



# AIT Facility Test Range & Launch Site

November 2019

# Assembly, Integration and Testing (AIT) Facility



## Equipment

- **Satellite Assembly, Integration and Testing (AIT) Facility**
- **Thermal Vacuum Chamber (Large and Medium Chambers) Test Facility**
- **Electromagnetic Compatibility Testing (EMC) Facility**
- **Vibration Shaker Testing Facility**
- **Acoustic Chamber Testing Facility**
- **Optical Development and Testing Equipment**
- **3-Dimensional Measurement Facility**
- **Space Material Properties Measurement Facility**

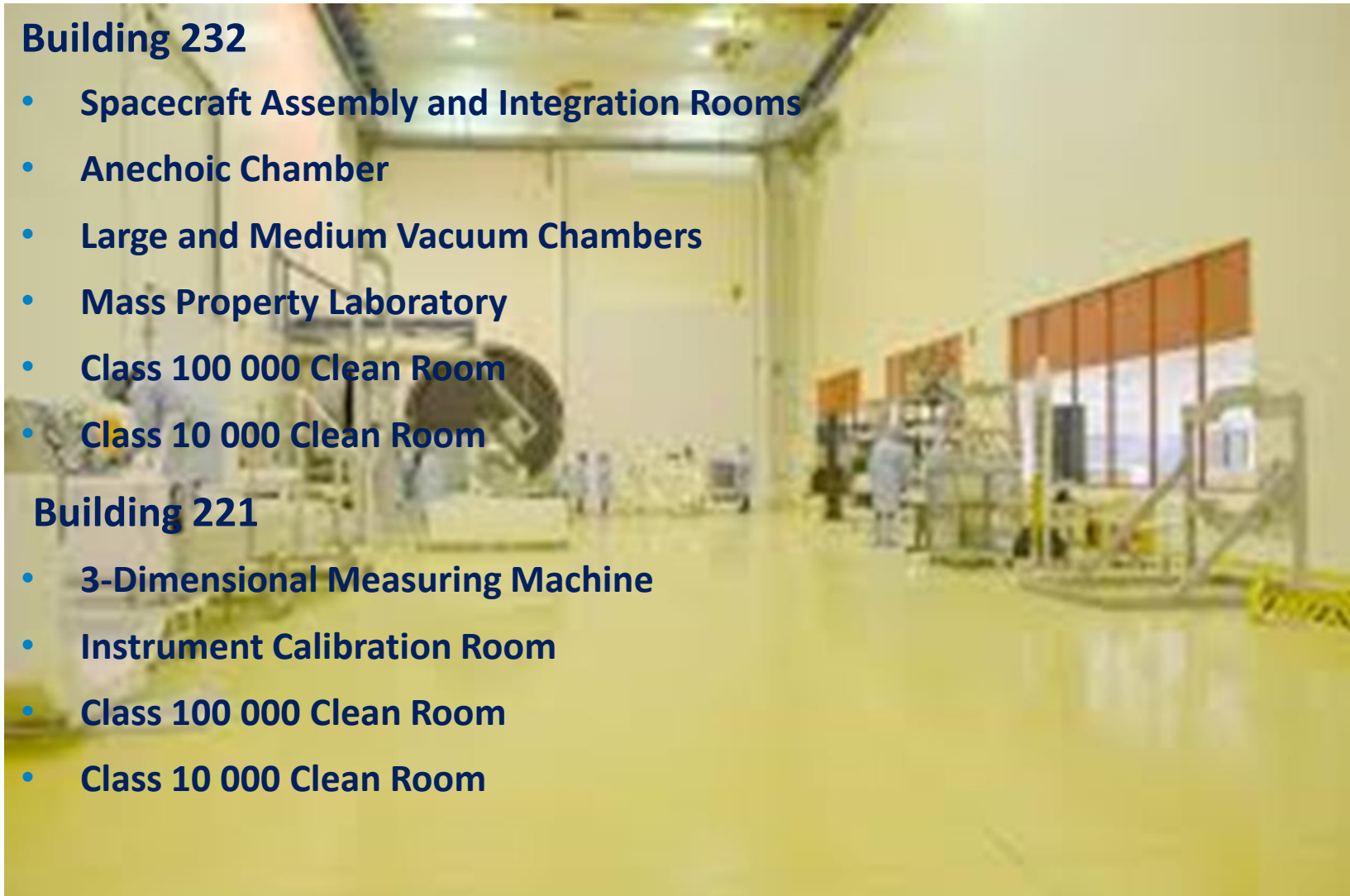
# (AIT) Facility

## Building 232

- Spacecraft Assembly and Integration Rooms
- Anechoic Chamber
- Large and Medium Vacuum Chambers
- Mass Property Laboratory
- Class 100 000 Clean Room
- Class 10 000 Clean Room

## Building 221

- 3-Dimensional Measuring Machine
- Instrument Calibration Room
- Class 100 000 Clean Room
- Class 10 000 Clean Room



## (AIT) Facilities

- **Building 227**
- **Vibration and Shock Test Facilities**
- **Acoustic Vibration Test Facilities**
- **Class 100 000 Clean Rooms**
- **Building 225**
- **Double carriage 20 tonne overhead crane**
- **Large Seismic Block**

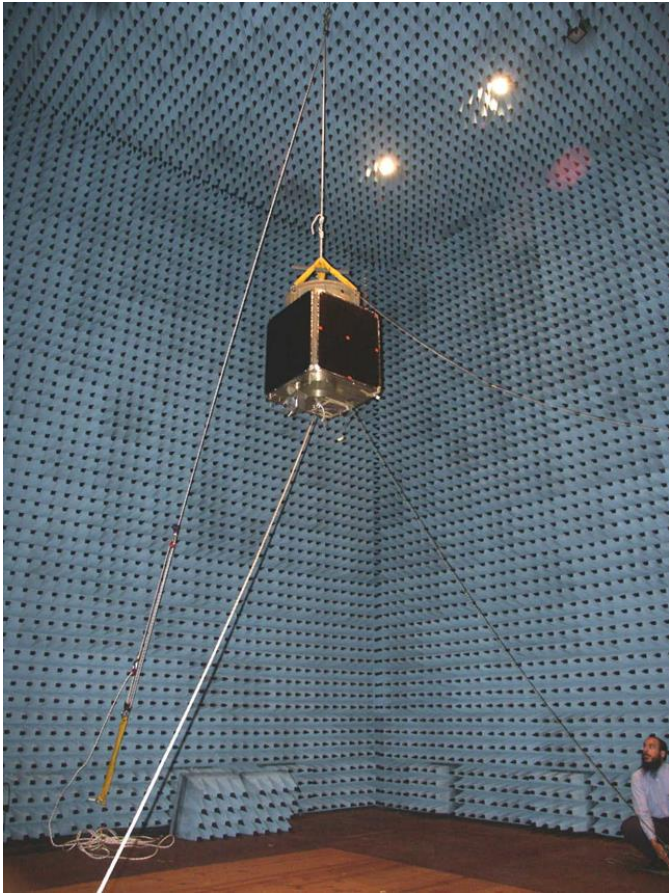


# Vibration Facility



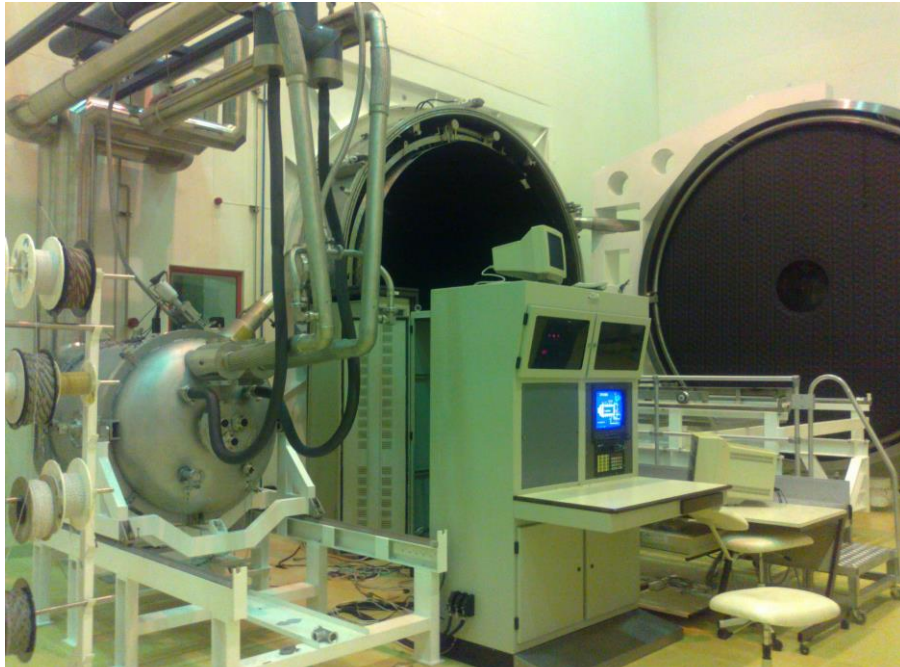
SPECIFICATIONS	
Static Load	1363 kg
Force	160kN
Frequency	5 Hz to 2Hz
Dimensions	1.5m x 1.5m
	Dimensions 1.5m
Crane	10 ton
	10m

# Electromagnetic Compatibility (EMC) Testing Facility



SPECIFICATIONS	
Dimensions	8m x 7m x 8m
	10m
Tests	Electrostatic discharge
	Radiates susceptibility
	Fast transient bursts
	Surges
	Magnetic Immunity

# Thermal Vacuum Chamber (TVC)



SPECIFICATIONS	TVC LARGE
Temperatures	-150 °C
	120 °C
Vacuum	$1 \times 10^{-6}$
Dimensions	3.4m
	3.8m

SPECIFICATIONS	TVC MEDIUM
Temperatures	-150 °C
	120 °C
Vacuum	$1 \times 10^{-6}$
Dimensions	0.7m
	0.9m

# Optical Test Frame



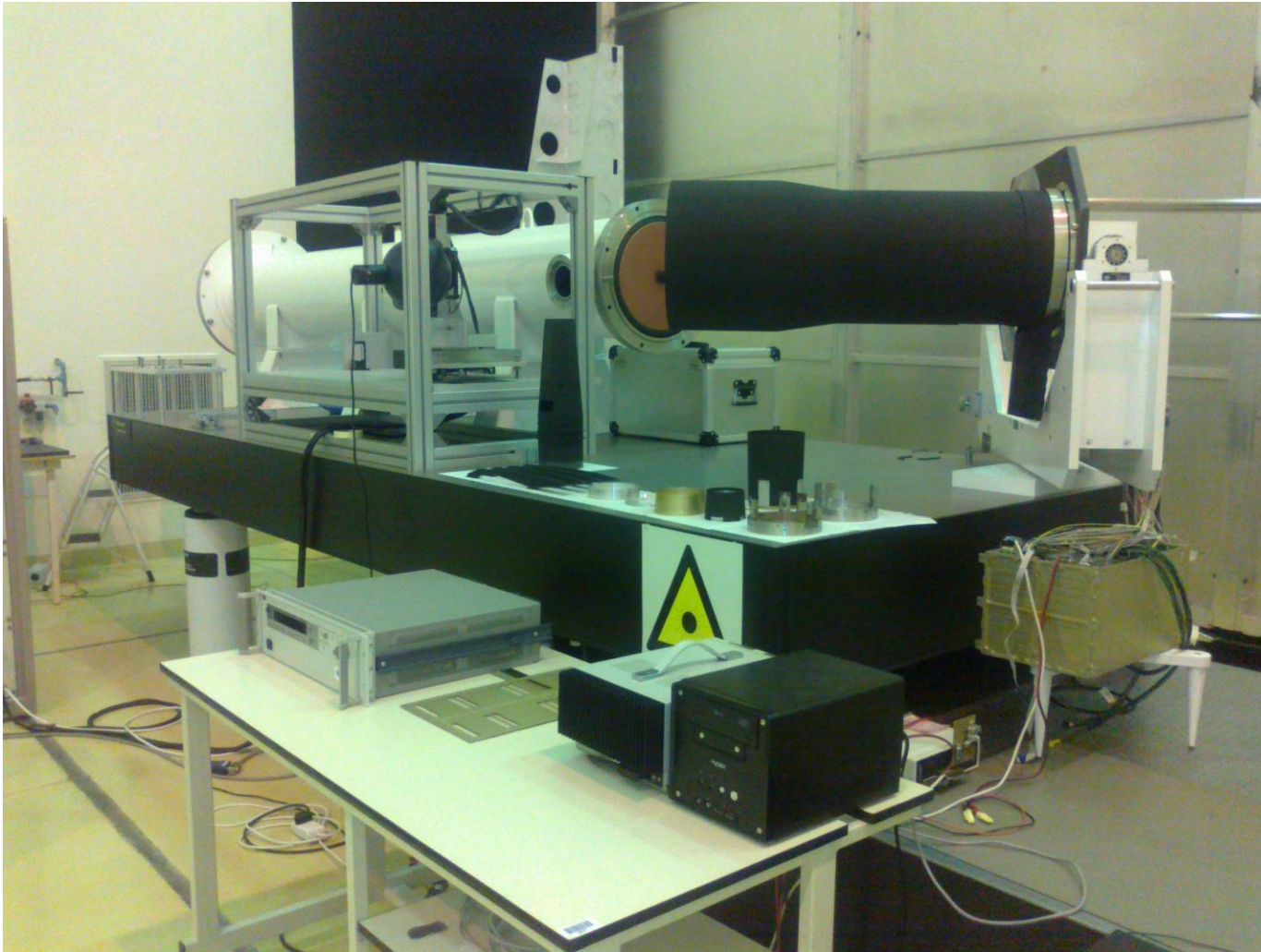
SPECIFICATIONS	
Structural mass	10ton
Dimensions	3m x 3m
Height	9m



# Optical Test Frame

OPTICAL TEST FRAME	
Seismic base (SB)	200 ton decoupled, fully grounded anti-static 5m x 7m working floor area.
Seismic Facility Super Structure (SFSS)	Modular structure which houses all optical AIT instruments & equipment.
Interferometric Test Bench (ITB)	Interferometric performance measurement & alignment of individual optics or assembled optical systems.
Assembly Test Bench (ATB)	Assembly and alignment of optics within space application telescope structures. Optical axis vertical / rotation applied, alignment and measurement methodology.
Collimator Test Bench (CTB)	Vertical collimator used to characterize optical systems.
Liquid Mirror Test Bench (LMTB)	A base mounted, flat optical surface, used for auto collimation.
OTF Controller	Provides the capability to automate complex functions and remotely access and execute sensitive procedures.

# Electro-Optical Testing System



# Radiometric Calibration Facility



## PAARDEFONTEIN RADIOMETRIC CALIBRATION SITE

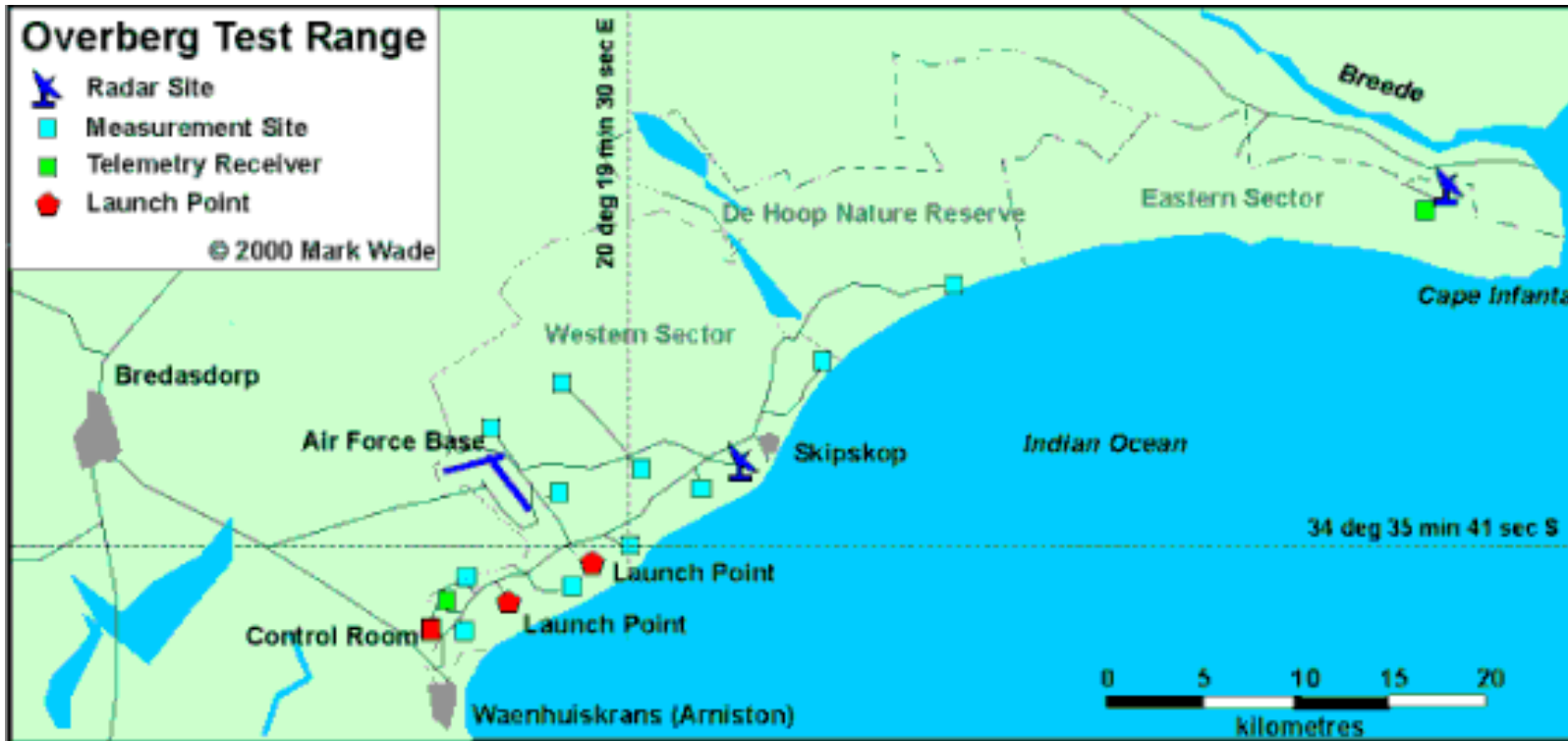
Dimensions: 100m x 100m

Located away from the ocean

Located in a High Flat Area



# Test Range and Launch Site



## INFRASTRUCTURE

## SYSTEMS

Control Systems

Instruments

Optical, Telemetry, Radar, Meteorology, Radar, Test Execution & Comms

Facilities

Satellite and Launch Vehicle Preparation and Integration

Ground Station for TT&C

Launch Site

LEO Sun-synchronous & Polar Orbits down  $\sim 38^\circ$  Inclination



Thank you