

Astronomy in the SKA Era: SKA-low Mini Project

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Gain Calibration of a SKA-low station

0.1 Introduction

In this mini project, an algorithm for the retrieval of gain solutions for a single SKA-low station is implemented. One SKA1-low station comprises 256 antennae that cover a frequency range of 50-350 MHz. The gain retrieval algorithm is used in order to calibrate the stations, to account for known instrumental effects which occur in the analog chain: Low-Noise Amplifiers (LNA), cables, and other analog components. Because it can be summarised into a series of linear transformations of the input signal, the gain calibration can be done with a single complex-valued gain for each antenna.

0.2 The Problem