

NRF-005T

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 **oyaide**
NRF-005T

Oyaide Elec. has launched a new noise suppression tape, NRF-005T, using PULSHUT® (highly functional non-woven fabric) developed by Asahi Kasei Corporation.

PULSHUT® is a revolutionary noise suppression material that does not use any magnetic materials, and suppresses electromagnetic noise and radiation noise generated by AV equipment and cables, enabling reproduction of sound closer to the original sound.

Oyaide Electric has commercialized the MWA Series of sendust alloy-based electromagnetic wave absorbers, which have been very well received as long-selling products. In order to meet the needs of today's high-frequency noise-sensitive market, we have started to develop a new noise suppression material, NRF-005T, with the aim of achieving even higher performance.

Our focus is on avoiding "no fish in fresh water". This is because audio accessories that claim to absorb noise can filter out the nuances and realism that should be present in music and video without careful design, and can cause them to lose their vitality.

NRF-005T solves the dilemma between noise reduction and original sound fidelity, providing a groundbreaking and innovative product for all audiophiles.

■ PULSHUT® 5 features

1. High performance non-woven fabrics that do not contain any magnetic material.
2. Effective against noise in a wide frequency range from MHz to GHz bands.
3. Substrate is as thin as 0.05 mm and extremely lightweight.
4. Excellent flexibility and can be attached to uneven surfaces.
5. Both the sheet surface and the cut surface have high insulation properties, so it can be attached to conductive surfaces.

■ What is "PULSHUT®" ?

高性能ノイズ抑制シート
PULSHUT®
 バルシャット



※PULSHUT®、バルシャット®は旭化成株式会社の登録商標です。

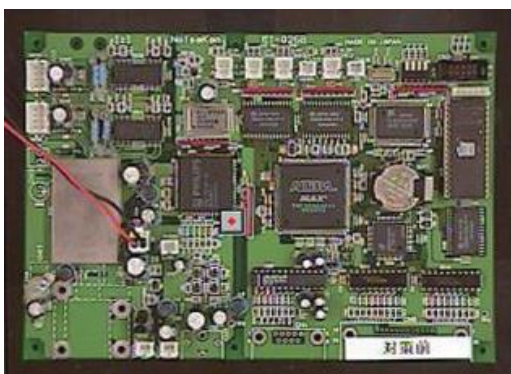
Conventional noise suppression materials have the property that the amount of noise suppression can be controlled by adjusting the magnetic material and the amount of magnetic material used. They have high magnetic loss characteristics and achieve their noise-absorbing effect by converting electromagnetic noise into heat. On the other hand, the impedance in certain frequency bands increases, which also affects the original sound waveform. This is similar to the properties of ferrite cores. This means that, as with EMC/EMI countermeasures, appropriate noise countermeasures were necessary for audio as well.

PULSHUT® is a highly functional non-woven fabric with a special surface treatment that provides high noise suppression performance despite its non-magnetic nature. This characteristic makes it possible to suppress only the noise component while minimising the effect on the original sound waveform.

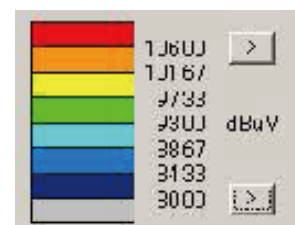
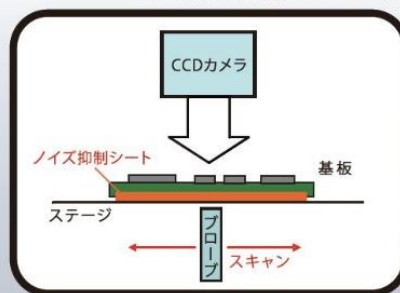
■ Performance of PULSHUT®

The noise suppression effect was verified by attaching PULSHUT® to a PCB (the one in the picture).

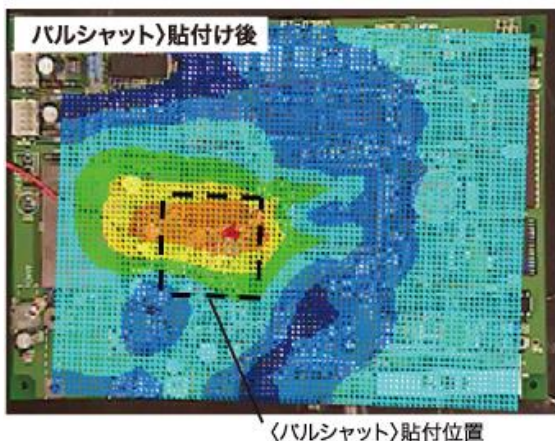
● Model PC board (measurement image)



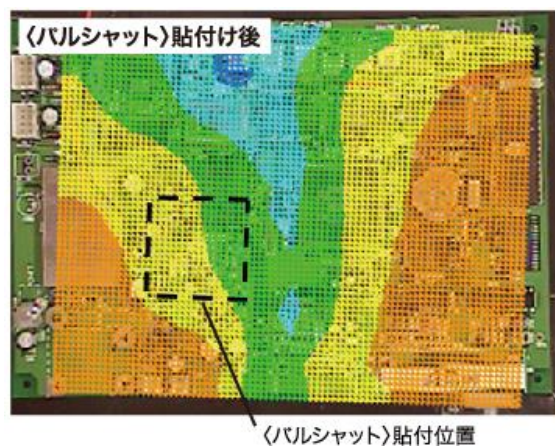
■ 測定イメージ【測定装置】ノイズ研究所製
ノイズ可視化装置 (ESV-3000)



● Magnetic field suppression effect * Observed frequency: 100-400 MHz

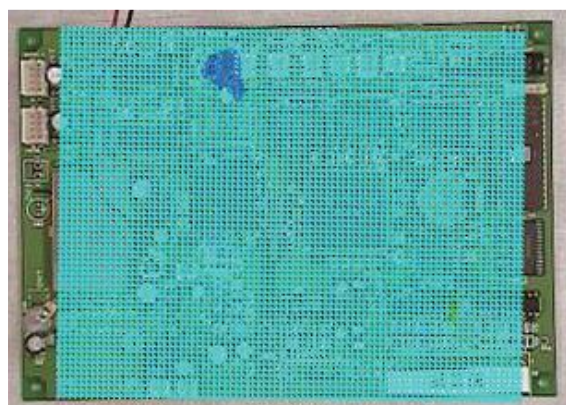


● Electric field suppression effect * Observation frequency: 250-700 MHz



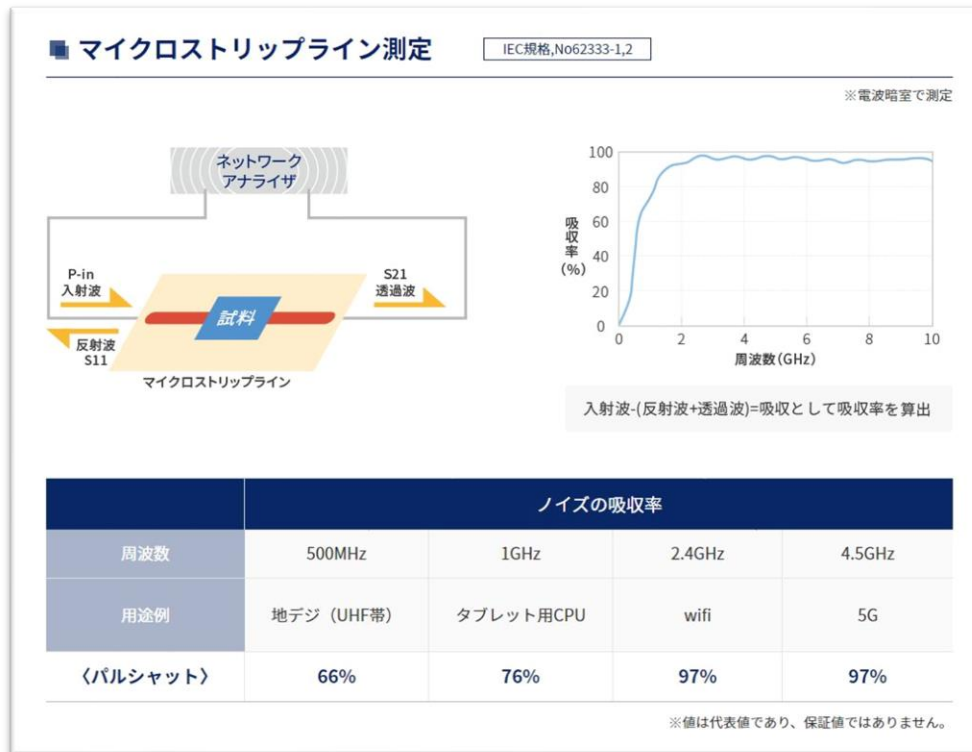
This confirms the suppression effect on "magnetic fields tied to the suppression of electric fields".

● Electric field suppression effect (full surface attachment.) *Observed frequency: 250-700 MHz.



The electric field suppression effect can be verified by attaching PULSHUT® to the entire surface of the board.

●Microstrip line measurement



At high frequencies above 2.4 GHz, an absorption rate of 97% is measured. This shows that it has the same high noise absorption characteristics as conventional noise suppression material quantities.

●Measurement of acoustic characteristics

In verification data on a related product called Asahi Kasei PULSHUT® MU (support changed to PP), which uses PULSHUT® as the base material, harmonic distortion analysis (1 kHz) showed that the energy levels other than signal waves were reduced by approximately 4.71 db, and pink noise analysis results showed almost no change in sound pressure levels. The pink noise analysis results showed almost no change in sound pressure levels.

These results show that PULSHUT® has a reduced effect on the original sound waveform and acts only on the noise component. *Measurement results are representative values and are not guaranteed.

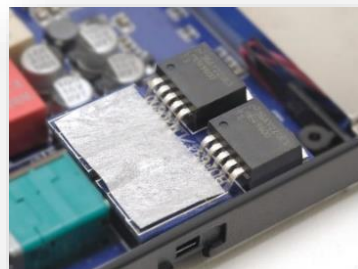
■The Differences between “NRF-005T” and MWA series

Oyaide Electric has the Sendust alloy-based electromagnetic wave absorber MWA Series, which has already been well received by customers. MWA Series is one of the excellent noise suppression materials widely used within Oyaide products as the key to sound quality adjustment.

PULSHUT® is a completely new noise suppression material and therefore has a number of characteristics that differ from those of MWA series. By determining the right material for the right job from the properties of each material and using them together in your own environment, they can contribute to improving the S/N and demonstrating the potential of your audio system.

	NRF-005T	MWA series
Noise suppression material	PULSHUT® by ASAHI KASEI Corp. (Special surface finish on high-performance non-woven fabrics)	Sendust alloy-based flat metal powder
Magnetism	Non-magnetic material	Magnetic material
Magnetic field suppression	△	○
Electric field suppression	○	○
Mechanisms	Thermal conversion of resistive losses *Not magnetic losses.	Thermal conversion of magnetic losses.
Volume resistivity	$\geq 1.0 \times 10^{12}(\Omega \cdot \text{cm})$ ※Highly insulating	$5 \times 10^6(\Omega \cdot \text{cm})$ ※The suppressor material is conductive.
Thickness	0.05mm	0.1mm/0.3mm/1.0mm
Density	0.8g/cm ³	69.3g/cm ³
Effect on the original signal	Almost unchanged irrespective of the amount used	Changes as use increases
Effect on the noise	The suppression effect increases with the amount used.	The suppression effect increases with the amount used.

● Recommended areas of use



NRF-005T	MWA series
Speaker Cable	AC Power Cable
Interconnect Cable	AC Power plug · IEC Connector
Digital Cable	Power strip
LAN Cable · LAN hub terminals	AC outlet
HDMI Cable	AC outlet cover
Phono cartridge · Headshell	IEC male Inlet
Speaker terminal / any audio jack terminals	AC power transformer
Audio interface	DC Power supply
Clock generator	
Electronic circuits on semiconductors and substrates which do not like magnetism	Electronic circuits in semiconductors and on substrates

※The effectiveness of both increases or decreases depending on the 'distance from noise sources'. It is recommended that they are mainly used by attaching them close to a contact point or conductor that could be a noise source.

※In both cases, the suppression effect varies according to the "amount of noise suppression material used", but because PULSHUT® mainly suppresses noise components, little change occurs when there is no noise to be suppressed.

※Noise suppression can also be achieved in locations other than those recommended. Try it on a variety of audio equipment without being bound by stereotypes.

■ Complies with the RoHS Directive and reduces environmental impact

The content of environmentally hazardous substances (lead, mercury, hexavalent chromium, cadmium, etc.) is below the limit of measurement and complies with the RoHS Directive.

■ Excellent noise absorption with easy use

Easy to use. High noise suppression effect is achieved by attaching it to the input/output terminals of audio equipment, around noise-prone areas, and to cables and plugs. The noise floor is lowered without deforming or distorting the waveform of the original sound, improving delicate expression with fewer incidental sounds. In addition, in video, the effect of reduced blurring of contours and sharper colors can be achieved. In sound quality, the S/N ratio is improved, the center of gravity is stabilized, the localized sound image is brought into focus, the sense of noise filling the air space is eliminated and the sense of sound field is expanded, while in video it contributes to tonal expression and improved colorations.

■ Flexible workability, cut and paste with scissors

Easily cut with scissors, etc., and has excellent flexibility, making it possible to affix to curved surfaces such as cables, etc. It has excellent processability and workability. The acrylic adhesive has reworkable adhesive strength, yet has sufficient holding power and can be reattached many times. PET resin is used for the support, which keeps a stable shape even after cutting, and the non-woven fabric can be attached without fraying. The key to a beautiful finish is to apply a light tension while attaching.

■ Try it wherever you can imagine!

Various applications as a high-frequency noise suppressant are expected.

Examples: "Noise suppression for devices that dislike magnetism," "As a lightweight and thin noise suppression material," "High-frequency noise suppression for PCs, smartphones, and game consoles."

■ Cautions for use

1. Although the product can be used in a wide range of operating temperatures from -20 to 90°C, please avoid attaching it to any part (CPU, GPU, vacuum tube, etc.) that is expected to overheat or cool beyond this temperature range.

2. Do not use the product in such a way as to obstruct heat dissipation, such as by blocking heat dissipation holes in amplifiers or PCs.
3. Avoid storing the product in direct sunlight.
4. Avoid storage and use in high temperature and humidity as much as possible, as the adhesive may deteriorate.
5. Wipe off dust, oil, etc. on the adherend (mating surface) well before applying.
6. Although reworkable adhesive is used, repeated application and removal will weaken the adhesive.

■仕様

Model Name	NRF-005T
Noise Suppression material	PULSHUT®※1
adhesive surface	Acrylic adhesive (low adhesion on one side)
Tape width	15mm
Tape length	4 meters
Thickness	0.11mm (base material 0.05mm + adhesive part 0.06mm)
Density	0.8g/cm ³
Surface Resistance	$\cong 1.0 \times 10^{12}\Omega/\text{cm}$
Volume Resistance	$\cong 1.0 \times 10^{12}\Omega/\text{cm}$
Tensile Strangth	3.5kgf/cm ³
Operating temperature range	-20~90°C
Environmentally conscious	RoHS compliant, halogen-free, REACH compliant
JAN	4582387109669
Retail Price	Open Price

※1 PULSHUT® are registered trademarks of Asahi Kasei Corporation.

【Product images and download links】

Please download the product image of this product from the link below.

https://www.dropbox.com/sh/zn2obvqqgau8aph/AAAXmMu0_AY-y91yonrT7BKCa?dl=0