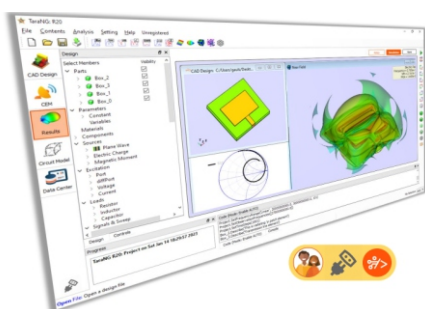


Welcome to our Antenna Fabrication & testing solutions Lab, where we provide a wide range of products and services for all your antenna fabrication needs. Whether you are a researcher, engineer, or hobbyist, our lab offers high-quality materials and tools to help you create efficient and reliable antennas.

Features

- Comprehensive exploration of antenna design, fabrication & testing
- Hands-on experience in antenna design using industry-standard software tools
- Practical knowledge of antenna fabrication processes & materials
- Enhancement of practical skills in antenna development & testing
- Preparation for a career in antenna design, fabrication & testing

Antenna Design & Simulation Software



1

Antenna Fabrication



2

PTH

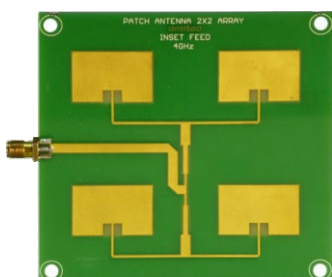


3

Soldering Station



4



Component Insertion

5

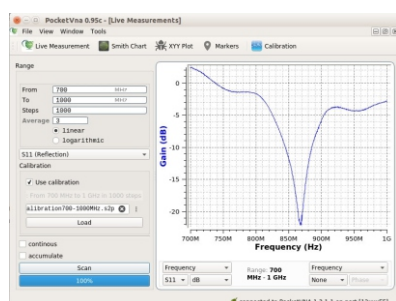


6



VNA

7



Antenna Design & Simulation Software

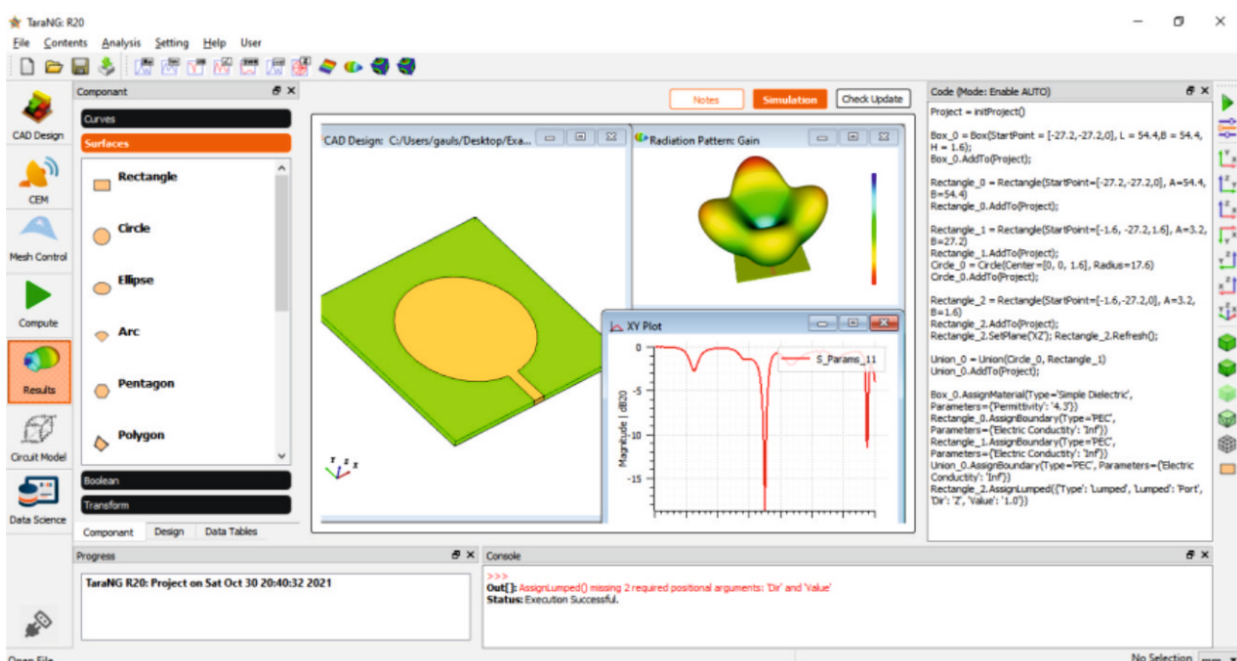
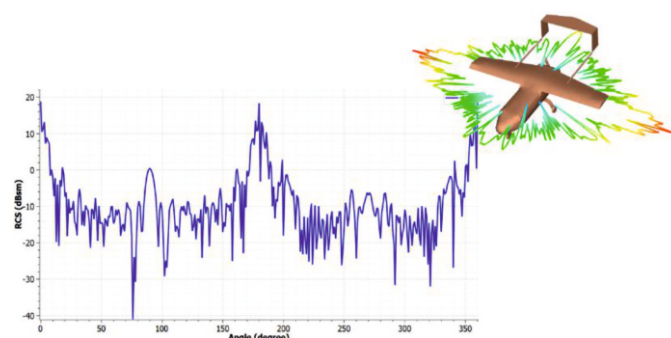
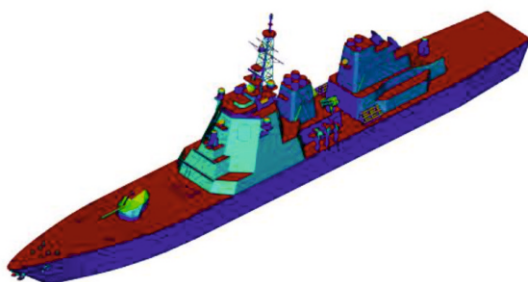
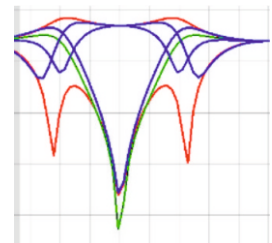
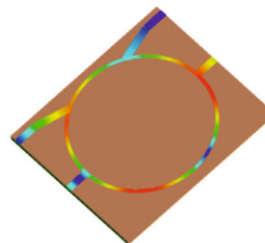
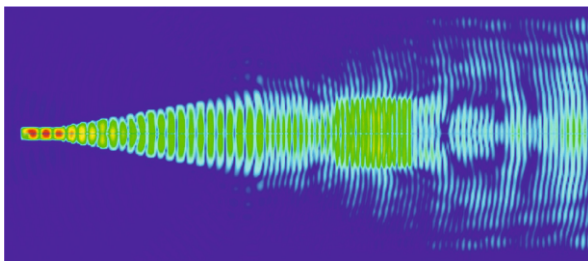
Mine Simulation software Tool is a comprehensive electromagnetic analysis tool that provides solution to a variety of EM scenarios through simulation driven techniques. This tool has 3D CAD Design environment and analysis tool to compute the performance and present it with interactive visualization.

Subjects covered as per UG/PG Syllabus-

- Electromagnetic Engineering
- Antennas and Radio Wave Propagation
- Microwave Engineering
- Radar Engineering

Simulation Software Cover Following Modules :

- Electromagnetic Fields & Waves
- EMF Module Education
- Antennas and Radio Wave Propagation
- Microwave Module Education & Research
- Microwave Design
- Microwave Module Education & Research
- Radar Engineering
- Software
- Microwave Module Education & Research



MI-ProtoCut01 PCB Prototype Machine

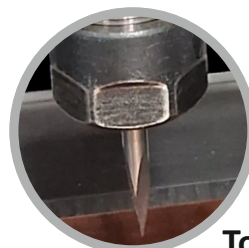
ER11 Collet Chuck with
multiple bit option



Heavily duty
Spindle Motor



Tool Bit
(0.1 to 3mm)



Working Area
(300x300x35mm)



Clamp set
with T nut



Bellow Cover
(protect from
dust)



Emergency
Stop button



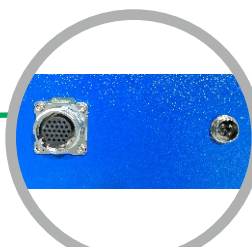
PCB Machine
Controller



Antivibration for
Poust support



DH24 PIN
&
4 PIN DIN
Connectors



Technical Specifications

Working Area (X*Y*Z)	: 305*305*40 mm (Approx)
Minimum drill hole size	: 0.1mm
Minimum cutting trace/space	: 0.4mm(8mil)
X/Y Resolution	: 0.06mm
Operating Voltage	: 220V AC, 50W
Software supporting Operating System	: Windows 7/8/10 & Linux
Z-axis Stroke	: 25mm maximum, Engraving depth depends on the length of the tool edge.
Depth sensing and adjustment	: Automatic, software controlled
Tool change	: Manual
Tool holder	: 1/8 inch & ER11 Collet
Main application	: Engraving, Cutting & Drilling for PCB, plastics, acrylic & Metals (copper, aluminum, brass & silver etc.)

Spindle Motor

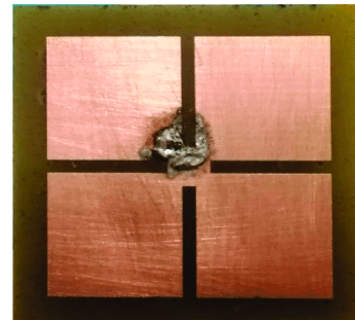
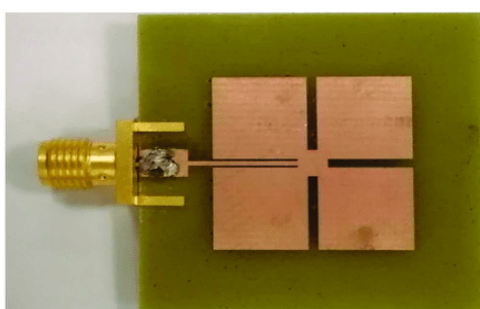
Spindle Speed (Max RPM)	: 12000 RPM
Spindle Motor	: 300W
Spindle Control	: Manual & Automatic

Mechanical Specifications

Machine Dimensions (W*D*H)	: (W 596 × D 723 × H 570) mm Approx.
Machine Construction material	: 6061 & 6063 hard aluminum alloy for better mechanical stability
Maximum job height	: ≤ 25mm
Rail type	: LM GUIDE
Transmission unit	: BALL SCREW
Repeat positioning Accuracy	: 0.1mm - 0.2mm
Machine weight	: 75kg (Approx)

External Body cover of machine

* Machine will be fully covered and have 3 side individual inspection windows made of clear Acrylic also have 2 individual drawers at the bottom with individual lock and individual handle on it, also have 4 locking caster wheels for easy shifting of machine, the body of the cover should not be less than (810W X 1200H X 900D) mm.



Thru-Hole-Plating System(PTH)

Prototype PCB Plating Unit for design small scale PTH PCB Runs. Full unit is made of PVC and houses all the necessary tanks and control for PCB plating.

Specifications

Max PCB Size	:	250mm x 305mm
Process Tanks	:	02 Nos. 11.5 Litres each 02 Nos. 6.5 Litres each 06 Nos. 90. Litres each
Rinse Station	:	02 Nos. Cascade
Plating Tanks	:	02 Nos. 33.5 Litres
Rectifier	:	0-20Amps, 0-8Volts(Continuously Variable)
Mechanical Agitation	:	With DC Motor for only Electroless Tank and Both Plating Tank
Heaters	:	02 Nos. Titanium with Thermostat control
Air Agitation	:	With Pump (Diaphragm Type) for Copper Plating Tank
Timer	:	Provided
Electrial Power	:	230V-50Hz, 15A Socket required



Soldering & De-Soldering Station

- Input Voltage : 180-240VAC,50Hz
- Fuse : 3.15A
- De-soldering : 24VAC,80W
- Soldering : 24VAC,70W
- Desold pump :24VDC, 80W
- Vacuum Pressure :12000 rpm, 500 to 600mm/hg
- Temp Range : 180 to 480°C
- Temperature control accuracy +/- 1°C
- Tip Leakage Current : < 2 mA
- Temperature control Stability +/- 1°C
- Tip to Ground Resistance : < 2 Ohms
- Tip to Ground Leakage Voltage : < 2 mV
- Microprocessor based power control unit with built in vacuum pump.
- De-soldering iron & Soldering iron
- Stand with cleaning sponge & Cellulose tip cleaning sponge
- Power cord & Tool box : Fiber filters 20 Nos, solder collector glass tube 1No,
- Tip replace Spanner 1No
- Cleaning Accessories.



Antenna Measurement with a Vector Network Analyzer (VNA)

A VNA is the device of choice to measure the impedance of an antenna, in order to access the electrical match of the antenna to its feed (usually 50 Ohm), and to devise a matching circuit to optimize match.

A 2-port VNA can also be used to measure the radiation of an antenna by using a reference antenna on one port and the antenna under test to the second port of the VNA.

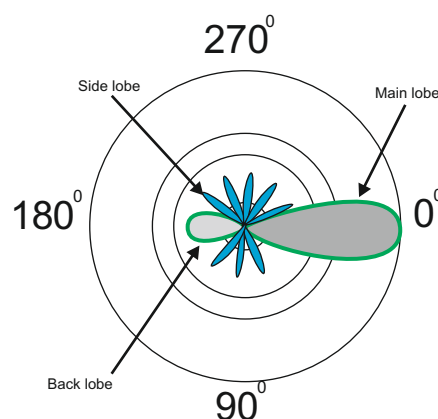
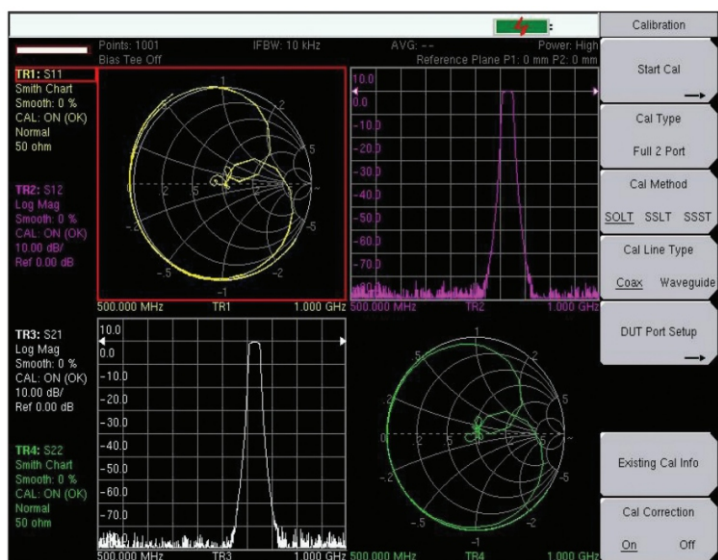
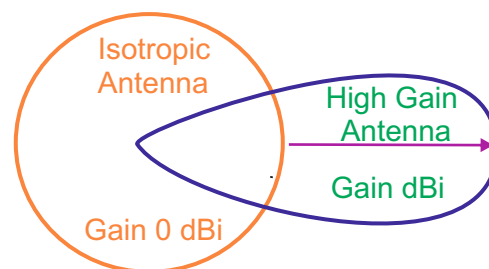
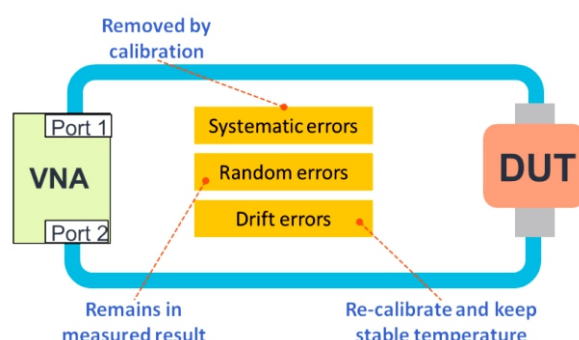


Features

- True 2-Path 2-Port Vector Network Analyzer
- Ultimate accuracy with 12-term error correction algorithm
- User-defined Quad Display for viewing all 4 S-parameters
Contains a source & receiver (S)
- Uses known stimulus
- Ratioed Measurements
- Offer advanced calibration, more accurate
- Limited to analog & pulsed signals

Optional Frequency Ranges:

VNA: 5 KHz to 4/6/8/12/18/26 GHz



Package Content

1. Antenna Fabrication Material	
• Copper Clad PCBs Single Sided(100mmX100mm)	: 8Nos.
• Copper Clad PCBs Double Sided(100mmX100mm)	: 5Nos.
• SMA Connector Male & Female	:5Nos(Each)
2. Antenna Design & Simulation Software (Single User License)	: 1Nos.
3 PCB Prototype Machine with Accessories	
• 10+ circuits and PCB examples set	: 1Nos
• Operating Software, Gerber converter software & USB Drivers	: 1Nos
• Operating Manual	: 1Nos
• Wrenches	: 2Nos
• Waste board	: 3Nos
• Acrylic Plate 3mm	: 3Nos
• Wooden plate	: 3Nos
• Power Supply	: 1 Nos
• USB Cable	: 1Nos
• Tool bits - Router Bits	: 2Nos
• Engrave/Milling bits (0.2mm)	: 2Nos
• Engrave/Milling bits (0.15mm)	: 1Nos
• Micro Drill Bits	: 10Nos
4 Soldering Station	
• Main Unit	: 1 Nos.
• Soldering Iron	: 1 Nos.
• Soldering Iron Holder with Brass Tip Cleaner	: 1 Nos.
• Hot Air Gun	: 1 Nos.
• Anti- Static Tweezers	: 1 Nos.
• Hot Air Nozzles	: 4 Nos.
• Soldering tips	: 10Nos.
• Soldering paste	: 1 Nos.
• Solder/desoldering wick	: 1 Nos.
• IC extractor	: 1 Nos.
• Manual	: 1 Nos.
5 Thru-Hole-Plating System(PTH)	
• Plating chemicals for Lab startup	: 1Nos.
6 Miscellaneous	
• Tool Box(PCB Cutter, Wire Stripper & Nipper)	: 1Nos.
• Screw Driver Set and Plier	: 1Nos.
7 Testing and Measuring Instruments	
• Master Software Tools (MST) CD Disc	: 1Nos.
• Rechargeable Li-Ion Battery (Li-Ion, 7.5 Ah)	: 1Nos.
• AC-DC Adapter	: 1Nos.
• Automotive Cigarette Lighter 12 V DC Adapter	: 1Nos.
• USB A-type to Mini USB B-type cable, 3.05 m (10 ft)	: 1Nos.
• Ethernet cable, 2.13 m (7 ft)	: 1Nos.
• VNA Master Technical Data Sheet	: 1Nos.
• Three Year Warranty (Including battery, firmware, and software)	: 1Nos.
• Certificate of Calibration and Conformance	: 1Nos.

