Success Story 1 : NFC Wave Absorber Solution

Project: Chunghwa Telecom “Flower Amber” NFC Keychain

Background & Challenge

- Integration: Combined EasyCard, iCash, and Bluetooth.
- Issue: Bluetooth antenna caused a frequency shift from 13.56MHz to 16-20MHz.
- Problem: Failed strict 4cm reading tests for 7 major card reader types.

Key Achievements

- 100% Compliance: Passed all 7 card reader compatibility tests.
- No Redesign: Fixed physical interference without PCB or casing changes.
- Speed to Market: Rescued the product life cycle during a critical crisis.

Solution Comparison

Bottlenecks	Traditional Limits	Our Solution
Strict Standards	Failed 4cm reading test	**Precision Tuning:** Returns 16MHz+ shift to **13.56MHz**.
Frequency Shift	Resistor tuning is limited	**Wave Guiding:** Strengthens **13.75–13.85MHz** signals.
Metal Conflict	High signal interference	**Refocusing:** Absorbs noise to ensure **4cm** success.

Success Story 2 : WPC Qi Module Certification

Key Material: High-Quality Wave Absorber for Wireless Charging

Overview

- The Challenge: Metal interference and energy loss in wireless charging.
- The Achievement: Enabled the world's first manufacturer to obtain WPC Qi certification for TX & RX modules.
- The Value: A "golden key" for brands to quickly enter the wireless charging market.

Technical Advantages

- Lower Barriers: Integrated absorbers reduce costly, repetitive testing.
- Thermal Stability: Physical properties remain stable during continuous charging.
- Custom Service: Precise cutting and thickness matching for any coil size (TX/RX).

Solutions & Results

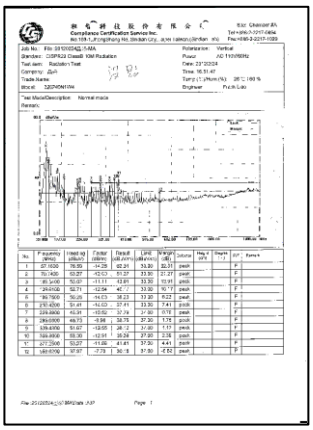
Challenges	Absorber Solutions	Results
Energy Loss & Heat	**High Permeability:** Guides magnetic lines to boost efficiency.	**Max Efficiency:** Superior performance with stable temperature control.
Metal Interference	**EM Shielding:** Creates a physical barrier to eliminate interference.	**Qi Certified:** Easily passed strict WPC testing standards.
Ultra-Thin Needs	**Flexible Material:** Ultra-thin specs that add zero bulk to products.	**Perfect Integration:** Ideal for slim phone cases and battery covers.

Success Story 3: IPC EMI Prevention

Rapidly Passing Radiated Emission Tests

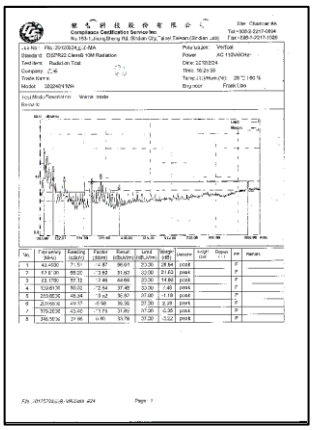
Before

Electromagnetic Intensity Spectrum



After

Electromagnetic Intensity Spectrum



Background & Strategy

- Challenge: IPC high-load environments cause severe EMI, leading to failed international radiation standards.
- Strategy 1 (Placement): Apply absorbers to FPC/FFC and Core Chips to block radiation paths.
- Strategy 2 (Suppression): Lower the Noise Floor by converting EM energy into thermal energy.
- Strategy 3 (No Redesign): Direct application on existing structures; avoids costly PCB or Mold changes.

Application Benefits

- Time-to-Market: Prevents delays caused by repeated design revisions.
- Reliability: Enhances system stability by reducing internal interference.
- Cost-Effective: A more flexible and lower-cost solution than metal shielding.

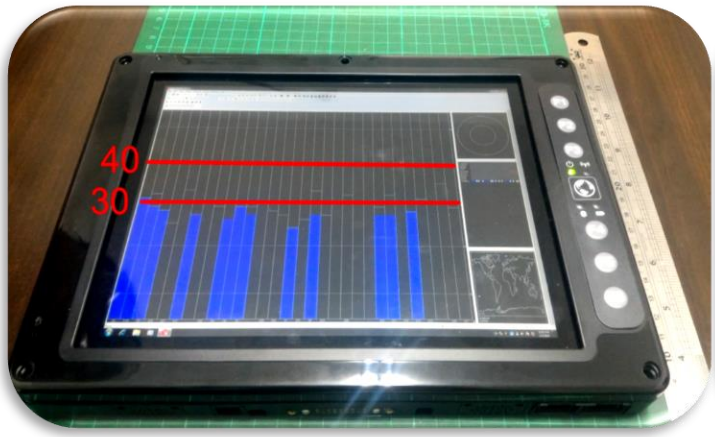
EMI Test Performance

Test Items	Before Treatment	After Treatment
Radiated Emission	Multiple spikes exceeding limits (Red Line).	**Significant drop** in all bands with ample **Margin**.
Compliance	**Fail:** High risk of product recall or delay.	**Pass:** Meets strict industrial-grade certifications.

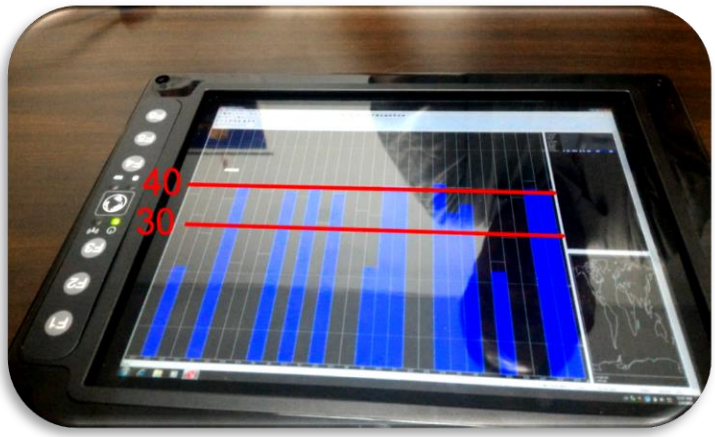
Success Story 4: GPS Performance Boost

Eliminating High-Frequency EMI Noise

Before--GPS Satellite Signals



After--GPS Satellite Signals



Background & Strategy

- Challenge: Internal EMI noise "drowns out" weak GPS signals.
- Detection: Used Near-Field Probing to pinpoint noise sources.
- Strategy 1: Applied absorbers to antenna bottom/sides to block PCB noise.
- Strategy 2: Added top-side reinforcement to absorb reflected waves.

Key Benefits

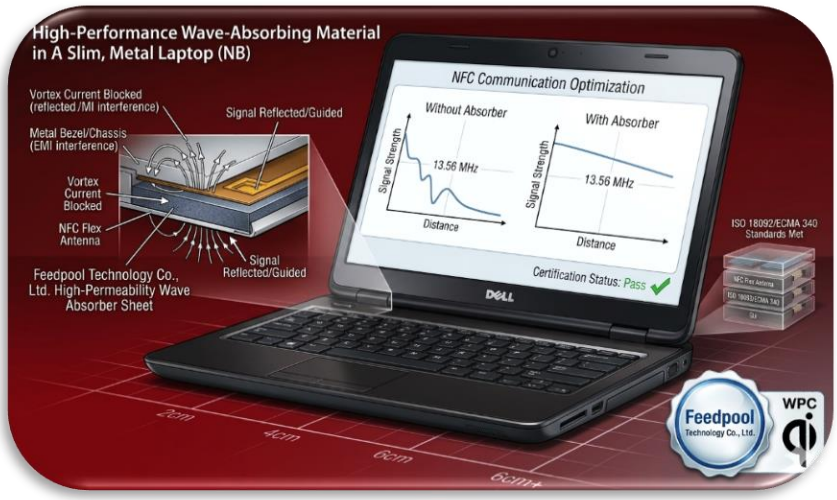
- Faster Lock-on: Significantly shortened TTFF (Time to First Fix).
- High Precision: Maintains stable centimeter-level potential in noisy environments.
- Easy Assembly: Self-adhesive foam supports automated production.

Performance Comparison

Items	Before (Poor)	After (Optimized)
Signal Strength	Weak signals **< 30dB**; heavy interference.	Significant boost; exceeds **40dB** threshold.
EM Environment	High noise **(100MHz–1GHz)** filling the device.	Noise absorbed; provides **clean environment** for antenna.

Success Story 5: NFC Solution for Slim Laptops

High-Performance Absorbers for Metal Environments



Project Background

- The Issue: Metal chassis and batteries create eddy currents, interfering with 13.56MHz signals.
- The Result: Drastically shortened reading distances or total detection failure.
- Our Fix: Integrated absorbers to enable fast pairing and secure authentication.

Key Benefits

- Seamless Pairing: Enhances "Tap-to-Pair" sensitivity; no PIN entry required.
- Enhanced Security: Ensures clean RF for Device Authentication (prevents MITM attacks).
- Better UX: Increases success rates; reduces the need for repeated angle adjustments.

Solutions & Results

Challenges	Solutions	Results
Eddy Currents	**Absorber Sheet:** Placed between antenna and metal to guide magnetic lines.	**Stable Range:** Maintains **5-10cm** reading distance in metal environments.
Extreme Space	**Ultra-thin (0.05-0.1mm):** Flexible material that fits tight spaces.	**Perfect Fit:** Easily embedded into slim bezels or battery gaps.
Multi-band Noise	**Wideband EMI Absorption:** Boosts 13.56MHz while suppressing high-band noise.	**Certified:** Passed **ISO 18092** and **EMV** certifications.

Success Story 6: Payment Terminal Security

Precision Absorbers for Top-Tier Global Certifications

Project Overview

- The Device: AS320 high-end terminal (GPRS, IP, Dial-up).
- The Challenge: Compact design with dense wireless modules caused EMI issues.
- Goal: Maintain stable card reading to pass strict PCI PED and EMV certifications.

Key Benefits

- Signal Purity: Enhances transaction speed and accuracy in busy retail environments.
- Secured Data: Protects sensitive transaction data from external noise interference.
- Durability: Reliable performance across various commercial environments without aging.

Solutions & Values

Challenges	Solutions	Values
Multi-band EMI	**Wideband Tech:** Suppresses harmonic interference across frequency bands.	**Uninterrupted:** Zero conflict between wireless transmission and card reading.
Certification	**High-Permeability Shielding:** Absorbs leaked EM waves and reduces scattering.	**Rapid Approval:** One-time pass for **EMV L1 & L2** certifications.
Compact Space	**Ultra-thin Flexible Material:** Perfectly fits the housing without adding bulk.	**Design Flexibility:** Maintains a sleek, lightweight, and ergonomic product design.

Success Story 7: AS210 Reader Stability

High-Performance Absorbers for Stable Transactions

Project Overview

- The Device: AS210 compact, high-speed reader.
- The Challenge: Internal EMI in tight spaces hindered 13.56MHz performance.
- The Solution: Specialized absorbers significantly boost transaction success rates.

Key Benefits

- Ultra-Thin: Fits perfectly into AS210 hidden-wiring aesthetics.
- High-Speed: Ensures stable 848 kbps data transmission.
- Dual Compatibility: No interference with USB or RS-232 signals.

Solutions & Results

Challenges	Solutions	Results
Signal Noise	**Precision Absorption:** Cleanses **13.56MHz** signal.	**Zero Error:** Precise support for **MIFARE/FeliCa**.
Metal Surfaces	**EM Shielding:** Blocks signal attenuation from metal desks.	**Adaptability:** Long-range reading in any environment.
Stability Risk	**High-Permeability:** Protects **CPU** from HF noise.	**High Reliability:** Smooth transactions; zero system crashes.