**Testing harness   
Version 0.1  
12th February 2018  
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This system is designed to provide a comparison between the output for models of telescope performance vs calibration data from real telescopes

**Dependencies:**

Refers to: DreamBeam\_Source\_Data\_Description\_0\_1.docx

**Abstract**

The output from the model and from the real observation are extracted from their respective source formats and converted into a common format. Once in this common format, the two datasets are compared by means of a modular comparison system to produce an output which provides a figure of merit regarding the fit of the model to the real data.

**Design diagram**

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**dreamBeam**

**Real Telescope**

**1.1 dreamBeam File**

**Telescope Output File**

**Common Format Files**

**1.2 dreamBeam Converter**

**Telescope Converter**

**Smoother?**

**1.3 Manipulation?**

**Comparison Module**

**Comparison Result**

**Operation**

1. Data is provided by the predefined DreamBeam system and converted to a common format
   1. DreamBeam data is currently stored in proprietary format(s) described in (DreamBeam\_Source\_Data\_Description\_0\_1.docx)
   2. This is converted by a process defined in (to be developed) into the common format for comparison between instrument and model data (to be determined, possibly CASA measurement set)
   3. OPTIONAL: the converted measurement set may be manipulated in appropriate ways (e.g. changing measurement cadence)
2. Data from a telescope is converted from its current format to a suitable common format
   1. Data is provided by telescopes in proprietary format(s) described in (will need to look into the specs on this: probably ACC files)
   2. This is converted by a process defined in (to be developed) into the common format for comparison between instrument and model data (to be determined, possibly CASA measurement set)
   3. OPTIONAL: We possibly want to put a moving average or some other smoothing here to reduce the impact of scintillation and other sources of error other than the model.
3. Data in the common format is compared between model and test, and an evaluation of the accuracy, error and other comparisons between the two datasets is carried out.
   1. Data in the common dataset (to be determined, possibly CASA measurement set)
   2. A module (to be developed) compares the data from real and model sources by (to be determined, probably correlation, RMSE etc.) to define a figure of merit for each value of the independent variables in the parameter space (currently proposed independent variables are model, station, frequency and time. Possible expansions include target, and some attempt to map by Alt-Azimuth instead of tracking against a single target)
   3. Output is produced in a suitable format (to be determined, probably a plot or series of plots of how the figure of merit varies against independent variables in the parameter space.)