

3M™ EMI Absorber AB3000 Series

Product Description

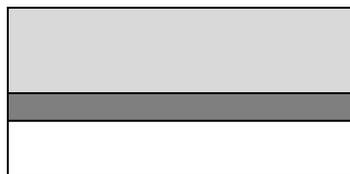
3M™ EMI Absorber AB3000 Series is a magnetic EMI absorber for near-field applications from 1 GHz to 10 GHz. 3M absorber AB3000 series is a composite material consisting of a carrier resin, magnetic fillers and an optional acrylic pressure sensitive adhesive (PSA). This material suppresses near-field EMI noise and interacts and/or influences an Electro-Magnetic (EM) field to reduce EMI transmissions or reflections. 3M absorber AB3000 efficiently couples to the EM field and provides EM absorbing.

Key Features

- EMI absorber performance from 1 GHz to 10 GHz
- Targeted permeability for 300 kHz -15 MHz for EM field coupling
- Absorbing performance for broadband frequencies
- Multiple thickness options
- Available with and without (WO) adhesive
- Large sheet format for improved yield (340mm x 340mm)
- Supplied on a removable liner for easy handling and die-cutting
- *Halogen Free

*Halogen Free is defined as having maximum 900 ppm bromine, maximum 900 ppm chlorine, and maximum 1500 ppm total bromine and chlorine, per IEC 61249-2-21

3M™ EMI Absorber AB3000 Stack-up



Magnetic EMI Absorber Layer

Acrylic Non-conductive Adhesive (Optional)

Blue PET Film Release Liner 0.75 mm

3M™ EMI Absorber AB3000 Series

Product Construction/ Materials Description

Note: The following technical information and data should be considered representative or typical only and should not be used for specification purposes.

3M™ EMI Absorber AB3000		
Structure	Type	Thickness
Magnetic Type	Soft Magnetic Composite	Options below (L= Layers)
Adhesive Type	Acrylic Non-Conductive Adhesive (ADH optional)	0.01 mm
Magnetic Layer Thickness (excluding protective film) Tolerance: +/-10%	AB3010 AB3030 AB3050 AB3010-WO AB3030-WO AB3050-WO	L=0.100 mm magnetic + 0.010mm DCT L= 0.300 mm magnetic + 0.030 mm DCT L= 0.500 mm magnetic + 0.030 mm DCT L= 0.100 mm magnetic layer L = 0.300 mm magnetic layer L= 0.500mm magnetic layer
Total Thickness		Magnetic Layer + Adhesive Layer (Optional)

*-WO means without adhesive.

Application Ideas

3M™ EMI Absorber AB3000 can potentially be used for:

- Mobile phones, computers, tablets, displays, camera modules, antenna grounds, test & measurement equipment, sensors, radar, and avionics equipment.

As an initial design, it is suggested to test the 3M EMI absorbers at the greatest thickness allowed (1x, 2x, 3x layers, etc.), largest XY dimension, in multiple locations or use multiple parts to determine a potential maximum performance level associated with the material and the end use assembly. Once a baseline level of performance is established, the 3M absorber material thickness, XY shape, location, etc. can be reduced or changed to determine the minimum material needed to meet a specification.

It should be noted that once a maximum performance level is established for the end use device using the 3M absorber AB3000 as an EMI absorber, the overall design can be reviewed to understand if other, non-absorber changes not initially considered, but now possible with the new performance level associated with using the 3M magnetic materials could be considered. An example would be the absorber reducing EMI noise levels to allow for improved antenna Signal to Noise (SNR) ratio that could allow for higher data transfer speeds and/or longer-range performance.

Effectiveness

3M absorber AB3000 performance and effectiveness is based on several application considerations:

- 1) Permeability (μ') and Loss (μ'') of this material at the frequency range or frequency peak of the intended application can affect the performance. Permeability and Loss of the 3M absorber AB3000 varies with frequency and is a measure of how well the EM material may couple with the EM field and impact performance.
- 2) Thickness of the 3M absorber AB3000 series can be used to optimize an application's performance.
- 3) End use application orientation and location affects the 3M EM products interaction with an EM field.

3M™ EMI Absorber AB3000 Series

Typical Physical Properties and Performance Characteristics

Note: The following technical information and data should be considered representative or typical only and should not be used for specification purposes. Final product specifications and testing methods will be outlined in the product's Certificate of Analysis (COA) that is provided once the product is approved by 3M for general commercialization and development work is completed.

3M™ EMI Absorber AB3000 Series	
Property	Value
Electrical Resistivity***	$2 \times 10^4 \Omega\text{m}$
Typical Permeability (@1 MHz)*	30
Temperature Range**	-25 ~ 90°C

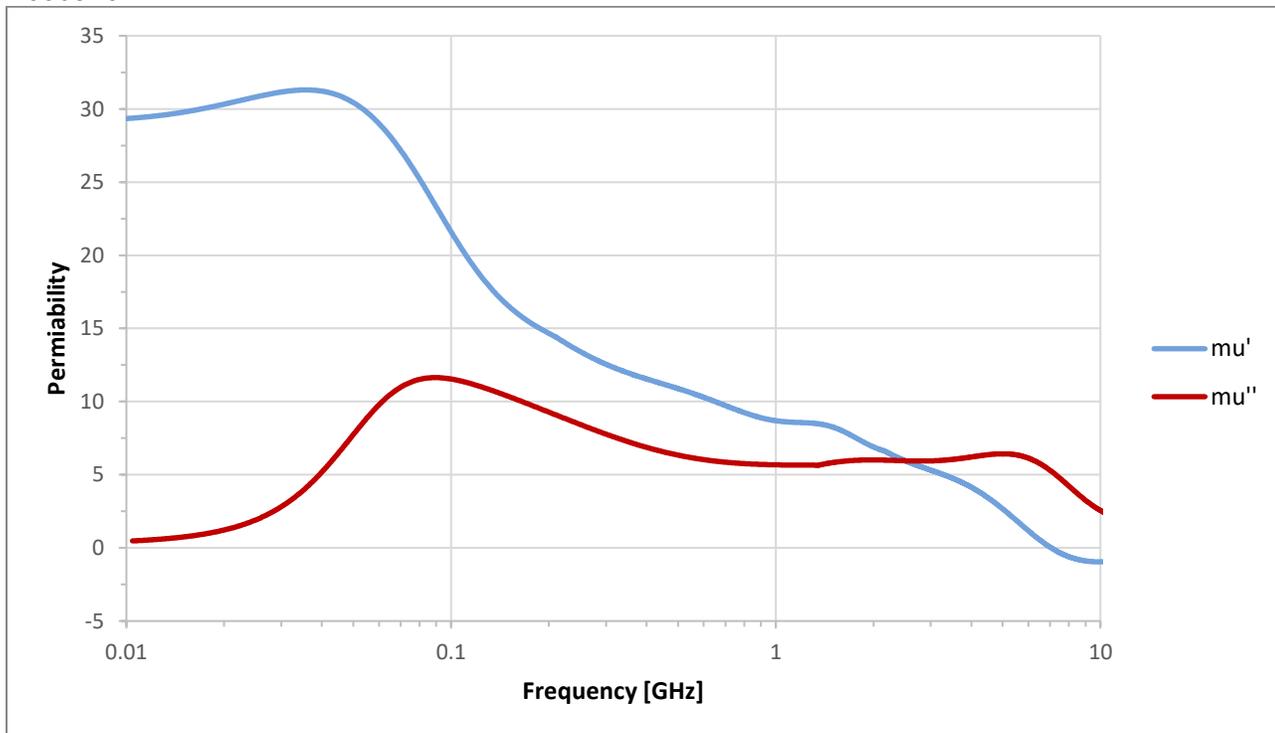
*Permeability and noted results of Vibrating Sample Magnetometers (VSMs) can vary with test method and/or equipment used for testing at different test sites

** Based on general environmental performance characteristics of the polymer binder resin type. Each application should verify temperature and environmental performance in the end-use specific configuration.

*** ASTM D257 Type Test Method

Figure 1. Real and Imaginary Part of Permeability with Frequency

Test methods: Short coax (Keysight magnetic test fixture 16454A) 1-1000 MHz and 7-mm coax 0.1-18GHz per ASTM D5568-01.



3M™ EMI Absorber AB3000 Series

Figure 2. Power Loss Measurement

Power loss was measured for each sample in accordance with Modified IEC62333-2.

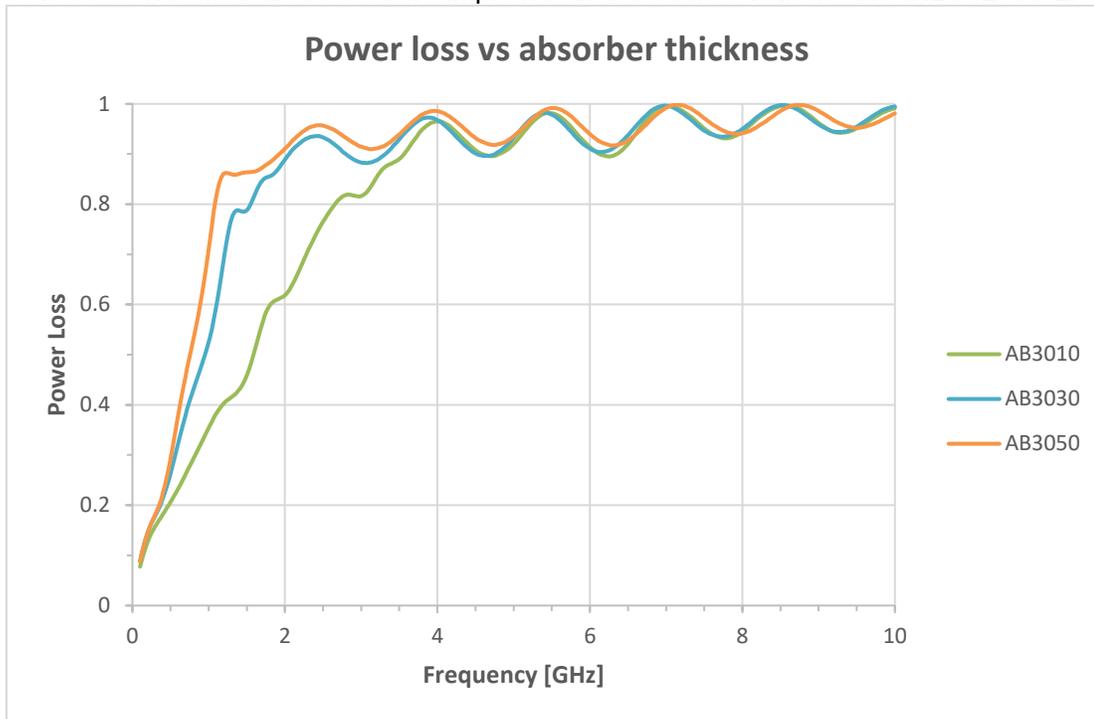
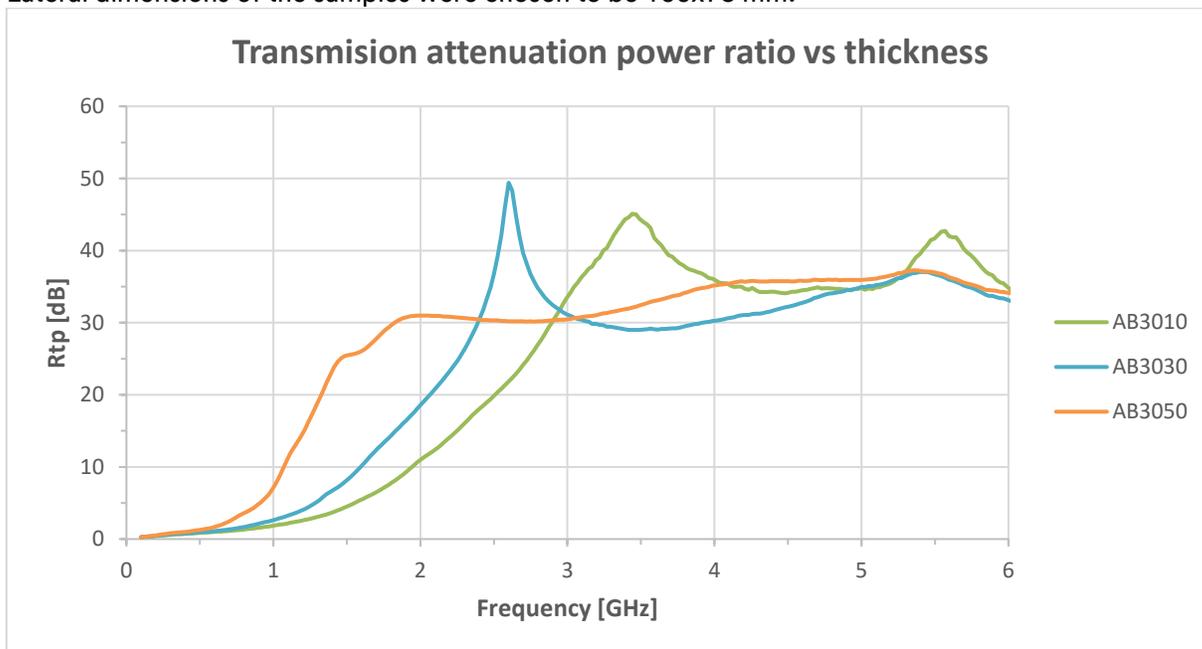


Figure 3. Transmission attenuation power ratio

Transmission attenuation power ratio (Rtp) was measured in accordance with section 4.3 of IEC62333-2. Lateral dimensions of the samples were chosen to be 100x75 mm.



3M™ EMI Absorber AB3000 Series

Storage and Shelf Life

The shelf life of 3M™ EMI Absorber AB3000 Series is 12 months from the date of manufacture when stored in the original packaging materials and stored at < 25°C (77°F) and < 60% relative humidity.

Certificate of Analysis (COA)

The 3M Certificate of Analysis (COA) for this product is established when the product is manufactured and deemed commercially available from 3M. The COA contains the 3M test methods, specification limits for the product's performance attributes that the product will be supplied against. Contact your local 3M representative for this product's COA.

3M™ EMI Absorber AB3000 Series

Regulatory: For regulatory information about this product, contact your 3M representative.

Technical Information: The technical information, guidance, and other statements contained in this document or otherwise provided by 3M are based upon records, tests, or experience that 3M believes to be reliable, but the accuracy, completeness, and representative nature of such information is not guaranteed. Such information is intended for people with knowledge and technical skills sufficient to assess and apply their own informed judgment to the information. No license under any 3M or third party intellectual property rights is granted or implied with this information.

Product Use: Many factors beyond 3M's control and uniquely within user's knowledge and control can affect the use and performance of a 3M product in a particular application. As a result, customer is solely responsible for evaluating the product and determining whether it is appropriate and suitable for customer's application, including conducting a workplace hazard assessment and reviewing all applicable regulations and standards (e.g., OSHA, ANSI, etc.). Failure to properly evaluate, select, and use a 3M product in accordance with all applicable instructions and with appropriate safety equipment, or to meet all applicable safety regulations, may result in injury, sickness, death, and/or harm to property.

Warranty, Limited Remedy, and Disclaimer: Unless a different warranty is specifically stated on the applicable 3M product packaging or product literature (in which case such warranty governs), 3M warrants that each 3M product meets the applicable 3M product specifications on the Certificate of Analysis, which is established when the product is manufactured and deemed commercially available and is provided at the time 3M ships the product. **3M MAKES NO OTHER WARRANTIES OR CONDITIONS, EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, ANY IMPLIED WARRANTY OR CONDITION OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, OR ANY IMPLIED WARRANTY OR CONDITION ARISING OUT OF A COURSE OF DEALING, CUSTOM, OR USAGE OF TRADE.** If a 3M product does not conform to this warranty, then the sole and exclusive remedy is, at 3M's option, replacement or repair of the 3M product or refund of the purchase price.

Limitation of Liability: Except for the limited remedy stated above, and except to the extent prohibited by applicable law, 3M will not be liable for any loss or damage arising from or related to the 3M product, whether direct, indirect, special, incidental, or consequential (including, but not limited to, lost profits or business opportunity), regardless of the legal or equitable theory asserted, including, but not limited to, warranty, contract, negligence, or strict liability.

Disclaimer: For industrial use only. Not intended, labeled or packaged for consumer sale or use.



3M Display and Electronics

3M Center, Building 223-3S-32
St. Paul, MN 55144-1000
1-800-251-8634 phone
www.3M.com/electronics

3M is a trademark of 3M Company.
Please recycle.
©3M 2025. All rights reserved.
60-5005-0546-0