



Astra Microwave Products Ltd.

MIC Facilities

**Leading High Frequency (Microwave)
Printed Circuit Boards manufacturer**

**Aero Space AS9100D Certified
ISMS-ISO/IEC 27001:2022 Certified Facility and
LCSO & Space Approved Facility**

- ▶ We have in-house facility – Exclusive to process PTFE Laminates for High frequency Circuits.
- ▶ Established in Nov 2005 As R&D Process unit.
- ▶ As on date it was Expanded to 1800 sq mtrs Independent Building with necessary utilities.



Key Features of the Facility

Separate process area for:

- Defense: Projects/Circuits Processing
- Space: Projects/ circuits Processing
- Thin film Processing: Alumina Substrates processing
- Handling different size of panels:
50mm x 50mm to 2.5meter x 500mm

Separate process area for:

- Defence: PTH – 50mm x 50mm to 1000m x 300mm
Non PTH – 50mm x 50mm to 2mtr x 0.35mtr
- Space: PTH – 50mmx 50mm to 150mmx 150mm
Non PTH – 50mmx50mm to 200mmx200mm
- **Thin film Processing:** 1''x 1'' to 2''x2''

Capabilities for Planner Antennas Fabrication

(A) In Photo Film development:

- Maximum length of Film : 1.0 meter
- Maximum width of the film: 400 mm
- Accuracy at Film Level : +/- 20 microns
(Internal dimensions)
- Accuracy at block Length in film : +/- 50 microns
- Accuracy over one meter Length : +/- 500 microns
- Min. Line width achieved : 0.090 +/- 0.005 microns

Capabilities – for Space Qualified Printed Circuit Boards

- Drilling: Min. dia. 0.25mm (10 mil substrate)
Min dia : 0.8mm (Above 10mil)
- Copper Plated Through Holes:
Min dia of hole: 0.25 mm
Cu Plating thickness: 25μ(min)
- Gold Plated Through Holes:
Min dia of hole: 0.25 mm
Cu Plating thickness: 25μ(min)
Gold Plating thickness: 3-4μ
- Minimum Space/Gap on:
18 μ thick copper: 70 μ
35 μ thick copper: 100 μ
- Minimum Line width on:
18 μ thick copper: 80 μ
35 μ thick copper: 100 μ

(A) Typical specs achieved for Antenna boards:

- Maximum Length of the Circuit: 1.0 meter
- Maximum width of the Circuit: 400 mm
- Accuracy in Etched Pattern: +/- 40 microns
(Internal dimensions)
- Accuracy at block Length in Circuit: +/- 50 microns
- Accuracy over one meter Length: +/- 500 microns
- Min. Line width achieved: 0.090 +/- 0.010microns

CNC Drilling M/C



- Make: Posalux Ultra G line
- No. Stations: 6 no's (4 Drilling + 2 Routing)
- Panel size: 24' x 18'
- Rpm: 1,80,000 (Drilling) + 1,20,000 (Routing)
- Min Drill dia: 0.25 mm

Copper Plating Line



- Make: M/s Fampl, Bangalore
- Panel size: 18' x 18' (600 mm x 450 mm)
- Filter units for Cleaner conditioner, micro etch & catalyst
- Chemistry: Marshall Laboratory, Pune

Electrolytic Gold Plating Line



- Make: M/s FAMPL, Bangalore
- Panel size: 10' x 10' (250mm x 250 mm)
- Chemistry: Marshall Laboratory, Pune

Dry Film Photoresist Laminator



- Type: Hot roll
- Roller width: 610
- Panel thickness: 2 mil to 5 mm

Etching M/c



- Make: FAMPL & TECH MASTERS
- Panel Width: 305 mm & 610 mm

Inspection Facility – Profile Projector



- Model No: Nikon
- Bed size: 250 mm x 150 mm
- Accuracy: +/- 1 microns



CNC Routing M/C



- Make: Walter lemmon
- Model: CCD-S
- No. Stations: 1 no's
- Panel size: 300mm x 450mm & 500mm x 1000mm
- Rpm: 60,000

Electrolytic Copper Plating line



- Make: M/s Fampl, Bangalore
- Panel size: 24' x 18' (610 mm x 450 mm)
- 15 Deg Cross Oscillation/ Educator Systems with Chiller
- Chemistry: Marshall Laboratory, Pune

UV Exposures – in Class 1 Lack Clean Room



- Type: Reflector type (Double sided)
- Frame size: 610mm x 610mm
- Light Capacity: 2 & 5 kw
- Type: Scanning (Single sided)
- Frame size: 1000mm x 1000 mm & 2.5 meter x 500 mm
- Light Capacity: 2 & 5 kw

Developing M/c



- Make: FAMPL
- Panel Width: 305 mm & 610 mm

Micro section facility

- Make: Buhler

Dielectric with standing voltage tester

- Make: Shivanad electronics, Bombay

Insulation resistive tester

- Make: Shivanad electronics, Bombay

Space Qualification:

Our Facility is qualified for

- Planar antennas
- PTH Circuits
- Non PTH Circuits

PTH Circuits

Participated Projects:

- Kautilya

Planar Antennas

Participated Projects:

- RISAT
- G-SAT Communication – DGR antenna
- GISAT, DMSAR, NISAR

Non PTH Circuits

Participated Projects:

- C-trim, S-trim, Cal switch matrix, SSPA, Down converter, Ka band LNA





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- Rpm: 60,000

Multi-Layer Press Machine



CNC Routing Mission

Technical Specifications:

- No. of Spindle: 1
- RPM: 60K
- Panel size: 600 x 500 mm

- Material: PTFE, Metal backed PTFE
- Metal back Thickness: 5 mm max



Multilayer Press

Technical Specifications:

- Make: HML , Germany
- Model: LP 100-2 VK
- No. of Openings: 2
- Hot Plate size: 600x 700 mm
- Lamination panel size: 560x 650 mm
- Max Temperature: 400 Deg C

Processing capabilities:

- Hybrid Multilayer
- No of Layers : 8

Combination of Hybrid Multilayers Processed:

- A) FR4 + Ro 4350 Combination
- B) RT5880 + RO3003 Combination
- C) Kappa 438 + Ro 4350
- D) TMM3 –Multilayer
- F) RT6035 HTC---Multilayer
- G) RT 6010 + Rt6002
- H) RT 5880 +5870
- A) TMM3 +4350
- B) RT5880 +RT 6002



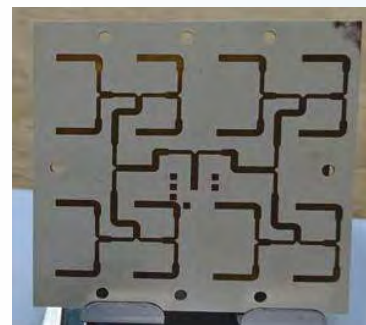
RT 5880+R03003+R04350



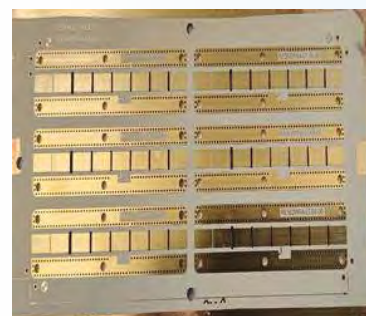
Embedded Filters



TMM3 MLB



RT 6010+RT 6002



RT 6035 HTC-MLB