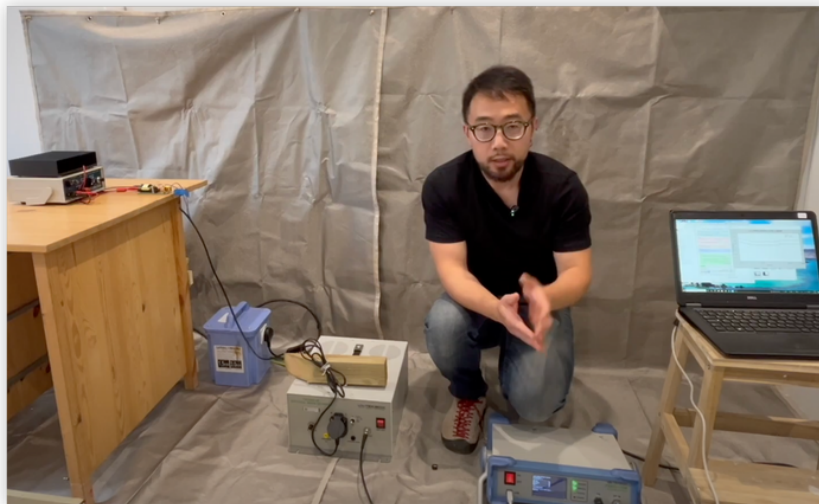
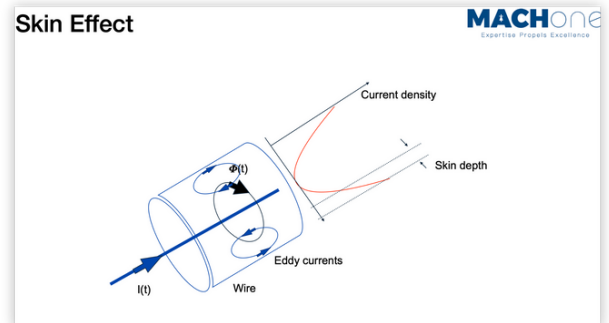


SYLLABUS OVERVIEW

DAY 1

EMC & SIPI Fundamentals

- Electromagnetic Compatibility
- Emissions & Immunities (Susceptibilities)
- Introduction to dB
- Coupling Mechanisms
- Skin Effect & Impedance
- Stray Inductance & Capacitance
- Resonant Structures
- Switching Frequency vs Switching Speed
- Near-Field vs Far-Field Basics
- Frequency vs Time Domain
- Reciprocity Theorem
- Energy Flow in Field View
- Differential Mode & Common Mode



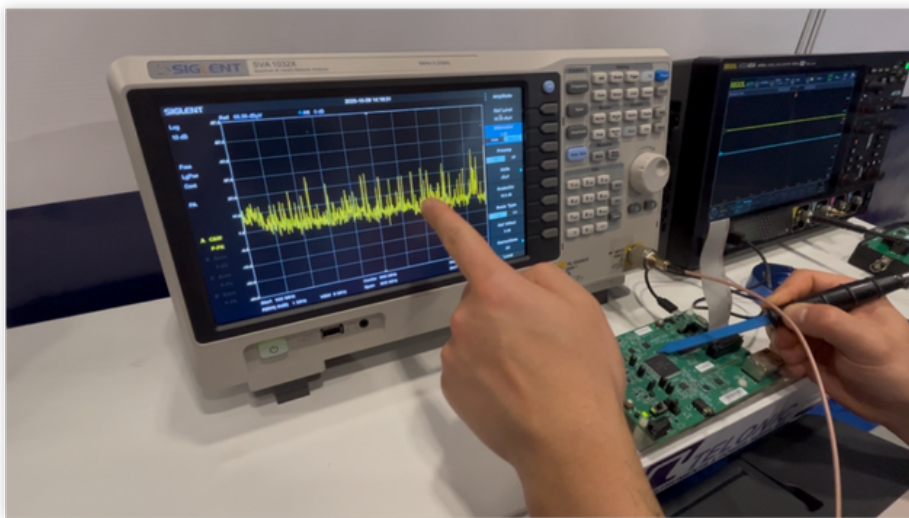
EMC, EMI & Test Basics

- EMC vs EMI
- Integrated Vehicles vs Consumer Products
- EMC Testing Fundamentals
- Test Facilities Overview
- Harmonics & Flicker
- Conducted & Radiated Emissions
- Antenna Basics: Half- and Quarter-Wavelength Antennas, Electrically Short Wires
- Immunity Testing
- Common Lab Testing Errors

DAY 2

Transmission Line Basics

- Time-Domain Transmission Lines (Step Function Analysis)
- Frequency-Domain Transmission Lines (Understanding VSWR)
- Cable Impedance
- Common Mode Impedance PCB Layout Fundamentals
- Grounding Strategies
- Near-Field Coupling & PCB Applications
- Layer Stack-Up Design
- Heatsinks & Grounding Considerations



Cables & Connectors

- Twisted Pair, Ribbon Cables, Flexi-Links
- Common Mode vs Differential Mode
- Transmission Line Effects
- Screened Cables
- Surface Transfer Impedance
- Screen Connections

Shielded Enclosures

- Shielding Theory & Limitations
- Apertures & Seams
- Conductive Gaskets
- Waveguide Beyond Cutoff, Meshes
- Shielded Windows & Conductive Coatings
- Enclosure Partitioning
- Bonding Impedance
- Installation & Maintenance Best Practices

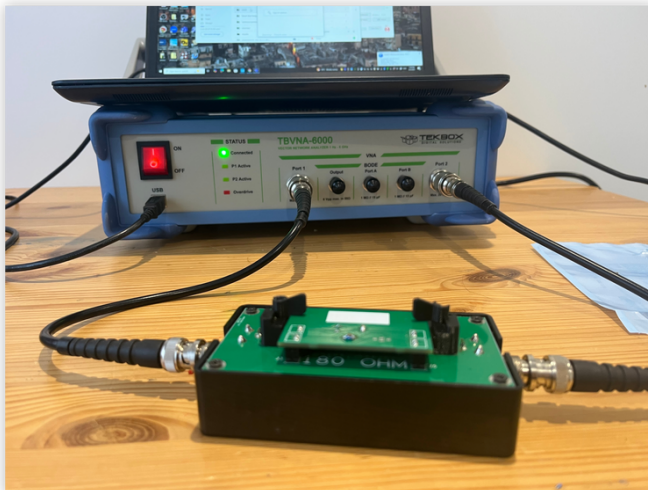
DAY 3

Filters

- Insertion Loss
- Differential Mode (DM) and Common Mode (CM) Filters
- DM-CM Conversion
- Filter Layout Techniques
- Ferrite Cores & Ferrite Beads
- Transient Protection Strategies

Switched-Mode Power Supplies & Motor Drives

- DM Noise Suppression Techniques
- CM Noise Suppression Techniques
- Real-World Case Studies



Digital & Analog Circuit Design

- Power Distribution Network (PDN) Design
- Capacitor Layout Best Practices
- Robust Analog Circuit Design

Demonstrations and interactive quiz are part of the training programme.

For any inquiry, please contact us at: info@mach1design.co.uk