

# Project Experiment Report

We conducted another field experiment as a part of our ongoing project to evaluate the positional accuracy of two mobile phones namely Samsung Galaxy S23 Ultra and Redmi12. This document consists of analysis of the data collected by the phones using the double differencing method. The following observations were made as follows:

Date: 9th April 2025

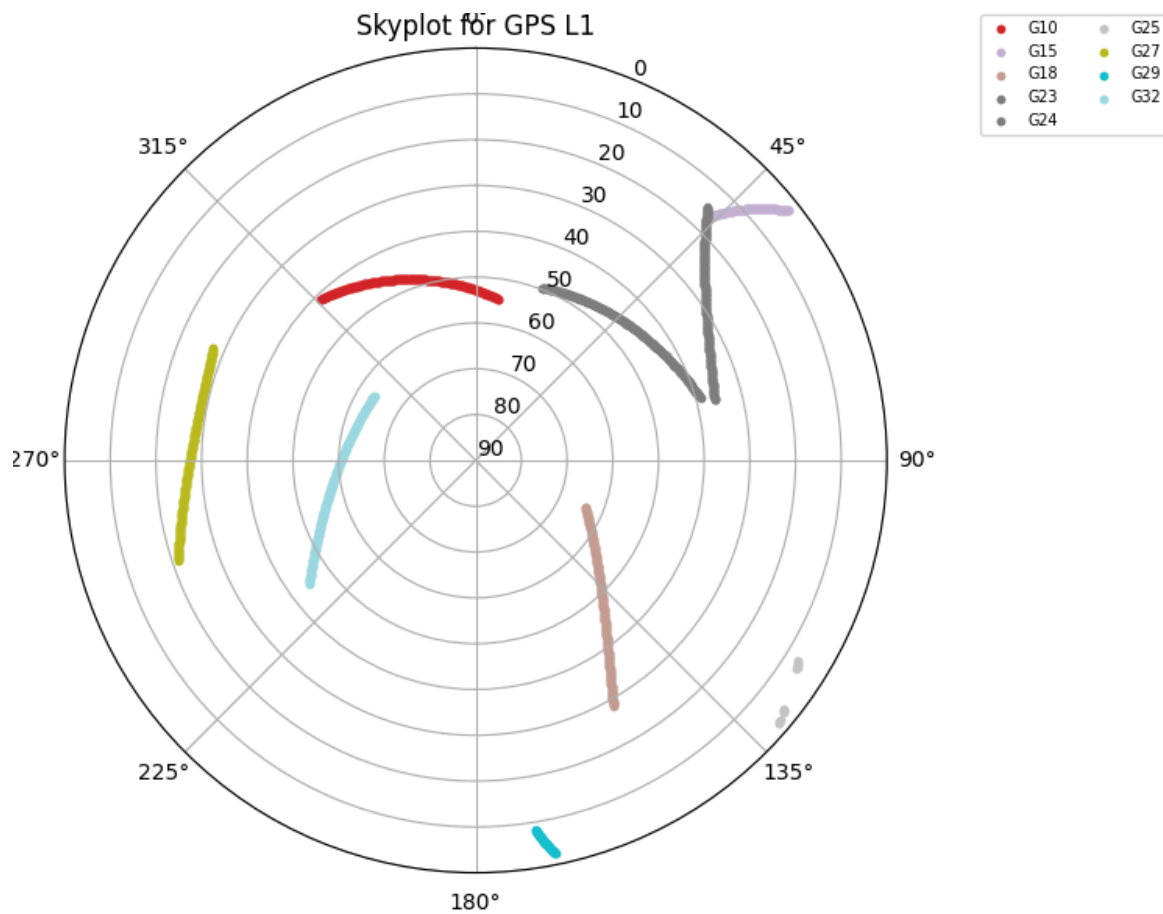
Location: Hockey Ground, Indian Institute of Technology  
Kanpur

Start time:20:03:27

End Time:21:27:54

Step 01: First we collect data from our phone and base station . We start by extracting the pseudoranges,SNR values and satellites coordinates from all the receivers i.e Base station and mobile phones using the SPIRiT software.

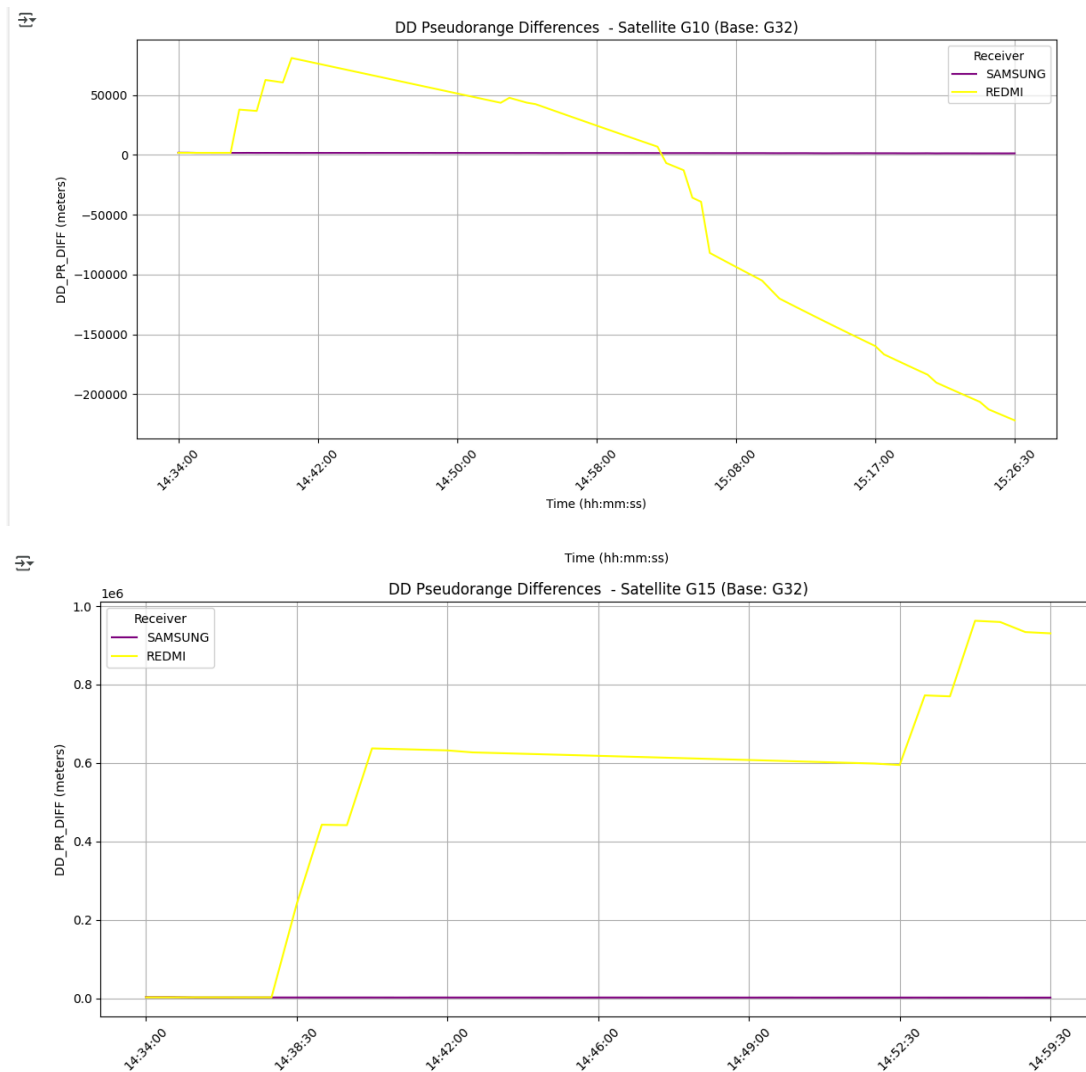
Step 02: Generation of skyplot for taking the reference satellite.

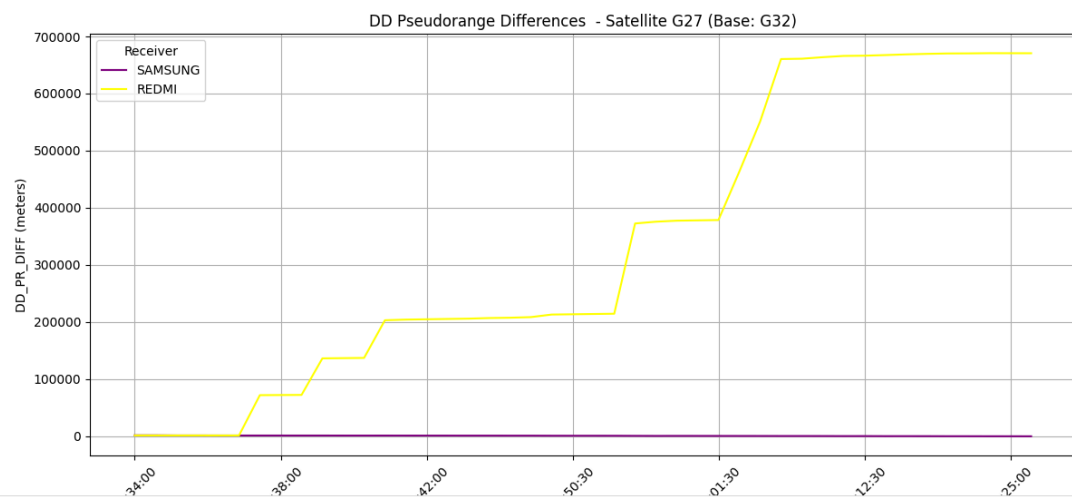
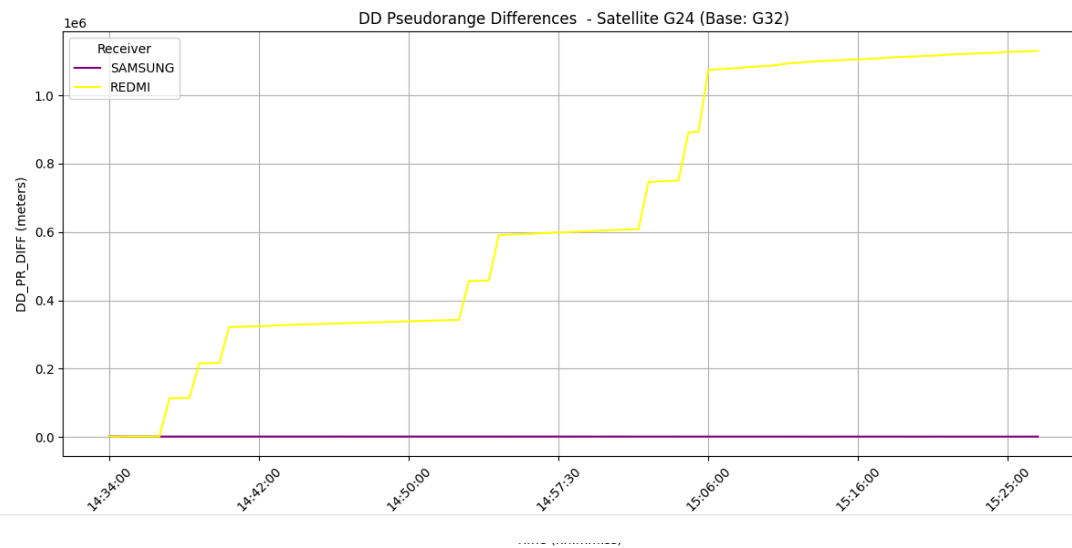
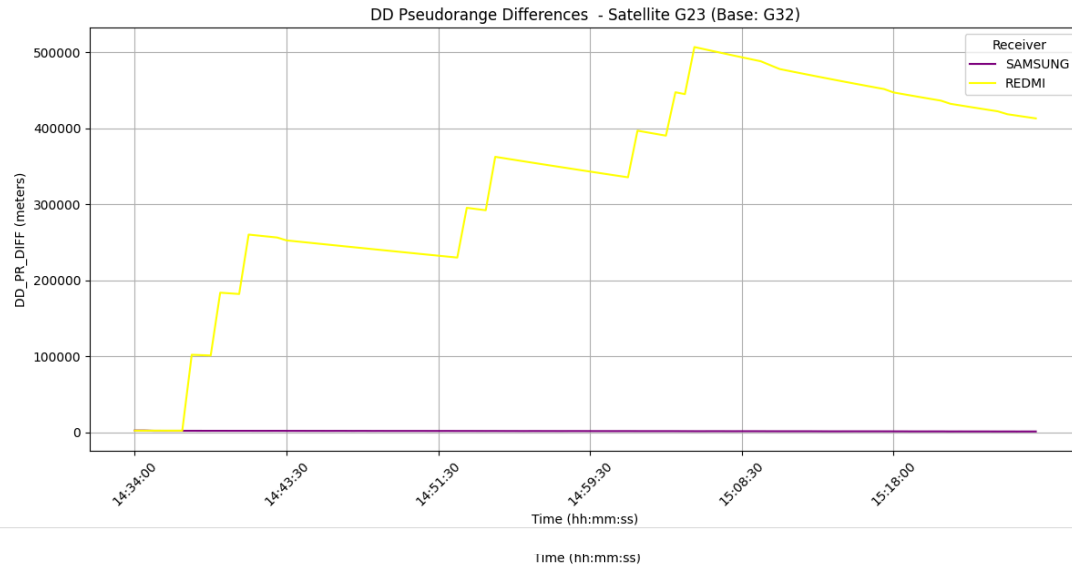


We take G32 as our reference satellite for this case of data observation as G32 is at the highest point of elevation. Signals from low-elevation satellites travel through more of the ionosphere and troposphere and often reflect strongly off local surfaces, leading to higher atmospheric delays and multipath noise. In contrast, high-elevation satellites offer shorter, more vertical signal paths, resulting in lower error variances.

Step 03: After obtaining the filtered data from the codes we manually create a double differentiating csv file containing the pseudoranges of both phones and base station

Step 04: Generating the double differencing plot wrt to timestamps for all receivers.





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