

MICROWAVE TECHNOLOGY FOR A MODERN MARKET

In tomorrow's world, even more than today, microwaves will connect people and devices. They carry the necessary information to make modern technology work. In the tangle of wavelengths in which interference means malfunction and answering the need for high performing products, Emerson & Cuming Microwave Products is the market's leading solution provider.

SPECIALISED PRODUCTS FOR YOUR INDUSTRY

Committed research and development, and case-based solutions in close co-operation with clients of the most diverse industries lead to high quality, specialised products for companies that want to ensure proper functioning of their devices. Full on-site test facilities allow Emerson & Cuming Microwave Products to develop customised microwave products for all your applications:

- Absorber materials including narrow and broadband applications, providing adequate solutions for electromagnetic radiation control.
- Anechoic chambers: the state of the art test facilities and proven measurement tools all over the world.
- Shielding materials protect your application from interfering wavelengths.
- Dielectrics minimizing energy loss while providing a wide range of dielectric constants for construction of transparent structural supports or reducing component size.

ALWAYS AT YOUR WAVELENGTH

Six established brandnames are international market references for the different categories of Emerson & Cuming's microwave products. In this general overview you can explore the possibilities of our product range. But as Emerson & Cuming Microwave Products develops specialised products for your applications, never hesitate to contact us for full and specific information. We are always at your wavelength.

ECCOSORB®
Microwave Absorbers

ECCOSTOCK®
Low Loss Dielectrics

ECCOSHIELD®
Shielding Materials

ECCOLENS®
Luneberg & Constant K lenses

ECCOPAD®
Smart Tag Isolation

EMERSON & CUMING ANECHOIC CHAMBERS

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ECCOSORB® Microwave Absorbers



BROADBAND FREE SPACE ABSORBERS

ECCOSORB® AN and HR are lightweight flexible foam absorbers which are designed to reflect less than -20 dB above a specified frequency. ECCOSORB® HR is widely used in antenna shrouds to reduce side lobes. ECCOSORB® FGM and SLJ are rubber absorbers with a good absorption performance within a limited frequency range. ECCOSORB® SLJ has an excellent weather resistance, suited for outdoor applications.



LOAD ABSORBERS

ECCOSORB® MF is a solid high-loss high-permeability material used as attenuator and termination in waveguides, coaxial lines and striplines. Uniformly tapered terminations offer a low VSWR over a wide frequency range. The liquid counterpart of ECCOSORB® MF, ECCOSORB® CR, allows to cast complex shaped parts.



INJECTION MOULDED ABSORBERS

New thermoplastic magnetic loss compounds are used with injection moulding techniques for production of high quantities. The injection moulding technique was introduced in order to improve part cost compared to traditional machining of customised shaped parts. Applications include attenuators, absorber termination loads, absorber covers and housings.



CAVITY RESONANCE ABSORBERS

ECCOSORB® foams and elastomers are used to eliminate resonances in microwave modules. ECCOSORB® LS is a high loss urethane foam sheet, offering a tradeoff between low cost and properties such as electrical conductivity and higher thickness compared to elastomers. ECCOSORB® GDS, FGM, MCS and BSR are magnetic loss elastomers, making these products the most effective to reduce cavity resonances as well as surface currents. Elastomers are available as silicone or urethane. Silicones resist higher temperatures and have low outgassing properties. Urethanes offer advantages towards adhesion.



NARROW BAND FREE SPACE ABSORBERS

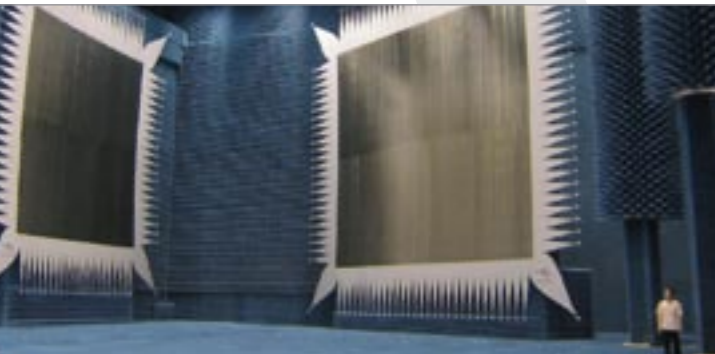
ECCOSORB® SF and DSF are thin flexible narrowband resonant absorbers with a reflectivity of 1% (-20 dB) or less at the design frequency. Resonant absorbers for frequencies between 1 and 40 GHz are available. They are ideally suited for applications requiring a very thin microwave absorber where broadband performance is not essential. ECCOSORB® DSF uses a patented filler technology. Unlike typically iron-filled absorbers, no oxidation is possible due to the chemical nature of the dielectric pigmentation system, making this product the ideal choice for outdoor applications such as the lining of ship masts. All elastomers are available in silicone or urethane version (suffix -U).

ECCOSHIELD® Shielding Materials



The ECCOSHIELD product line includes highly conductive silicon rubbers, caulking compounds, coatings and adhesives. ECCOSHIELD® SVR is a highly conductive silver filled sheet material based on silicon rubber with a volume resistivity of 0,001 Ohm.cm. ECCOSHIELD® VY is a single-component electrically conductive non-hardening shielding compound. ECCOSHIELD® ES is a highly conductive surface coating which is a fine silver based lacquer.

EMERSON & CUMING ANECHOIC CHAMBERS



ANTENNA PATTERN, RCS AND ELECTRONIC WARFARE CHAMBERS

- Antenna pattern test chambers are used for the evaluation of microwave antenna performance.
- Radar cross section (RCS) chambers measure the radar cross section of aircraft missiles and vehicles.
- Electronic warfare (EW) chambers are vital in the development of radar systems for missiles.

To construct an EW, RCS or antenna measurement facility, our standard resistive absorber types ECCOSORB® VHP-NRL are used. As these applications often ask for very high performance in a specific frequency range, a tailor-made absorber is offered.



ELECTROMAGNETIC COMPATIBILITY (EMC) CHAMBERS

Anechoic chambers for Electro Magnetic Compatibility (EMC) radiated measurements must be compliant with international standards and rules for radiated emission testing (EN 50147-2 and-3) and radiated immunity testing (EN 61000-4-3). The absorber layout of an EMC chamber is particular and will use specific absorber types which are not belonging to the antenna chamber absorber family. Either hollow resistive absorbers ECCOSORB® HX or a combination of ferrite and resistive absorbers ECCOSORB® VHY are used.

ECCOSTOCK® Low Loss Dielectrics



LOW LOSS FOAMS

ECCOSTOCK® SH is a series of rigid polyurethane foams with an extreme low dissipation factor and dielectric constant varying from 1.04 to 1.24. As the foam withstands high temperatures, it is primarily used as a high-temperature structural part or thermal barrier in electrical/electronic applications. ECCOSTOCK® FPH is a foam-in-place resin which, when cured, has identical properties to ECCOSTOCK® SH of the same bulk density.



LOW LOSS PLASTICS

ECCOSTOCK® LOK and HIK500F are series of low loss thermosetting plastics with a tuned dielectric constant: between 1.6 and 2.3 for ECCOSTOCK® LOK and between 3 and 30 for ECCOSTOCK® HIK500F. The density of ECCOSTOCK® LoK is only about a quarter of that of PTFE.

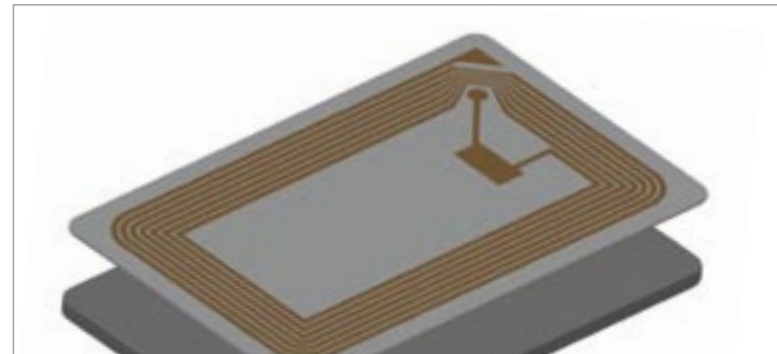
ECCOLENS® Luneberg & Constant K lenses



LUNEBERG ANTENNA & REFLECTOR

The ECCOLENS® Luneberg and Constant K lenses are spherical lenses which focus an incoming wave to a point at or near the surface of the lens. Such lenses can act as a radar reflector with high RCS (with a metal reflector on the backside of the lens) or as part of an antenna system (with one or more feed horns near the periphery).

ECCOPAD® Smart Tag Isolation



ECCOPAD® isolators enable the use of RFID tags on or near metallic surfaces. Isolators are available for use at HF (13.56 MHz) and UHF (915 MHz). ECCOPAD® Isolators are thin, flexible, rugged elastomers which when placed between the metal surface and the RFID tag enable tag operation. ECCOPAD® isolators are available with an integral pressure sensitive adhesive on one side, both sides or neither side.