal point of the antenna (where the receiver will be positioned) is at the central position.
More commonly seen are offset parabolic antennas, where the focal point and LNB are at the bottom of the antenna. However, these are more difficult to point towards a particular target.