

# **Reference Points at the Transportable Radiotelescope of TIGO**

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May 15, 1998



# Reference Points in VLBI

1. **Intersection of telescope axis** marks the end of the baseline → reference point in space.

If telescope azimuth and elevation axis are offset, reference point will be modelled.  
Problem: Difficult to relate to excentric markers on the ground with local survey.

2. **Phasecal injection point at front end** marks the reference point in time.

Both reference points should have a **constant** offset!

Then this offset disappears in the analysis of the time delay difference.

## Reference Points at Mobile Radiotelescopes

**Problem:** Intersection of telescope axis as reference point is not permanent.

If the antenna is moved, the reference point at site is lost.

Solution: Groundmarker(s) as excentric reference points!

Local survey provides the relation between temporary and permanent reference points.

**Problem:** Each reoccupation of a site will result in a new position of intersection of axis relative to the permanent ground markers.

# Reference Points at Transportable Radiotelescopes, e.g. TIGO

**Problem:** Intersection of telescope axis as reference point is not permanent.

If the antenna is moved, the reference point at site is lost.

Solution: Groundmarker(s) as excentric reference points!

Local survey provides the relation between temporary and permanent reference points.

**Problem:** Each reoccupation of a site will result in a new position of intersection of relative to the permanent ground markers.

Solution: Selfcentering radiotelescope with adjustment possibility in the vertical!

## Construction Elements due to the TIGO-VLBI Reference Point

1. **Intersection of axis** was realized better than  $0.2mm$ ,
2. **Special platform** to mount the radiotelescope contains **3 ground markers**,
3. **Selfcentering conical bolt** fixes the horizontal position and is less than  $0.2mm$  offset from azimuth axis,
4. **3 anchor screws** and **2 inclinometer** enable horizontation,
5. **2 levelling points** with known offsets regarding the elevation axis at the telescope provide vertical reference. Therefore radiotelescope can be referenced to platform ground markers. Anchor screws allow shifts in the vertical.

## Conclusion

**TIGO radiotelescope reference point is realized by the intersection of axis.**

Any **reoccupation** of a TIGO site will allow to place the radiotelescope back in its previous positions.

During **absence** of TIGO radiotelescope either the main marker (conical bolt) at the center and the three excentric ground markers at the platform provide a clear reference regarding the intersection of the axis.

**TIGOWTZL is the intersection of the axis, CDP SOD 75942401.**