

# 3M™ Flux Field Directional Material (FFDM) EM80KM

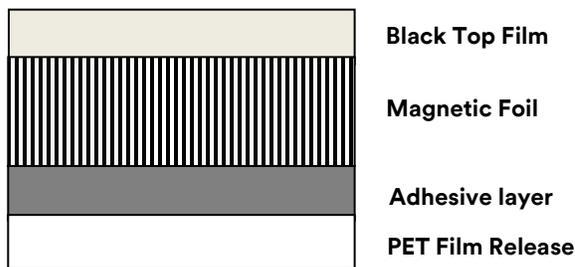
## Product Description

3M™ Flux Field Directional Material (FFDM) EM80KM is a multi-layer construction consisting of primary inner soft magnetic foil layer(s) with a top black film layer and an acrylic pressure sensitive adhesive (PSA) that provide many special features.

## Key Features

- High permeability magnetic foil
- Approximately 80,000 permeability maximum
- Thin overall construction
- Pressure sensitive acrylic tape for high adhesion
- Supplied on a removable liner for easy handling
- Custom sizes may also be available

## 3M FFDM EM80KM



## Product Construction/Material Description

**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 products Certificate of Analysis (COA) that is provided once the product is approved by 3M for general commercialization and development work is completed.

| 3M™ Flux Field Directional Material (FFDM) EM80KM |                                   |                                   |                                   |                                   |                                   |
|---|-----------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|
| Property  | EM80KM-0025-1                     | EM80KM-003-1                      | EM80KM-005-1                      | EM80KM-2D-0045                    | EM80KM-2D-005                     |
| <b>Black Film Top Film</b>                        | Black PET Film                    |
| <b>Magnetic Foil Layer Type</b>                   | Magnetic Layer Soft Magnetic foil |
| <b>Adhesive</b>                                   | Acrylic Type Adhesive Layer       |
| <b>Total thickness</b>                            | 0.026 mm total                    | 0.031 mm total                    | 0.050 mm                          | 0.047 mm total                    | 0.052 mm total                    |
| <b>Liner / Clear PET</b>                          | 0.050 mm                          | 0.050 mm                          | 0.036 mm                          | 0.050 mm                          | 0.050 mm                          |

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## Applications

- Shield DC and low frequency magnetic field
- Wireless power system power transfer efficiency improvement
- Potential devices include mobile phone, computers, tablets, measurement and sensors
- Protect magnetic flux sensitive device such as a hall sensor and a flux gate from external low frequency magnetic fields
- Assembly of magnet coil for Wireless Charging System
- Electronic equipment protection for automobile applications

## Application Techniques

3M™ Flux Field Directional Material (FFDM) EM80KM is a magnetic material designed to interact and influence an Electro-Magnetic (EM) field. The EM field could be generated for various reasons and in many applications it is desired to focus the EM field across a specific volumetric area, such as a secondary EM field pick-up coil or antenna. 3M FFDM EM80KM is designed to efficiently couple to the EM field and redirect and focus the field as desired in a given application.

The product's performance is based on several application considerations:

- 1) Permeability of the 3M FFDM material at the frequency range or frequency peak of the intended application can affect the performance. Permeability of the 3M FFDM material 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 FFDM product. Multiple thickness options can be designed and can be used to optimize an applications performance.
- 3) End use application orientation and location affects the 3M EM products interaction with an EM field.

## Typical Physical Properties and Performance Characteristics

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| 3M™ Flux Field Directional Material (FFDM) EM80KM |                     |                        |
|---|---------------------|------------------------|
| Property  | Method <sup>b</sup> | Value                  |
| Electrical Resistivity (Ωm)                       | ASTM D267*          | 1.1 x 10 <sup>-6</sup> |
| Maximum Permeability                              | 3M Test Method**    | 80,000                 |
| Magnetic Flux Density (T)                         | VSM***              | Maximum 1.3 T          |
| Temperature Range (°C)                            | -                   | -25~110                |

\* Methods listed as ASTM are tested in accordance with the ASTM method noted

\*\*/\*\* Permeability/Results of VSM can vary with test method and/or equipment used for testing at different test sites.

## Storage and Shelf Life

The shelf life of 3M™ Flux Field Directional Material EM80KM is 12 months from the date of manufacture when stored in the original packaging materials and stored at 21°C (70°F) and 50% relative humidity.

# 3M™ Flux Field Directional Material (FFDM) EM80KM

## Certificate of Analysis (COA)

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

Final product specifications and testing methods will be outlined in the products Certificate of Analysis (COA) that is shipped with the commercialized product.

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