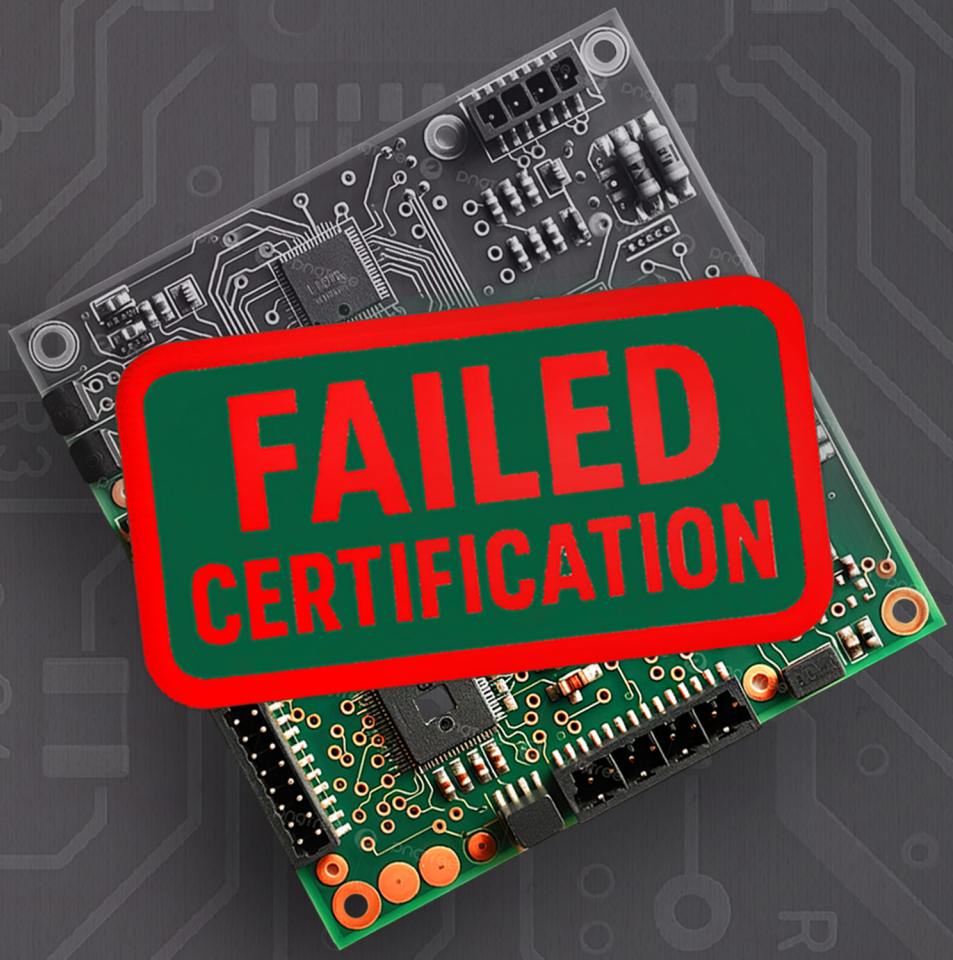
PREDICTABLE DESIGNS

PCB CERTIFICATION MISTAKES



MISTAKE #1: Ignoring EMC in Your Layout

- Run high-speed signals over a continuous ground plane to prevent them from acting as antennas.
- Avoid fragmented ground planes and maintain a low-impedance return path.
- Use proper power input filtering (ferrite beads, bulk capacitors, LC filters).
- Minimize loop areas in switching regulator layouts.

MISTAKE #2: Relying on a Two-Layer Board Without a Solid Ground Plane

- Use a four-layer PCB with a dedicated ground plane for reduced emissions.
- Avoid ground traces or fragmented copper pours for critical signals.
- Maintain continuous return paths under high-speed traces.

MISTAKE #3: No Shielding or Filtering on External Interfaces

- Add ferrite beads, ESD protection, and common-mode chokes to external ports.
- Ensure good return paths for all interface connections.
- Test the board with all cables connected to detect emissions issues early.

MISTAKE #4: Thinking You're Only Certifying the PCB

- Test the final assembled product, including the enclosure and cables.
- Account for enclosure effects on emissions and immunity.
- Ground metal enclosures properly to avoid unintended antennas or resonance.

MISTAKE #5: Poor Antenna Placement or Grounding

- Follow reference layout and clearance requirements exactly.
- Avoid placing antennas near ground fills, metal parts, or noisy components.
- Leave recommended keep-out zones clear of traces and copper.

MISTAKE #6: No Shielding or Filtering on External Interfaces

- Maintain proper creepage and clearance distances for high-voltage circuits.
- Avoid routing across isolation boundaries.
- Remove copper under isolation areas to meet safety standards.

MISTAKE #7: Placing Noisy Components Near Sensitive Traces

- Physically separate noisy digital or switching circuits from sensitive analog/RF areas.
- Use shielding for sensitive sections where possible.
- Avoid routing noisy signals near antennas or analog paths.

For Entrepreneurs and Startups:

Develop and launch your electronic product FASTER

without costly mistakes!

Doing it alone is slow and risky. Small missteps now can become big problems later. Skip the mistakes and launch faster.

Frustrated things aren't moving as fast as you want?

Feeling unsure what to do next?

Meet your guide: John Teel

Hey there, I'm a former microchip design engineer at Texas Instruments and founder of a hardware startup that sold products in hundreds of retail stores. My chip designs are in devices from Apple, Intel, and more.

Now, my full-time focus is helping people like you bring new electronic products to life, without wasting time, money, or risking everything.

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