

2nd Space Geodesy Workshop, Majiesfontein, South Africa.
12-15 November 2007

Utilisation of RF Measuring Equipment to Characterize the Suitability
of Majiesfontein for VLBI 2010 Geodetic VLBI Antennas

By

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Work-in-Progress paper for MTech degree
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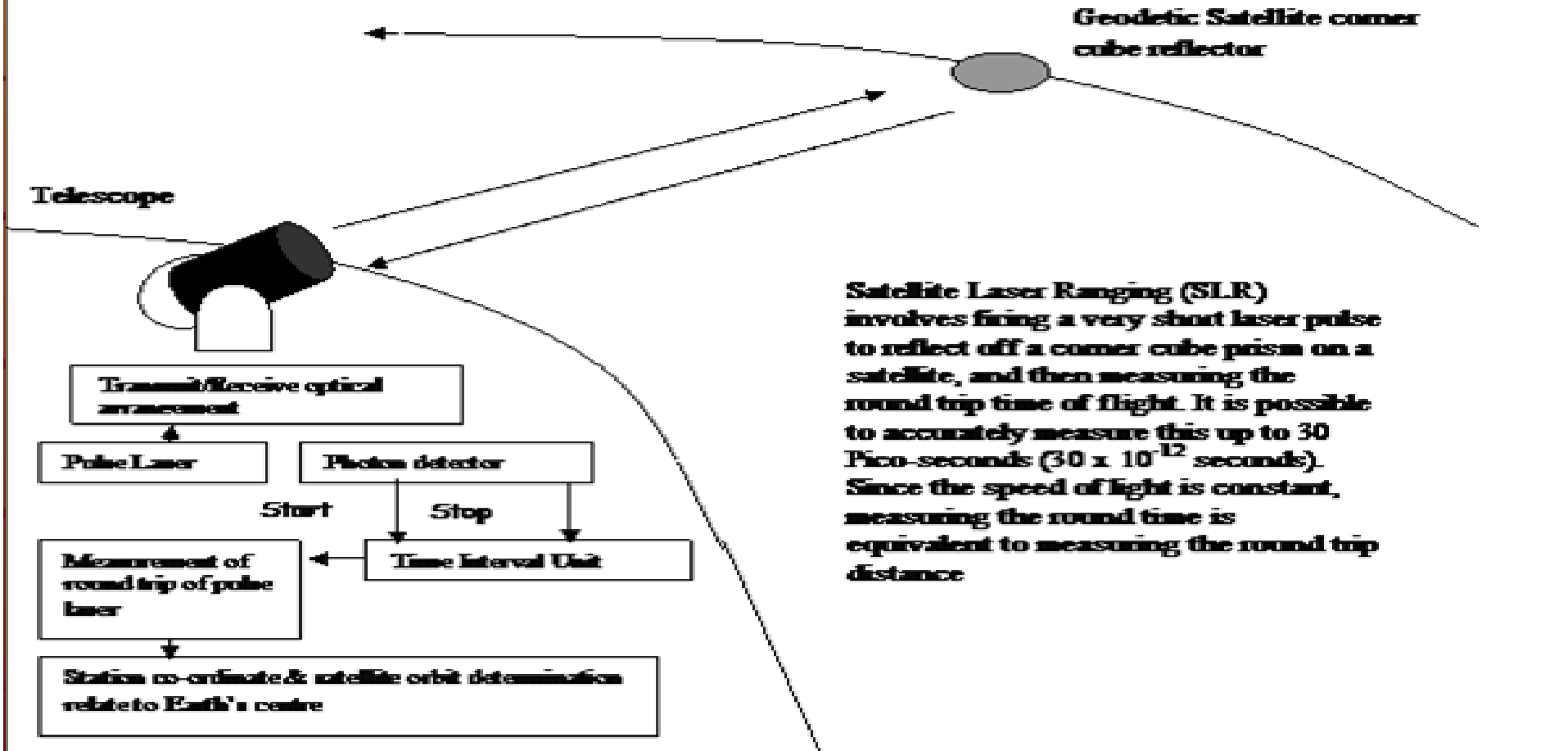
The aims and objectives of this research are:

- Evaluating the suitability of Majiestfontein as a possible site for new space geodesy observatory.
- Research and publication of results.
- Establishing a dedicated site for Geodesy, The only geodesy site in Africa at HartRAO is currently using the following techniques for observation and monitoring, VLBI, SLR and GPS.



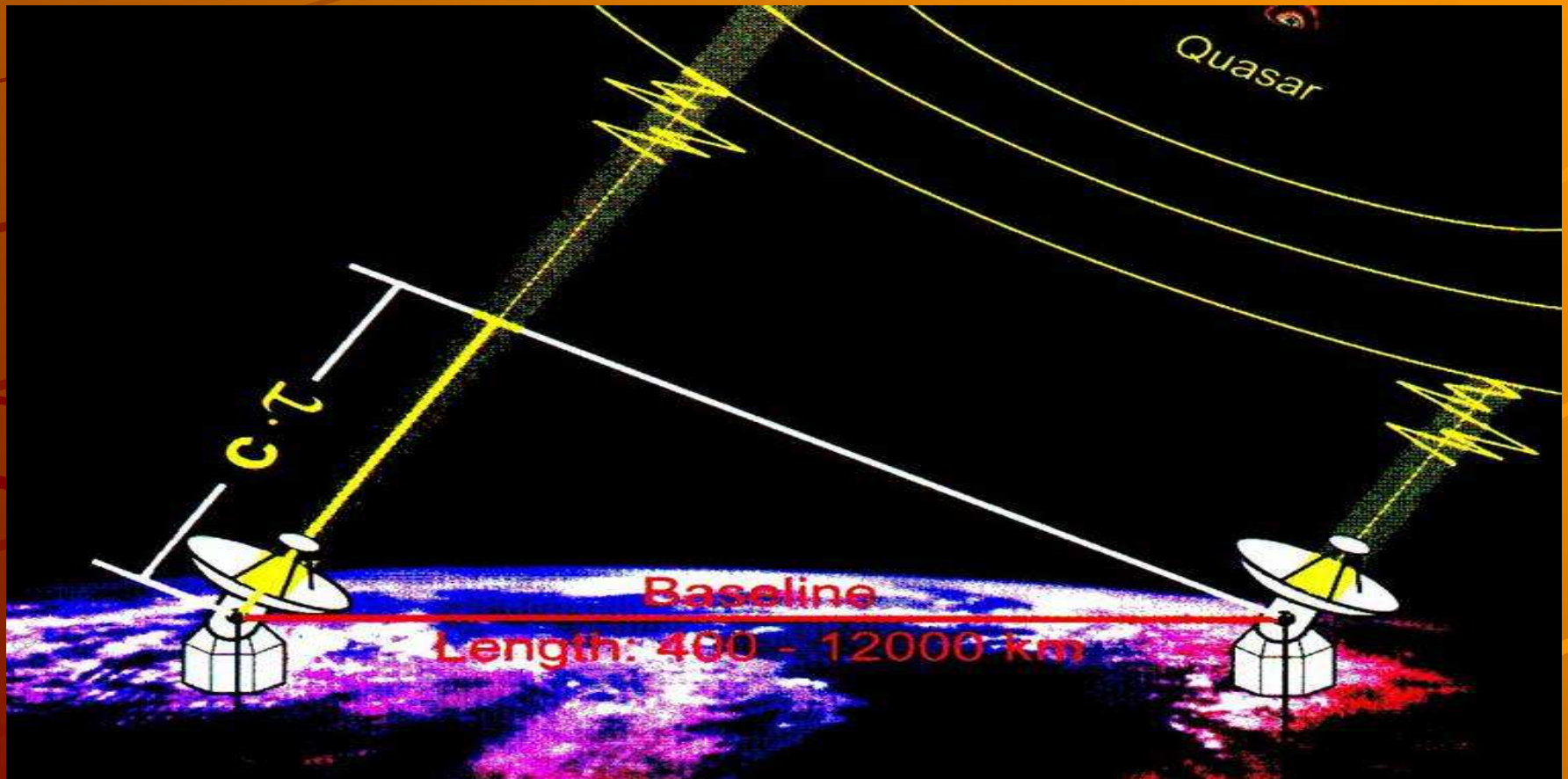
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Satellite Laser Ranging



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✦ Geodetic VLBI



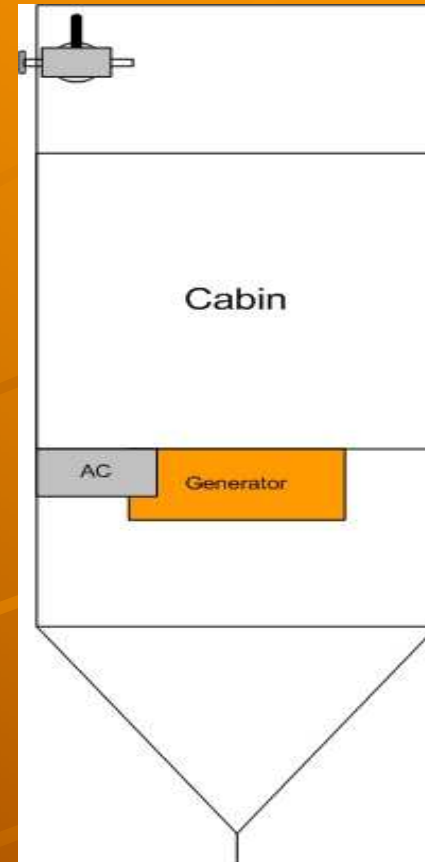
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- ◆ Trailer housing RFI system
- ◆ Radio Frequency Interference Measuring System
- ◆ A compact system that has been developed for performing RFI measurements at remote sites. This system covers a 0.5- to 18-GHz frequency range. There has been equipment that has been made at HartRao, primarily for SKA project.
- ◆ This RFI measuring system is made up of an antenna, a set of low-noise amplifiers and a spectrum analyzer.



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Rotator Assembly for Insertion into Clark mast



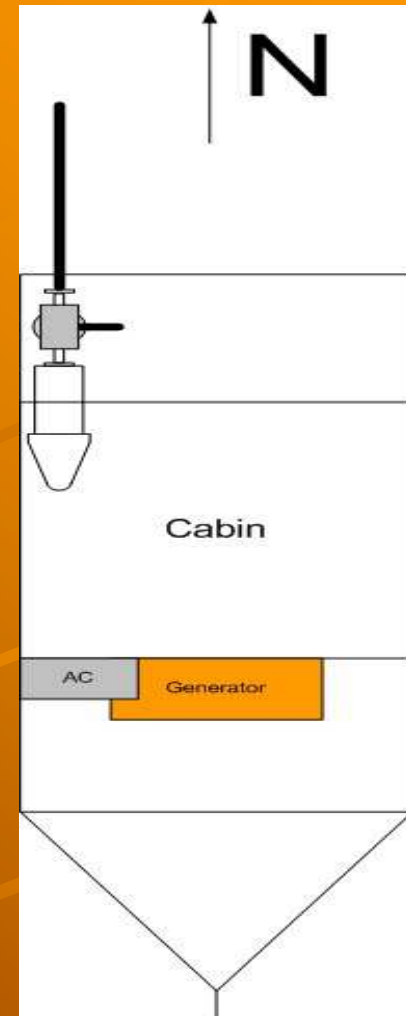
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Sliding RF assembly into position with sunshield facing downwards



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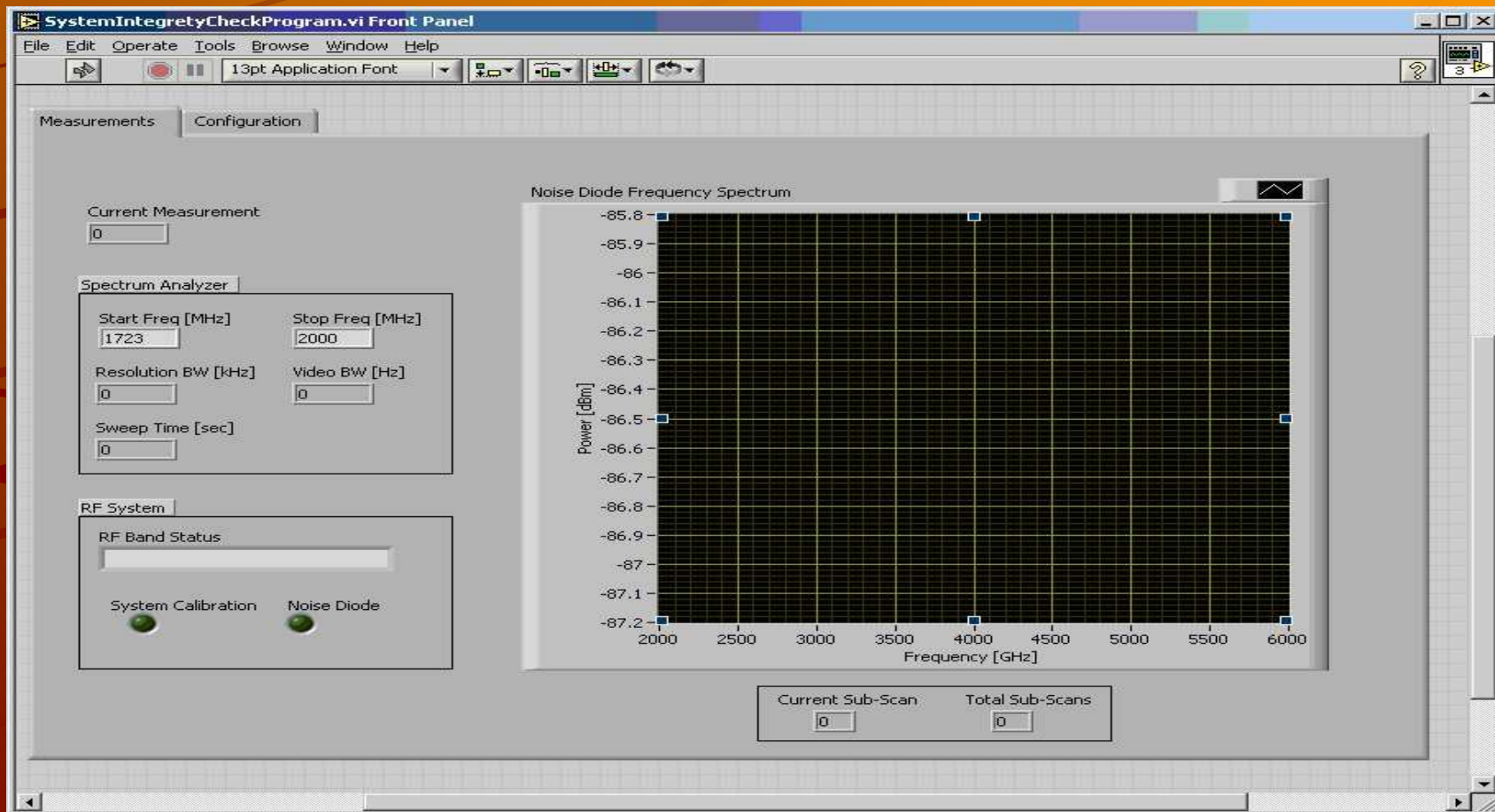
Complete antenna assembly



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Measurement will done through in-house RFI measurement programme.

RFI System Integrity Check Programme



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Envisaged Interference Signals

- ◆ These are the inference signals that might affect the operation of the equipment:
- ◆ Licenced Transmission Towers i.e Vodacom, MTN & Cell C
- ◆ Powerlines
- ◆ Cellular Phones
- ◆ Microwave ovens



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The following programme of action will be followed:

1. Literature Review
2. Measurements at Majiesfontein
3. Analysis and Interpretation of Measurements
4. Recommendations based on findings
5. Conclusion of Project



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Questions

The End,
Thank you

