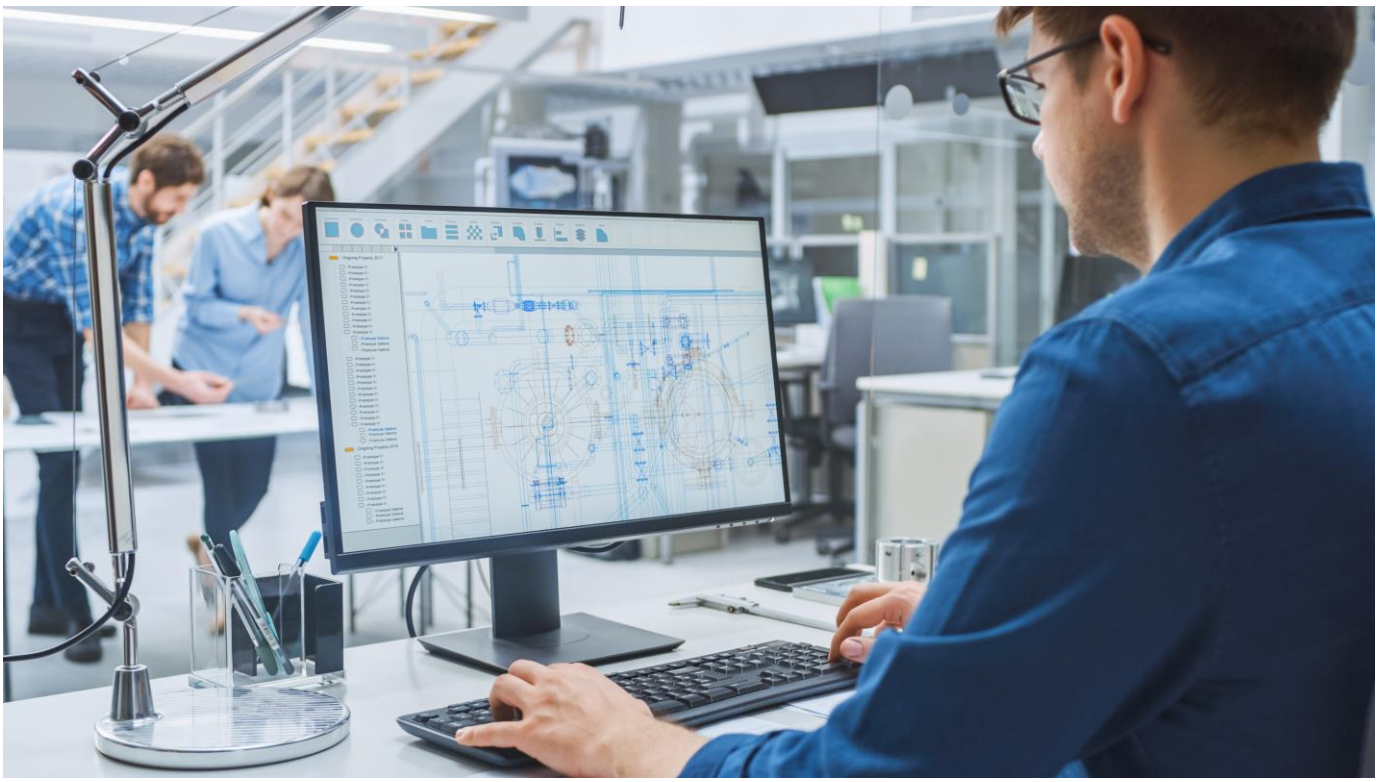
Microwave Factory

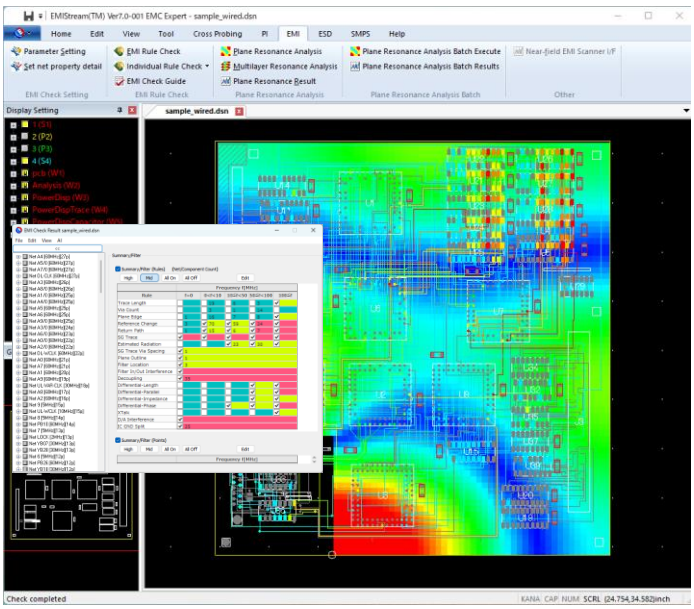
CORNES
RF ENGINEERING

EMI Suppression Support Tool

EMIStream

Reduce the Noise - Optimize Design





Microwave Factory Co., Ltd. (MWF) and NEC Solution Innovator Co., Ltd. (NEC Solution Innovator) have agreed to merge NEC Solution Innovator's DEMITASNX into the MWF EMC business unit. The acquisition date is scheduled for April 1, 2026.

Includes EMI Rule Check function verified by research institutes around the world and Power/Ground Resonance Analysis function.

EMI suppression measures for maintaining consistently high quality in PCB design.

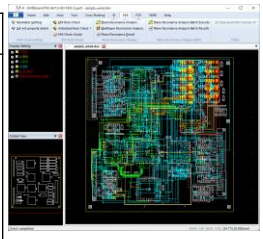
In the face of even stricter standards and regulations for undesirable electromagnetic waves, EMI suppression measures for equipment have become an important issue for improving system quality. EMIStream includes a Rule Check function and a Power/Ground Resonance Analysis function to suppress undesirable electromagnetic waves at the PCB design stage for enabling shorter development times and lower costs for suppression measures.

We are pleased to announce that Microwave Factory Co., Ltd. has taken over the development, support, and sales operations of EMIStream from NEC Solution Innovators, Ltd., effective April 2026.

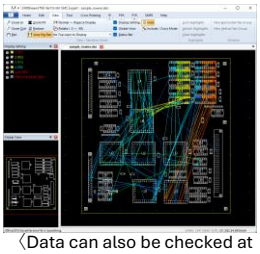
EMI Rule Check Function

This function identifies the component placement, trace, and plane areas that cause EMI and proposes suppression measures for these areas. The rule check items in EMIStream were carefully selected because of their strong theoretical basis for generating EMI and were verified by NEC's research laboratories and by universities around the world based on a vast knowledge base of past EMI suppression measures. This was used to narrow down to 15 key design items

Key EMI Rule Check Items	
①Trace Length	⑨Grounding Vias Along Plane Outline
②Via Count	⑩Filter
③Reference Change	⑪Decoupling Capacitor
④Return Current Path Discontinuity	⑫Differential Signal
⑤Traces Near Plane Edge	⑬XTalk
⑥Estimated Radiation	⑭Digital/Analog Interference
⑦SG Trace	⑮IC Ground Split
⑧SG Via Spacing	



〈Data check after tracing〉

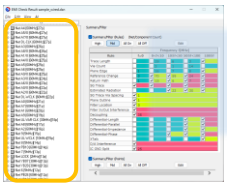


〈Data can also be checked at the placement review stage〉

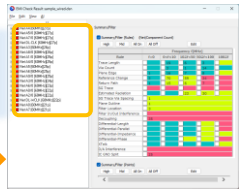
AI display function

An AI engine, which incorporates the know-how of EMC experts, detects and displays errors cited as important by the experts. This function is used to detect fatal errors.

EMI rule check result



Narrowing down to critical errors



(Error screening function)

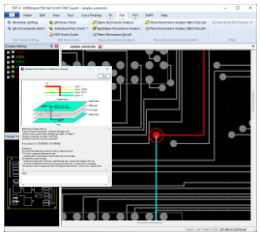
Check result report function (option)※

*Included as standard in EMIStream EMC Expert

This function export the error details and correction procedures to an Excel file, which can be used As a design correction instruction.

EMI rule check advice function

This function lists the nets containing large numbers of EMI rule check errors in order. Error marks are displayed at each error location in the nets for enabling the user to visually assess the problem areas. For each error location, the error details are explained using pictures and text,and the proposed corrective action for the error is also provided.



ESD Rule Check Function (Option)

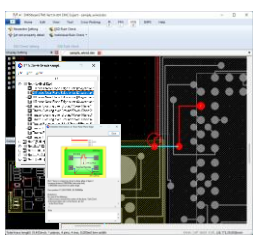
The ESD rule check consists of 10 rule check items for detecting areas on the PCB where ESD noise problems are likely to occur and provides advice on how to correct them. Based on the ESD suppression measures developed from real-world cases by high-tech companies and research institutes around the globe, NEC Laboratories verifies the results of the check and determines the check contents and threshold values.

Check groups with proven result

- Signal trace check group
  This detects structural problems in signal lines that are susceptible to ESD noise
- Suppression measure component placement validity check group This identifies missing ESD suppression measure components and their improved placement.
- Frame ground (FG) pattern check group
  This identifies structures that increase ESD noise in the FG pattern by acting as an ESD current discharge path.

Error locations display and advice

This function lists the nets containing large numbers of ESD rule check errors in order.
Error marks are displayed at each error location in the nets for enabling the user to visually assess the problem areas.
Also, for each error location, the error details are explained using pictures and text, and the proposed corrective action for the error is also provided.



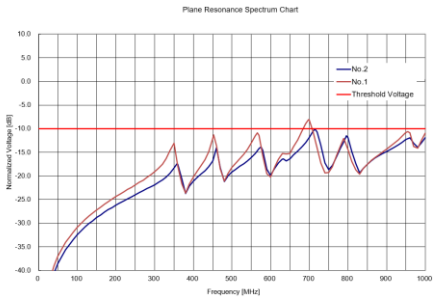
EMIStream
Reduce the Noise - Optimize Design

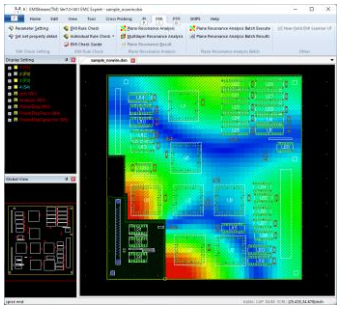
EMIStream Features

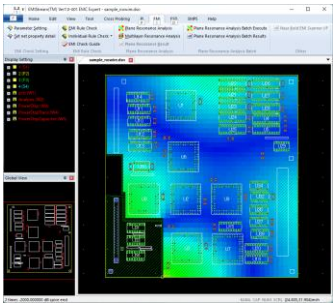
- Enables checking and analysis with just simple settings without the need for electrical libraries.
- Error screening function allows easy detection of key correction items for suppression measure.
- EMI suppression measures can be incorporated in the early design stages for enabling rapid time-to-market.
- High-speed calculations allow quick identification of harmful locations where EMI occurs.
- Automatically performs design checks that used to be done manually.
- Functions that calculate radiated electric field values and other features enable confirmation of EMI phenomena specific to the product.

Power/Ground Resonance Analysis Function

This function analyzes resonance between the power supply and ground plane, which is a major cause of EMI. The analysis results can be confirmed frequency characteristics and volage distribution. The frequency characteristics allow the user to confirm the harmful frequencies and the magnitude the resonance voltage. In the voltage distribution display, locations with large resonance voltages are indicated in warm colors, making it easy determine the placement of suppression measure components. The automatic capacitor placement function automatically places capacitors of the optimum capacitance at the appropriate locations.

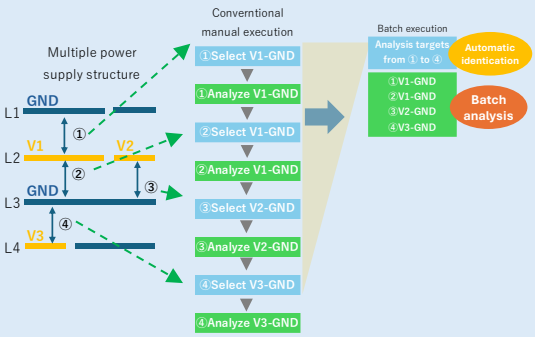






Resonance Analysis Batch Execution Function

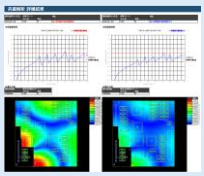
This function automatically identifies power-ground pairs within a board to automate analysis of multiple power supply boards.



Generation FuncReporttion (Option)*

*Included as standard in EMIStream EMC Expert

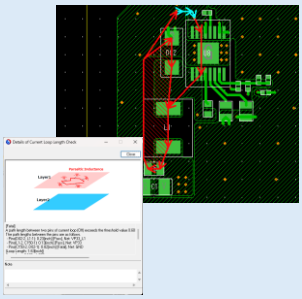
This function can generate a report file of the standard analysis results.
A report can be created that collects multiple analysis results, including analysis results before and after plane resonance suppression measures and the analysis results of each power supply in the board.
The report can be used as evidence of the resonance suppression effect from plane resonance suppression measures and the results of resonance analysis for each power supply plane.



Switching Power Supply Check Function (Option)*

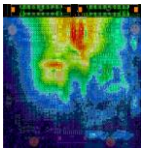
*Included as standard in EMIStream EMC Expert

This function is used to visualize the current paths in power circuits and to assist in layout design for suppressing noise generation and diffusion based on 9 design rules.



Magnetic field probe scanner interface (MP I/F) : Noise visualization system link (option)

Measurement results of radiated noise captured by Microwave Factory's ESD Visualization System (MECVS) can be imported into EMIStream. This data can then be overlaid with PCB CAD data and displayed on the frequency axis. This integration allows for a seamless end-to-end verification process using Microwave Factory products.
This makes it easier to pinpoint problematic areas (components, patterns, pins, etc.). Furthermore, it is possible to identify noise sources and problem locations not only on the measured surface but also within internal layers and on the reverse side.



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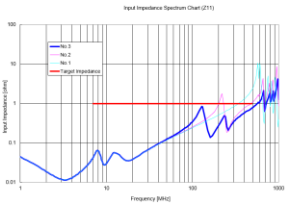
Power Integrity Analysis Function (Option)

This function analyzes power integrity (PI), which has been attracting growing attention in recent years. This function can examine the location and value of capacitors to prevent IC malfunctions. This enables capacitor design that takes into account both EMI and PI.

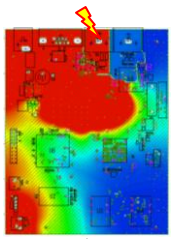
■ Input impedance analysis

S-Parameter is used to analyze the input impedance between the power supply and ground on the IC. This enables checks of whether the design meets the target impedance provided by the IC vendor and enables capacitors to be added automatically as a corrective measure.

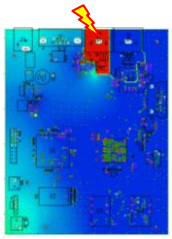


■ Transfer impedance analysis

This function calculates the transfer impedance of noise and displays harmful areas using gradations.
ESD noise propagation can also be confirmed.



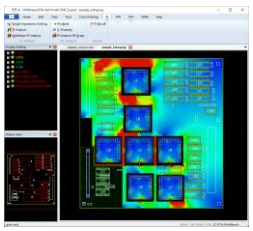
Short-circuit (1-point connection)



Bead connection

■ DC analysis (IR drop)

This function analyzes the voltage drop value and current density at any point on the plane from the power supply module (voltage regulator module) position based on the current usage value of the IC.



Product System

Overview	Feature	Standard Edition	Expert Edition	Description of Functions
Base Modules	EMI Check	● Standard	● Standard	Detects EMI sources based on component placement, routing, and plane shapes.
	Resonance Analysis	● Standard	● Standard	Analyzes resonance between Power and Ground.
	Safety Measures	● Standard	● Standard	Checks clearance distances and exports the ground area ratio under LSIs to Excel.
Advanced Analysis	Multi-layer Resonance	×	● Standard	Resonance analysis considering vias and Power-GND planes across multiple layers.
	Detailed Radiated Emission	×	● Standard	Displays graphs of differential and common mode radiation results; analysis conditions are adjustable.
	Far-field Calculation	×	● Standard	Verifies far-field characteristics from radiated electric field properties and azimuth patterns.
Efficiency & Accuracy	Report Generation	△ Option	● Standard	Automatically generates report of EMI check and resonance analysis results in Excel format.
	2-layer Board EMI	△ Option	● Standard	EMI check specialized for 2-layer printed circuit boards.
	Switching Power Supply Check	△ Option	● Standard	Visualizes current paths in power supply circuits and performs DRC checks.
	High-speed Engine(GEARSPICE)	△ Option	● Standard	High-speed, high-performance analysis engine (for resonance analysis).
Additional Add-ons	PI Analysis	△ Option	△ Option	Analysis functions for Power Integrity (PI).
	ESD Check	△ Option	△ Option	Detects areas susceptible to ESD noise injection.
External Integration	CAD I/F	△ Option	△ Option	Imports data from various third-party layout CAD tools.
	MP I/F	△ Option	△ Option	Function to import near-field measurement results.
	Data I/O	△ Option	△ Option	Converts EMIStream data into formats for various other tools.

Operating Environmant

OS	Windows11　64bits
CPU	Intel Core i3 or higher
Memory	1GB or more
Storage	System: 200MB + Data storage (200MB or more recommended)
Others	Microsoft 365　Apps for enterprise

Support Layout CAD

Cadence Design System	Allegro / OrCAD
ZUKEN	CR-8000 Design Force / CR-5000 Board Designer / CADVANCE
Siemens	Xpedition / PADS Layout / Board Station
Altium	Altium Designer
Others	CAD supporting ODB++ output

For inquiries,please contact

CRFE EMIStream Contact
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We support your power!!
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As of April 2026