Operational Modes and Health

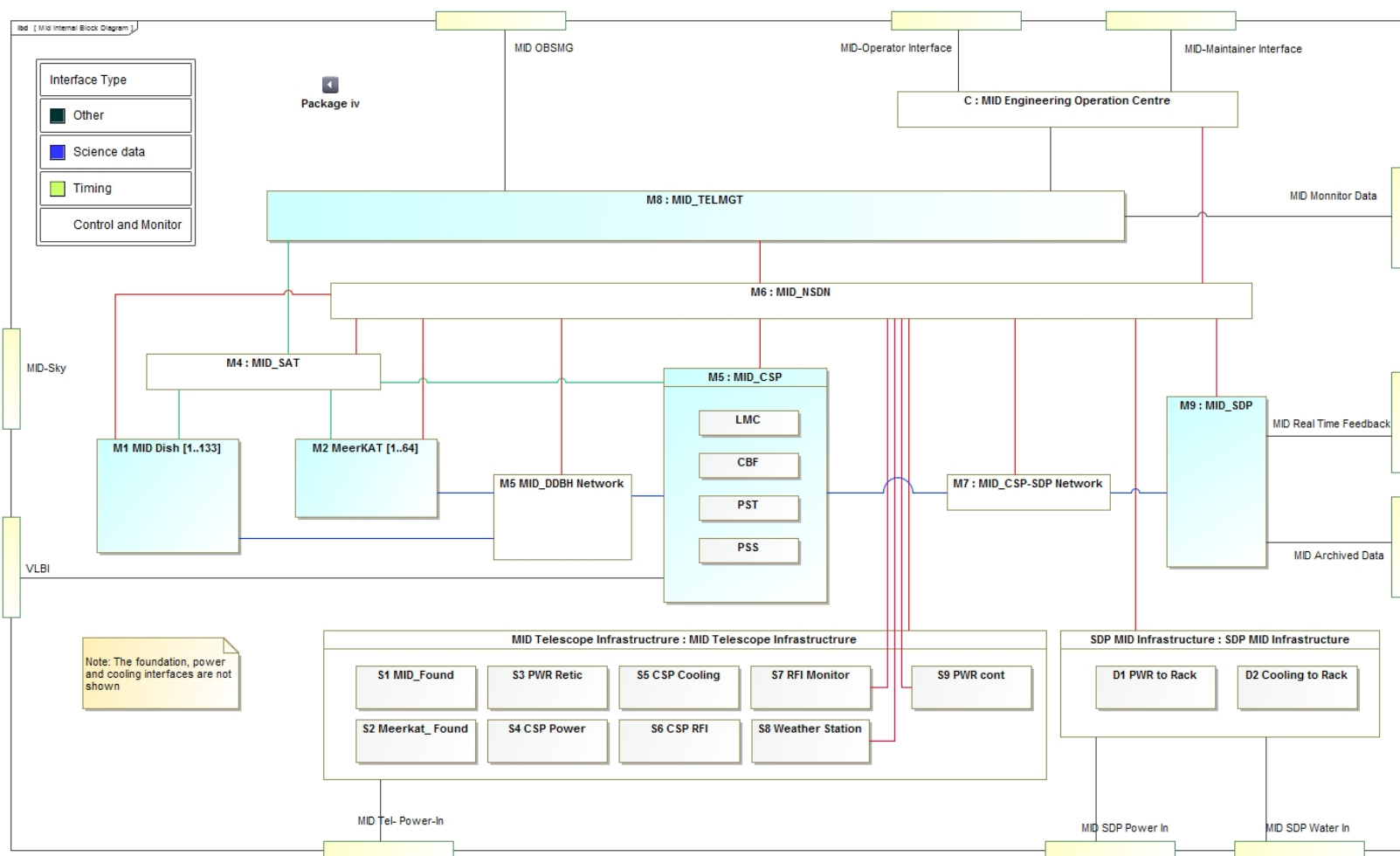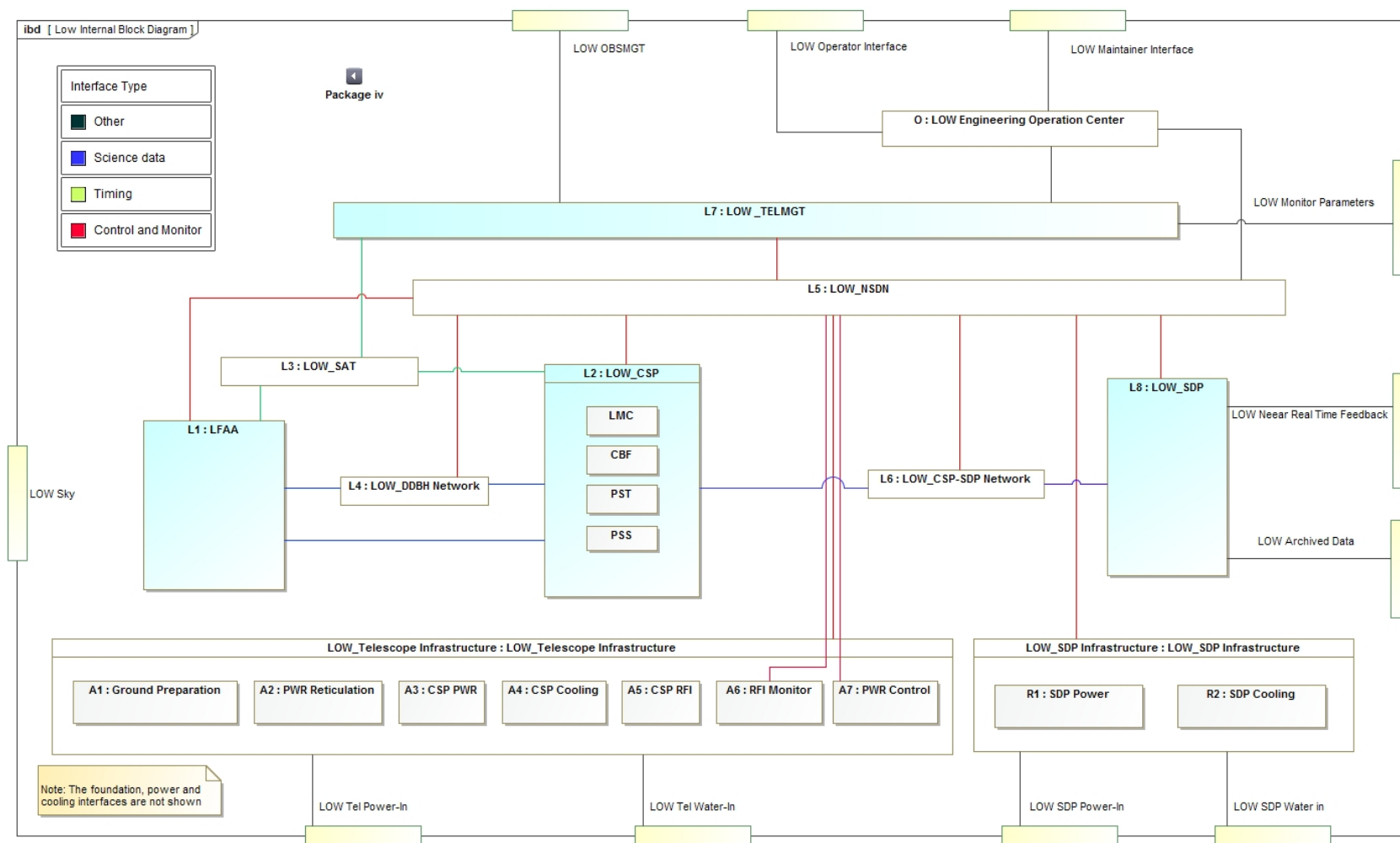**C Taljaard**
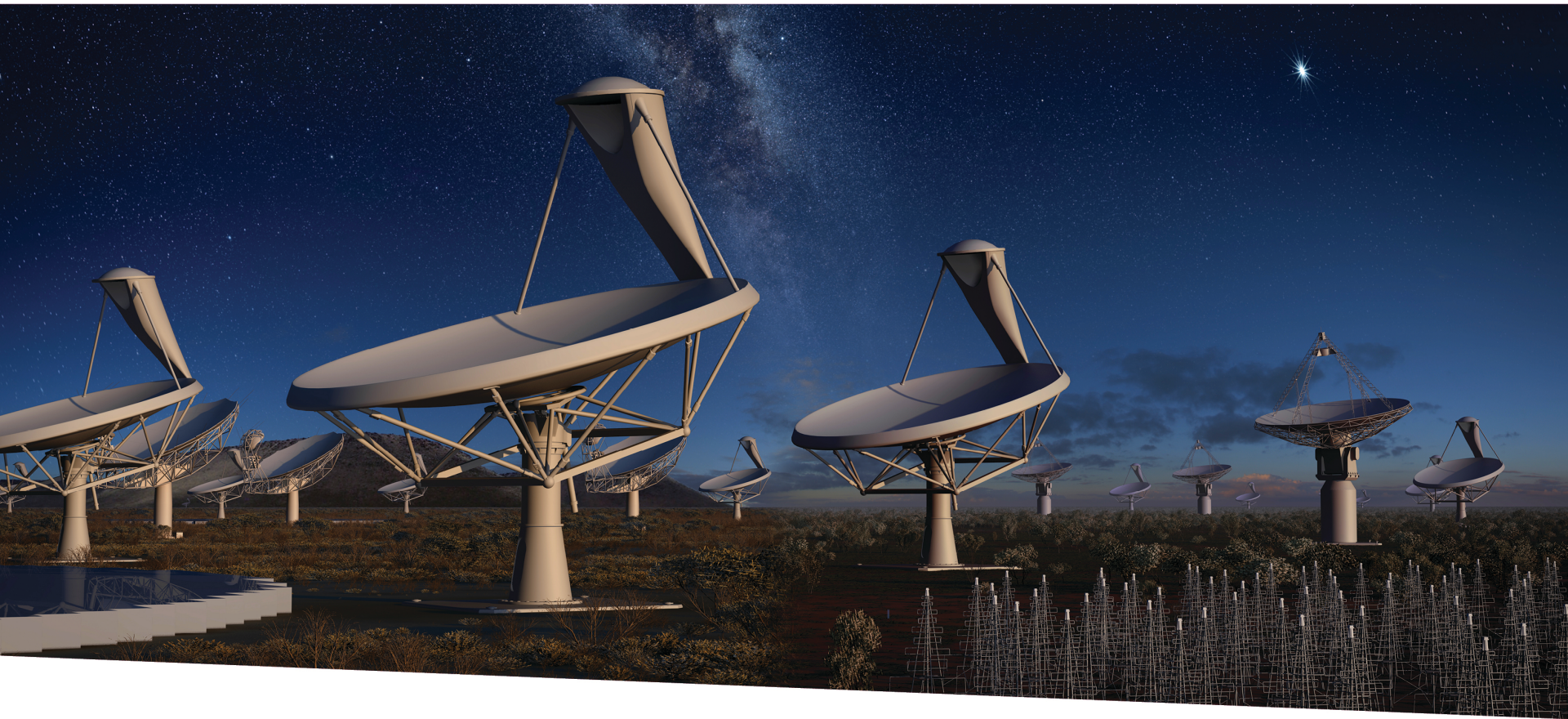
Agenda

- System Definition
- Control and Monitor Framework
- Time Allocation
- Failure Identification and Isolation
- Health Monitor
- Administrative Control
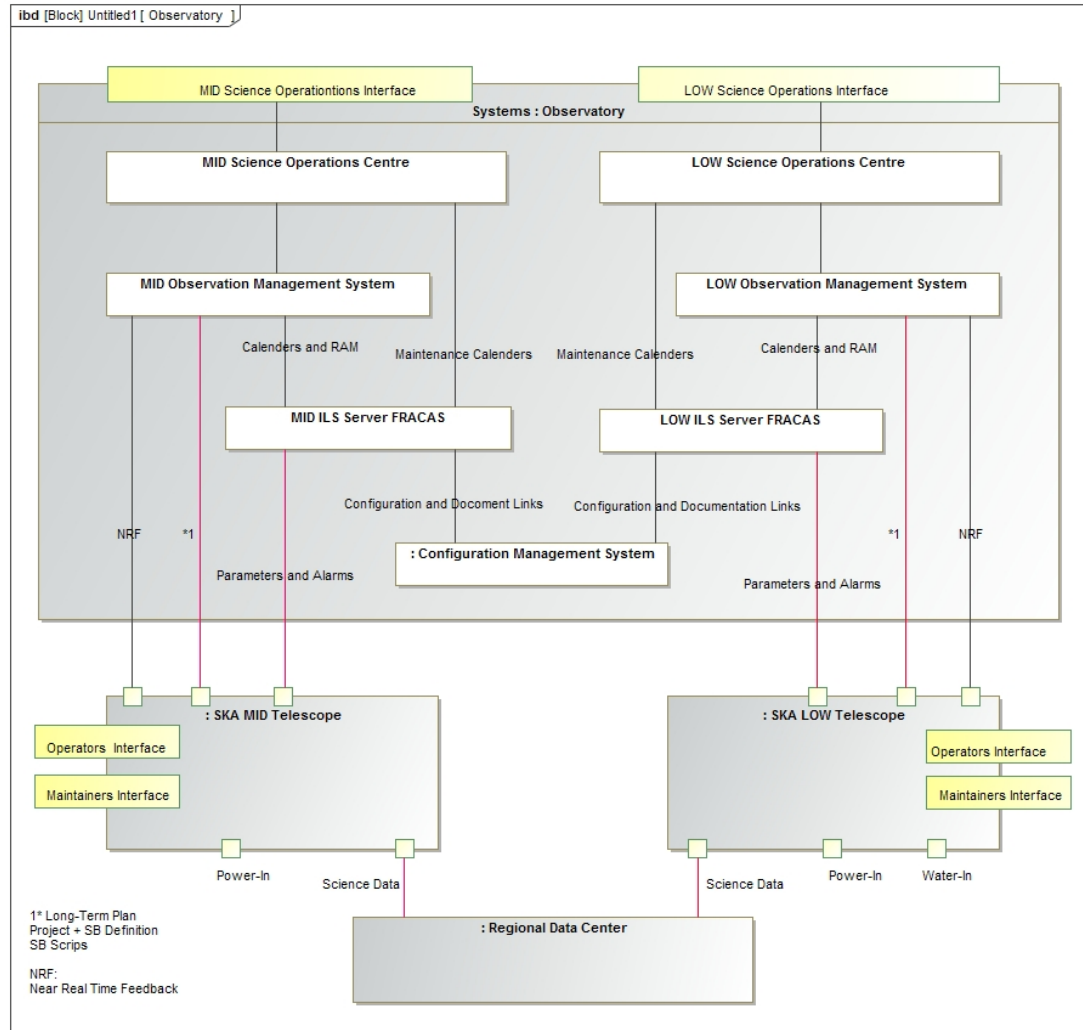- SysML State Machine Diagrams
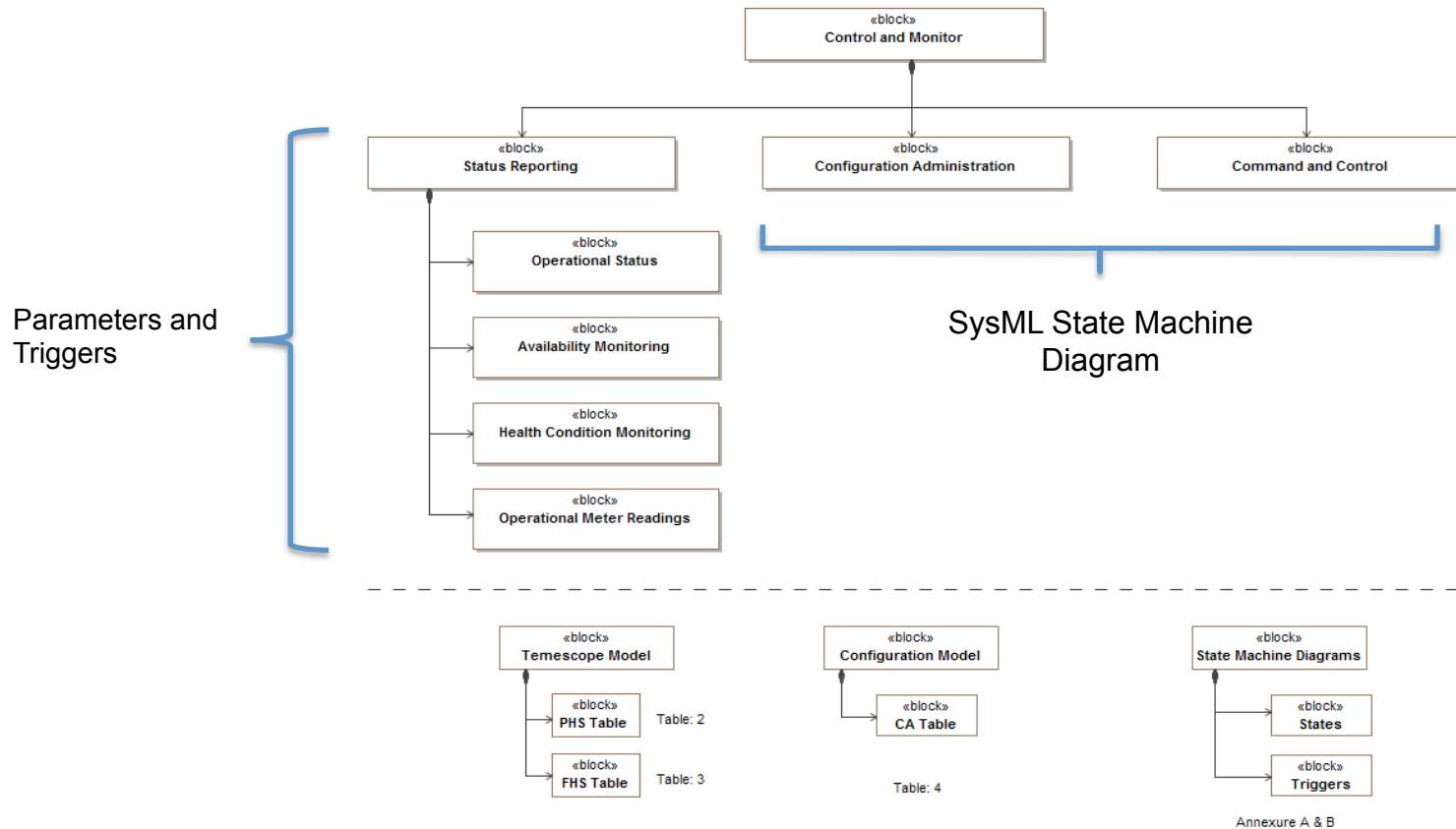
Mid Internal Block Diagram

Low Internal Block Diagram

Observatory Systems

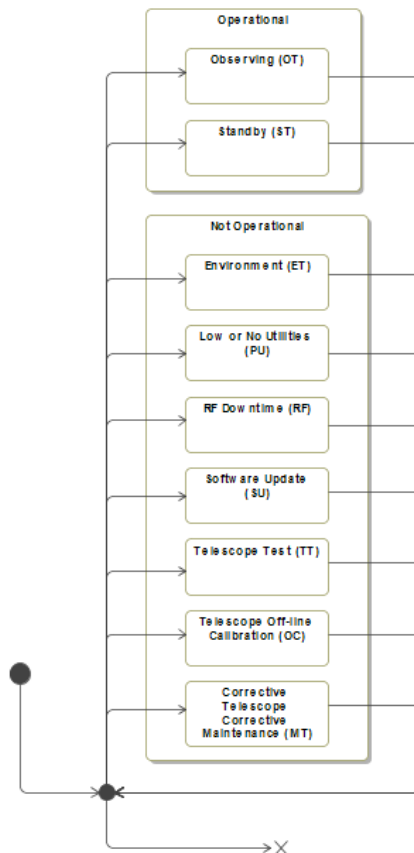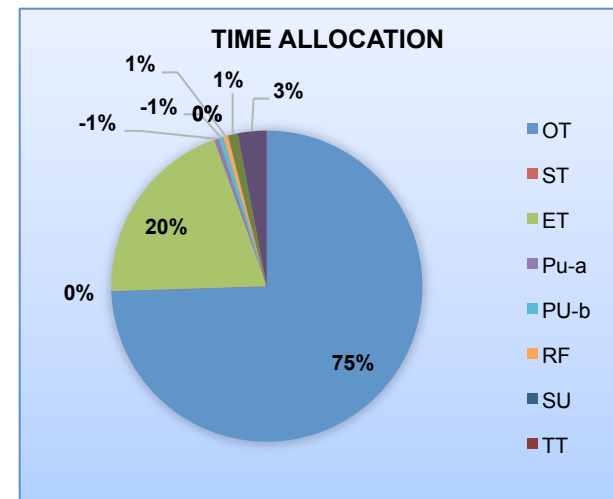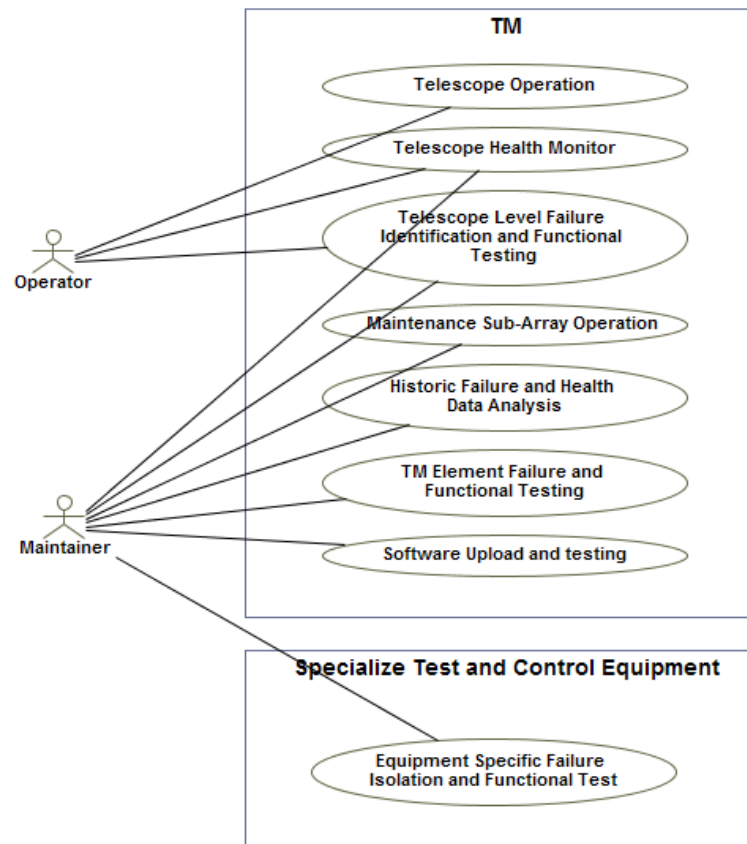# Control and Monitor Framework

Time Allocation

$$A_s = \frac{OT}{OT + ST + ET + UT + RF + SU + TT + OC + MT}$$

$$A_o = \frac{OT + ST}{OT + ST + SU + TT + OC + MT}$$

Failure Identification and Isolation

Health Monitor

- Availability dashboard (SLA)
- What and where to monitor
  - Availability status
  - Health status
  - Maintenance planning
 - Fault Identification
  - Fault Isolation

Status Reporting

Table 2 : Status Reporting Table - Physical

Physical Breakdown	Availability Status Parameter [OK, DEGRADED, NOT AVAILABLE]	Condition Monitor [PARAMETER = Value]	Meter Monitor [PARAMETER = Value]
DISH MID			Operating hours
SPF BAND 1 FEED PACKAGE			
SPF BAND 2 FEED PACKAGE			
SPF BAND 3 FEED PACKAGE	....	....	....
MEERKAT RECEPTOR PLUS	TBD	TBD	TBD
CENTRAL SIGNAL PROCESSING MID			
CENTRAL SIGNAL PROCESSING LMC			
CORRELATOR & BEAM FORMER MID			
MASTER SERVER UNIT (1)			
BLADE SERVER UNIT (1)			
GIGABIT ETHERNET SWITCH UNIT i & ii			
ACTIVE CLK&TIMING SPLITTER UNIT i & ii			
F-BLADE ASSEMBLY (1-16)			
X-BLADE ASSEMBLY (1-16)			
BF-BLADE ASSEMBLY (1-16)			
AGGREGATOR-BLADE ASSEMBLY (1-16)			
CSP PULSAR SEARCH ENGINE MID			
PST MANAGEMENT SERVER (2)			

Administrative Control
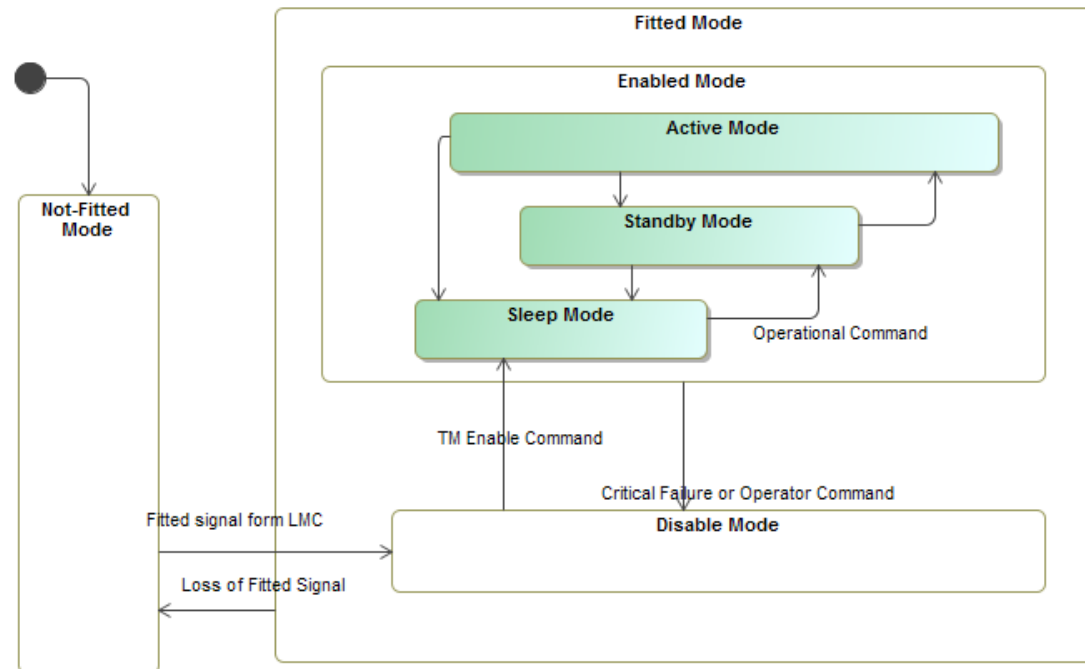
Administrative Control Table

Table 4 : Configuration Administrative Table

	Not-Fitted (Not Available)	Fitted (Available)			
		Disable (Power Off)	Enable (Power On)		
			Sleep (Power Save)	Standby	Active
MID-Dish [1-133]					
SPF Band 1/2/3/4/5					
MeerKAT Receptor [1-64]					

Network Connections					
Network Connection Point [1-x]					
Power Connection					
Power Connection Point [1-x]					
CSP (CBF)					
MASTER SERVER UNIT (1)					
BLADE SERVER UNIT (1)					
GIGABIT ETHERNET SWITCH UNIT I & ii					
ACTIVE CLK & TIMING SPLITTER UNIT i & ii					
F-BLADE ASSEMBLY (1-16)					
X-BLADE ASSEMBLY (1-16)					
BF-BLADE ASSEMBLY (1-16)					
AGGREGATOR-BLADE ASSEMBLY (1-16)					

END