

Mantis 5G Private Network-in-a-Box Technical Specifications:

Technology	5G NR Stand Alone (SA)
Frequency bands	Any 3GPP FR1 band up to 6 GHz (defaults Bands n78)
Channel bandwidth	up to 50 MHz for SISO and up to 30 MHz for 2x2 MIMO
Max. throughput	130 Mbps
Standards	3GPP Rel. 15/16
Antenna Configuration	SISO / 2x2 MIMO
Max. UEs Supported	8
Modulation Order	64-QAM and 256-QAM
5G Core and 5G RAN	Open Source Stack
SIP Server	Available
Max. Transmit Power	10 dBm (10 mW)
Duplex mode	FDD/TDD with configurable slot structure
Range	Up to 50 m radial coverage
Power supply	220 V AC
Operating temp	-10° C to 55°C
SDR card	NI USRP B210
Sampling Rate	Upto 61.44 Msps
Dashboard	Access to all features of the Mantiswave Network Orchestrator.
Supported UEs	Quectel 5G Modem, OnePlus 8T,9R, Nord & Other COTS UEs
5G LAB Manual:	5G Lab manual to conduct LAB experiments
Power Consumption:	250 Watt
Weight	2.5 Kg
Dimension	250 x 250 x 150 mm



List of LAB Experiments:

1. 5G Core Network Deployment using Mantis dashboard
2. 5G RAN Configuration with Logs using Mantis dashboard
3. UE Sim Programming and new subscriber registration.
4. 5G- SA Call Flow Analysis Using Logs and Packet Captures
5. 5G Packet Flow Analysis through a VoIP Call.
6. Testing and analysis of 5G-NR RACH Procedure.
7. Testing and analysis of gNodeB with Different Modulation Schemes.
8. Testing of different 5G-NR TDD Patterns.
9. Testing and validation of 5G-NR in 2x2 MIMO configuration
10. Setting a 5G-NR Network Connection using 5G-NR Modem UE.

What's Included in the Box:

Private 5G Network-in-a-Box: Mantis Private 5G Network-in-a-box supporting 5G-NR-SA.

RF Card: RF Card already assembled in the Mantis Private 5G Network-in-a-box.

Mantis Dashboard: Provides real-time configuration, monitoring and management of the 5G core, 5G RAN and 5G UEs.

Lab Manual: Detailed step-by-step lab exercises for all the experiments.

Reprogrammable SIM Card: 3 Nos of SIM cards (Already programmed and configured).

Antenna: Includes four omnidirectional antennas.

Installation and Training: One day installation and basic training on all LAB Experiments.

Cots UE: One cots UE (One Plus Mobile Phone)

5G Modem UE: One 5G Modem UE (Quectel).

Monitor: One 27 inch Monitor, Keyboard, Mouse