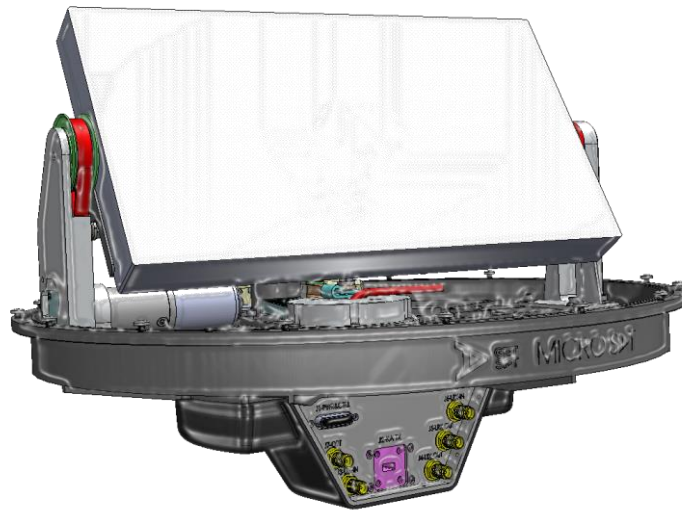


**GET
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DOMINATE THE SKY



Satellite On The Move Terminal

MICROSAT KA-BAND SYSTEM

March 24, 2016

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1. MICROSAT - ON THE MOVE TERMINAL

1.1 GENERAL SYSTEM INTRODUCTION

The MicroSAT is a lightweight portable “on-the-move” satellite terminal solution. It is designed for compact installation, and fully autonomous operation for transmit and receive of high bandwidth data.

The system is utilizing an innovative high performance panel antenna, with a full control over elevation and azimuth to allow automatic operation for the position and tracking.

This results in a low-weight / low profile antenna with superior stiffness and high performance to support multiple applications requiring “On-The-Move” communications.

The system was designed according to FCC 225, MIL STD 461.

GETSAT communications LTD. is ISO9001 certified.

1.2 MICROSAT MAIN FEATURES

- ✓ Aluminum Gimbal
- ✓ Lightweight
- ✓ Low profile
- ✓ Modem / Data-link agnostic
- ✓ GPS / Compass
- ✓ High Accuracy Pointing
- ✓ Easy Integration to any platform
- ✓ Scalable (Different Antennas)
- ✓ Low power consumption
- ✓ Plug & Play operation after pre configuration

2. MICROSAT TECHNICAL SPECIFICATIONS

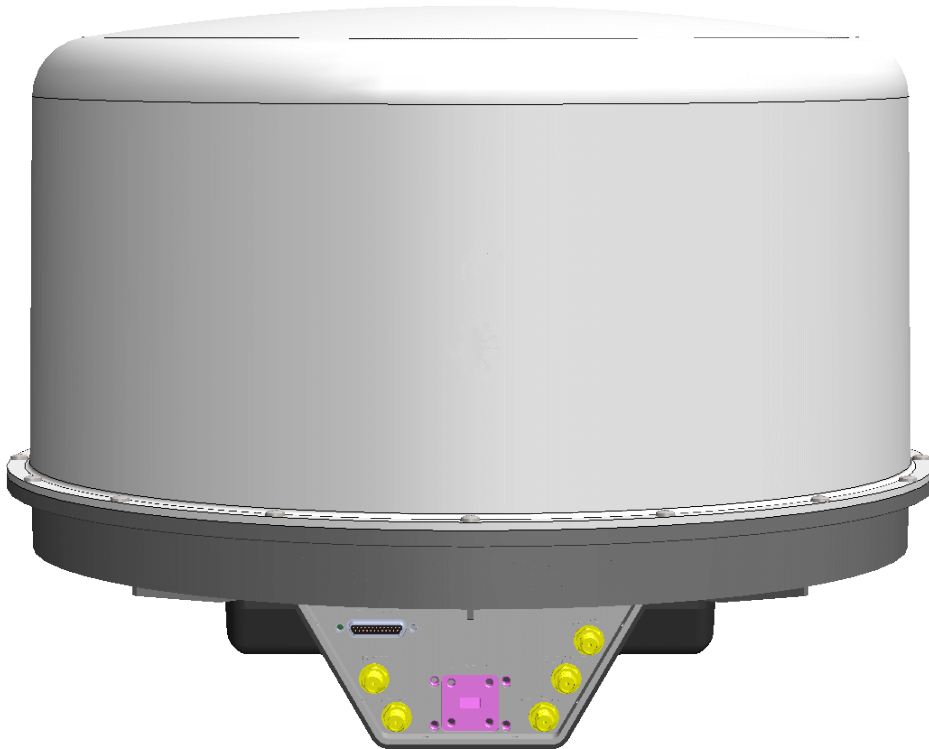


FIGURE 1: MICROSAT

2.1 MICROSAT DESCRIPTION

2.1.1 GENERAL

TABLE 1: MICROSAT GENERAL PARAMETERS

System	Values
Azimuth	0÷360°, 200°/s
Elevation	0° to 90°, 200°/s
Control Technique	Combined IMU/RSSi/GPS
Tracking Accuracy	<0.2° (<0.8dB)
Initial Acquisition Time	<30 sec
Re-Acquisition time	<100ms (depends on modem)
Management	GUI via RS-232 / Ethernet
Power Input	9- 50VDC
MicroSAT Power Consumption	<15w (Rx only)
Interfaces	GPS, RS-232, Ethernet, TX/RX, Other
Weight	3.0 kg (6.6 lb)/ Ground 4.0kg (8.8 lb)

2.1.2 RF PERFORMANCE

TABLE 2: MICROSAT RF PERFORMANCE

Parameter	Values
Tx Frequency	29÷31 or 27.5÷30GHz
Rx Frequency	18.7÷21.2 or 17.5÷20GHz
Gain Tx	34 dBi
Gain Rx	32 dBi
G/T	7.8 dB/K
Beam Width	AZ 2.6° EL 4.5°
Polarization	RHCP/LHCP (co-pol/cross-pol)
Power Handling	50w
Tx/Rx isolation	>60dB
Panel Size	248x135mm (9.8x5.3")
Radome Rx loss	0.2dB
Radome Tx loss	0.4dB

2.1.3 ENVIRONMENTAL

TABLE 3: MICROSAT ENVIRONMENTAL

Parameter	Values
Shock	25g , 11ms, ½ sine (tested)
Vibration	6g RMS (mil-std-810G 514.6) (tested)
Temperature	(-40)÷(+60)°C (tested)
Altitude	-1.5K to 40K ft AMSL
Rain	Radome Sealing
RH[%]	95

2.1.4 MICROSAT MECHANICAL DIMENSIONS

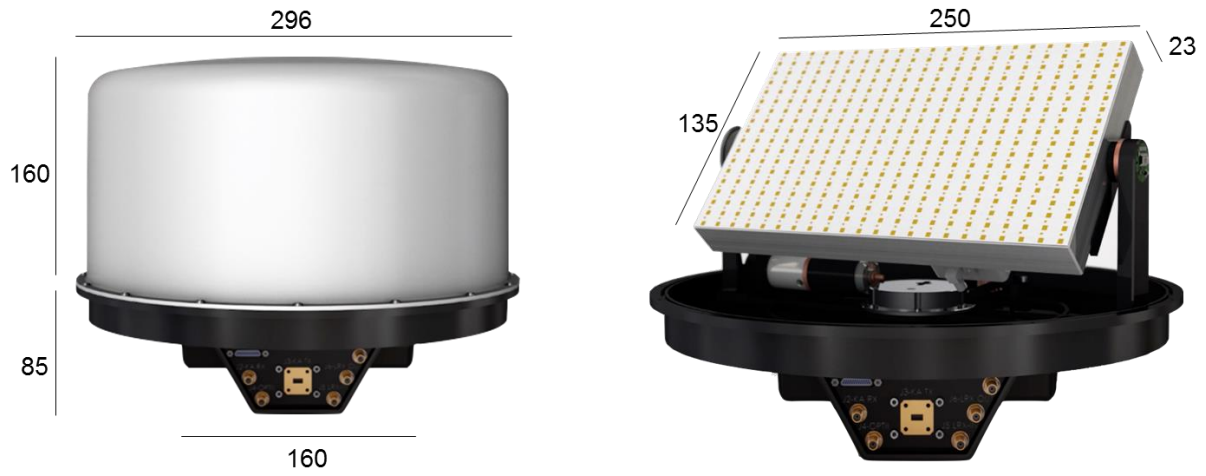


FIGURE 2: MICROSAT MECHANICAL DIMENSIONS

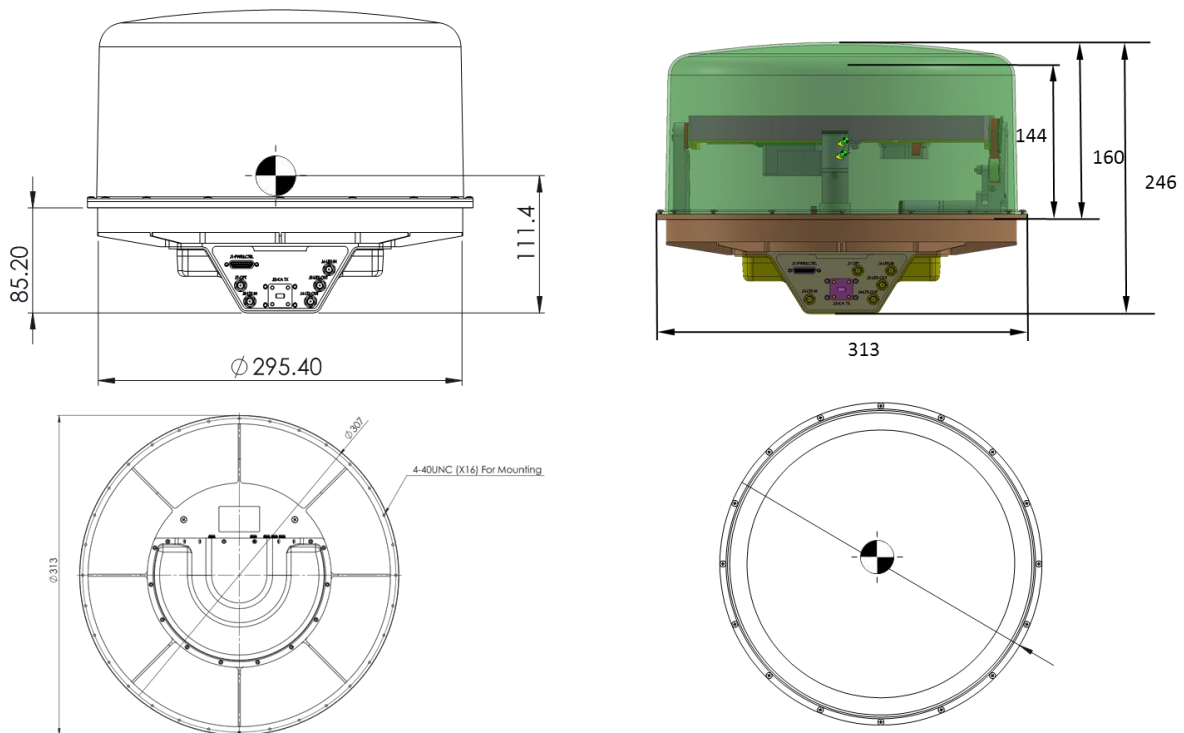


FIGURE 3: MICROSAT MECHANICAL INTERFACE

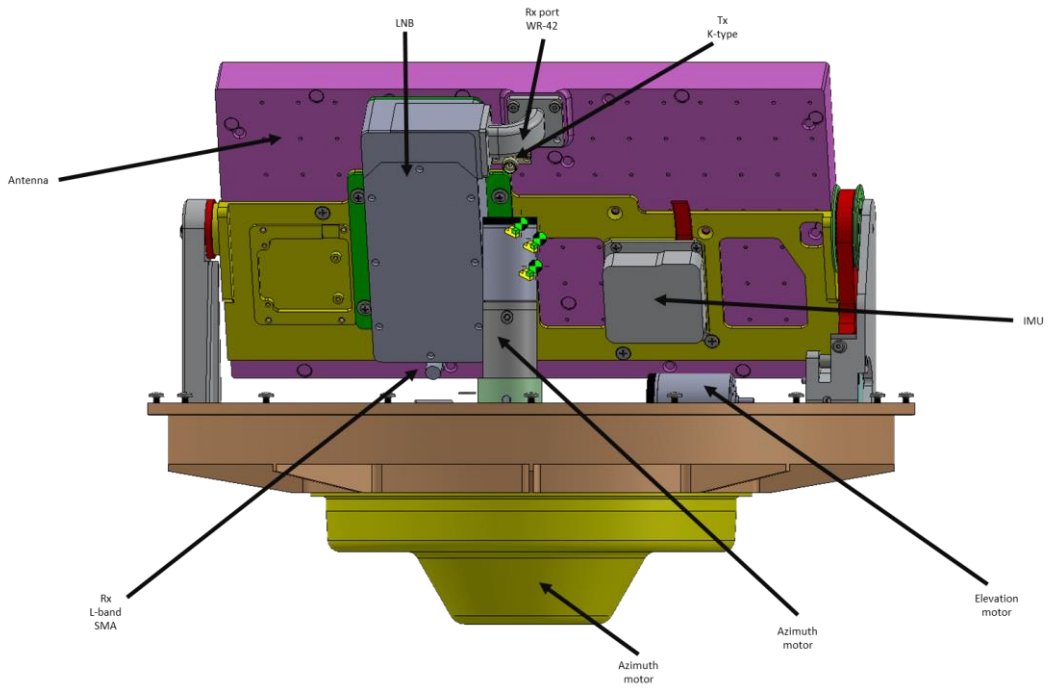


FIGURE 4: MICROSAT INTERNAL PARTS

2.1.5 MICROSAT SYSTEM SCHEME

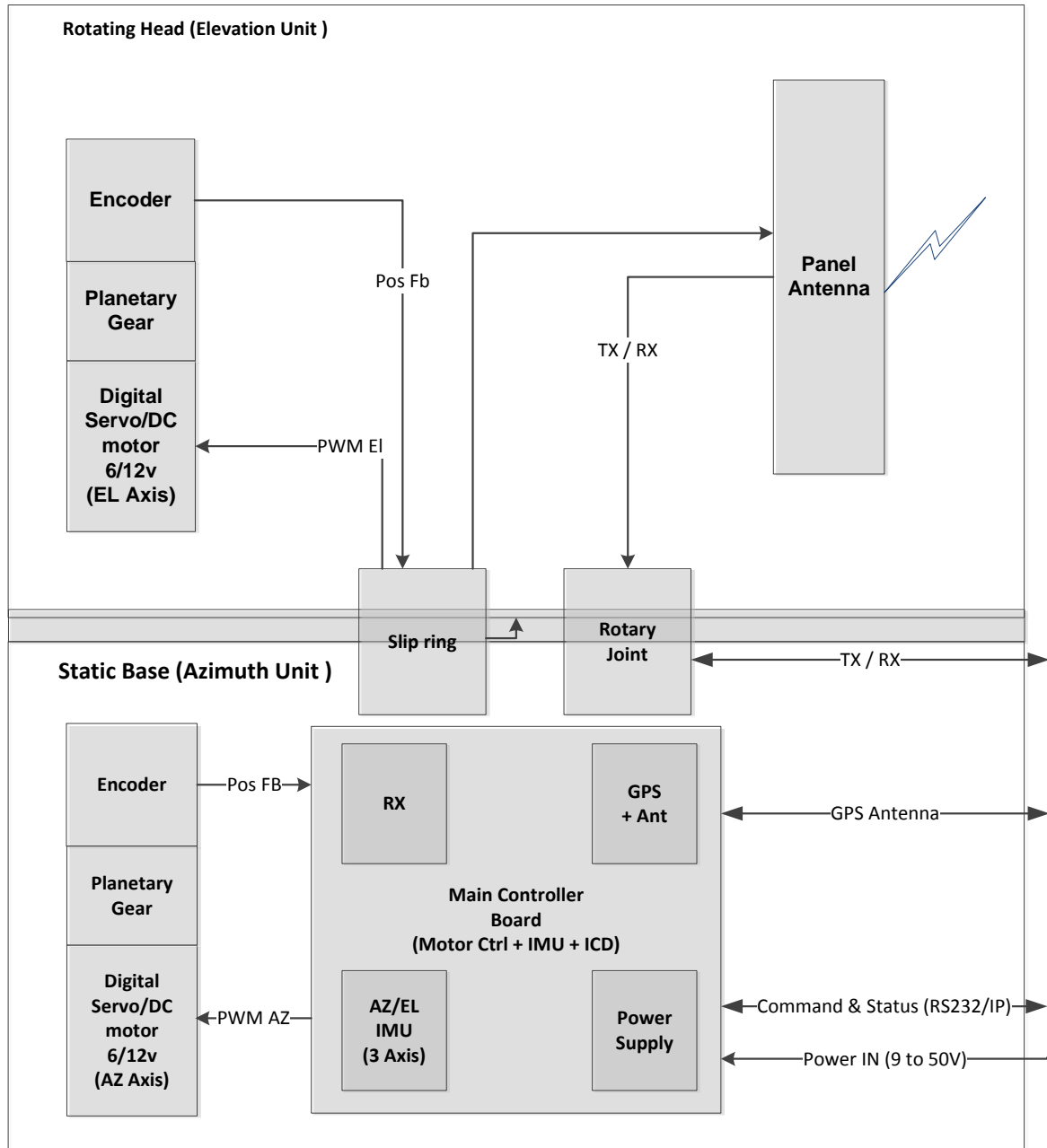


FIGURE 5: MICROSAT SYSTEM BLOCK DIAGRAM

J1: The MicroSAT is provided with 25 pin MDM plug:

TABLE 4: MICROSAT MDM ICD

Connector	Signal name	I/O	Pin No.	Description
MDM-25SCBR-P-T MDM 25pin	Power IN (DC 12 - 48V)	I	1	DC Power IN
	Power IN (DC 12 - 48V)	I	2	DC Power IN
	Power IN (DC 12 - 48V)	I	3	DC Power IN
	GND	I	4	Ground and DC Power RTN
	GND	I	5	Ground and DC Power RTN
	GND	I	6	Ground and DC Power RTN
	ETH_A_TX+	O	7	Ethernet port A Tx+
	ETH_A_TX -	O	8	Ethernet port A Tx -
	GND	I	9	Ground and DC Power RTN
	ETH_B_TX+	O	10	Ethernet port B Tx+
	ETH_B_TX-	O	11	Ethernet port B Tx-
	DATA_RS485_IN_P	IO	12	BUC RS232/422/485 UART comm
	DATA_RS485_IN_N	IO	13	BUC RS232/422/485 UART comm
	MAIN_TX_RS232	O	14	Main Status TX RS232 (ICD)
	MAIN_RX_RS232	I	15	Main Command RX RS232 (ICD)
	SEC_TX_RS232	O	16	Sec Status TX RS232 (Reserved)
	SEC_RX_RS232	I	17	Sec Command RX RS232 (Reserved)
	EXT_GPIO1	IO	18	External GPIO 1 (Reserved)
	EXT_GPIO2	IO	19	External GPIO 2 (Reserved)
	ETH_A_RX+	I	20	Ethernet port A Rx+
	ETH_A_RX -	I	21	Ethernet port A Rx -

Connector	Signal name	I/O	Pin No.	Description
	ETH_B_RX+	I	22	Ethernet port B Rx+
	ETH_B_RX -	I	23	Ethernet port B Rx -
	DATA_RS485_OUT_P	IO	24	BUC RS232/422/485 UART comm
	DATA_RS485_OUT_N	IO	25	BUC RS232/422/485 UART comm

J2 WR28: Ka Tx WR28

J3 SMA: L Tx in

J4 SMA: L Tx out

J5 SMA: L Rx out

J6 SMA: LRx in

J7 SMA: OPT

2.1.6 ANTENNA PATTERNS

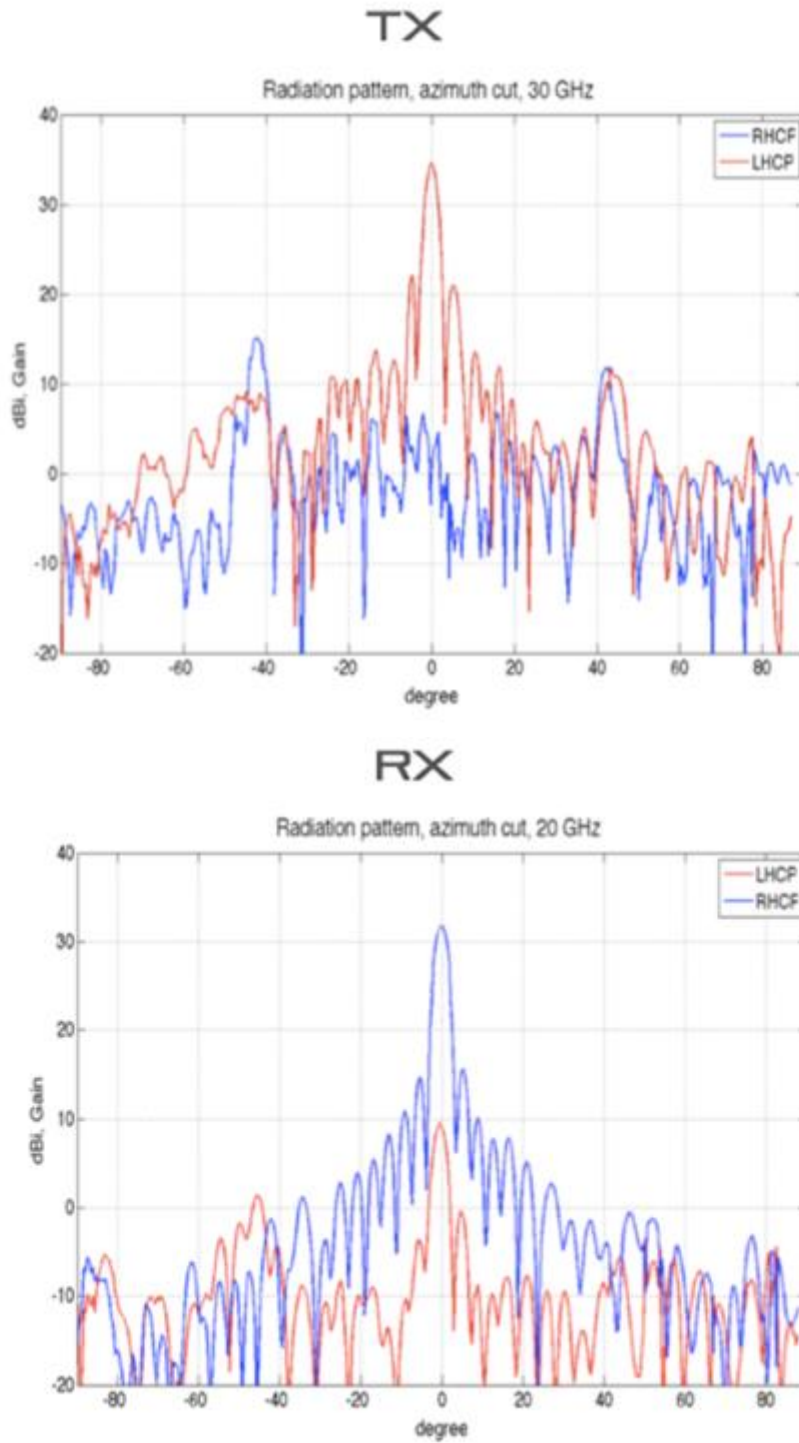


FIGURE 6: MICROSAT KA ANTENNA PATTERN

2.1.7 CONTROL APPLICATION TECHNICIAN GRAPHICAL INTERFACE (GUI)

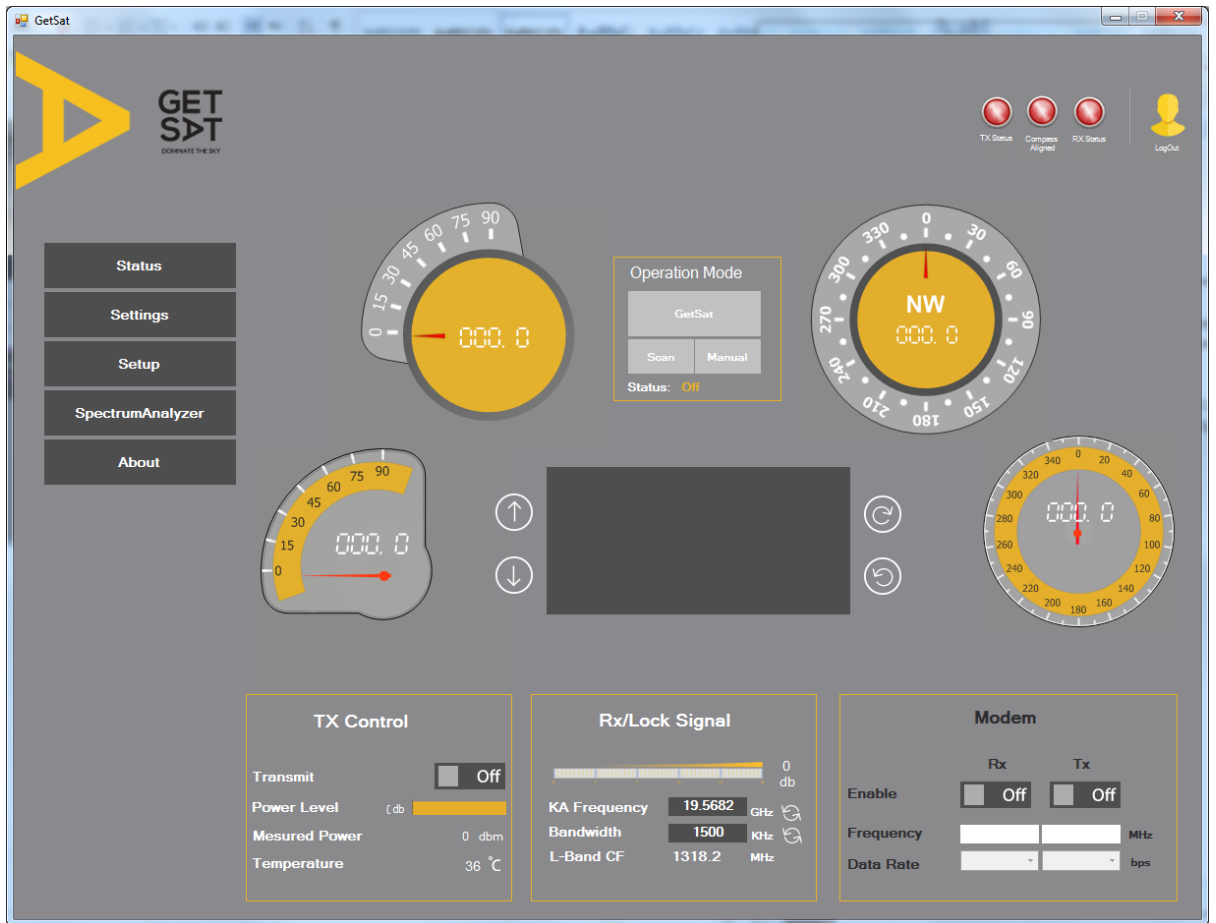


FIGURE 7: SYSTEM GUI APPLICATION

The system will be provided with a control application. The application is used to pre configure the system, when which afterwards it' ll operate as plug and play.

2.1.8 OPERATION MODES

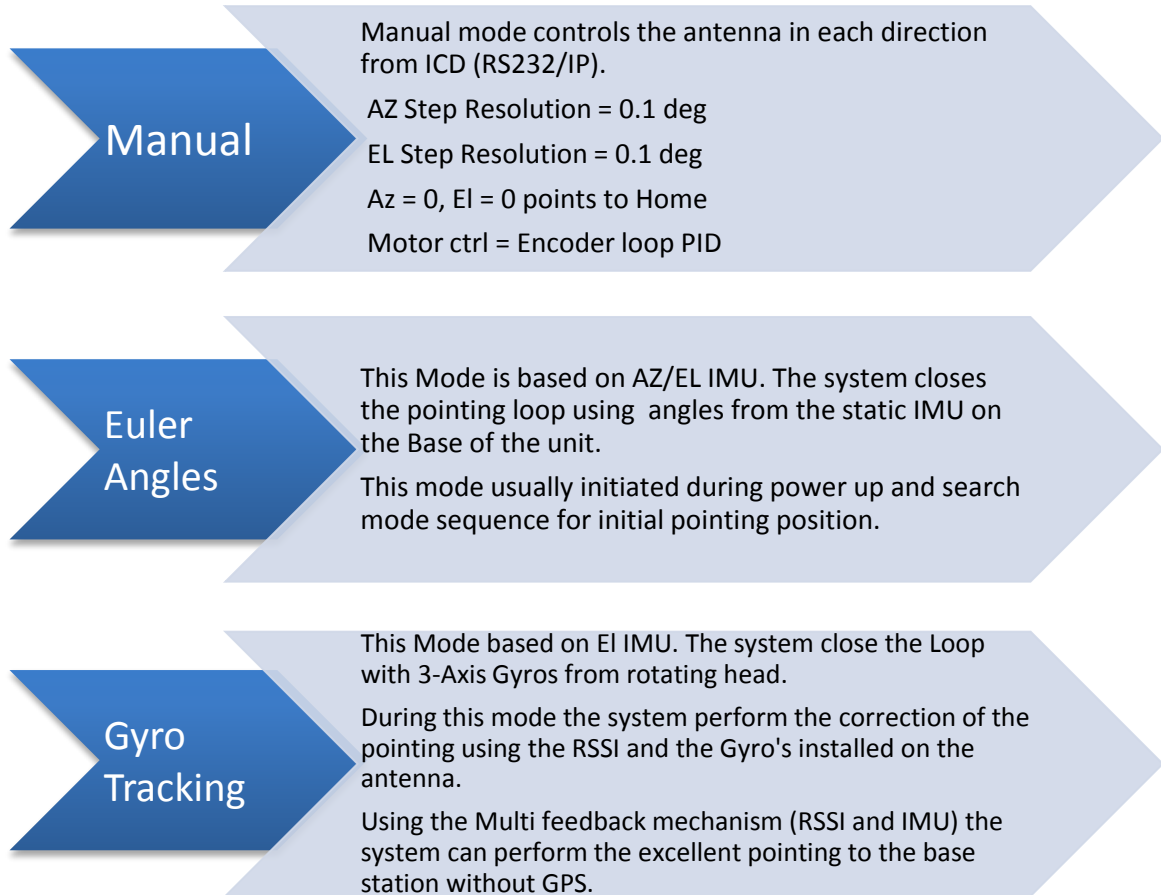


FIGURE 8: SYSTEM OPERATION MODES

2.1.9 POINTING FLOW CHART

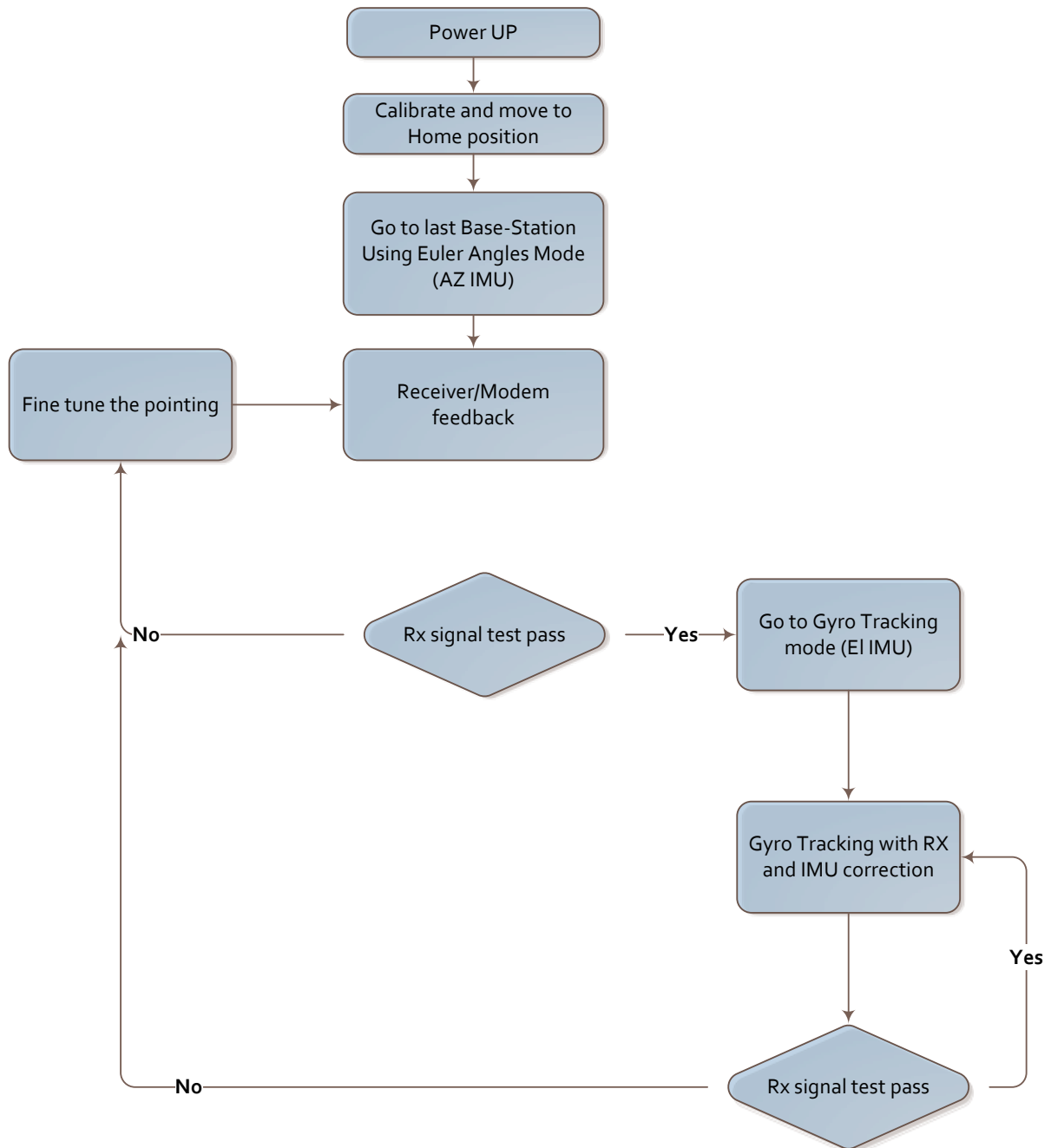


FIGURE 9: SYSTEM POINTING FLOW CHART