

**WAVEX<sup>®</sup>Z**

EMI Cable Coating



Supplied by:  
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**HITEK**  
ELECTRONIC MATERIALS LTD

**A Seamless EMI & RF  
Solution For Cumbersome Cables**



### Streamline Cable Assemblies

With **Wave-X Z** EMI Cable Coating your cables perform at maximum efficiency and become streamlined in appearance. **Wave-X Z** is coated over the wire (RF shield) and under the jacket, so color coding or aesthetic requirements are not effected... simply choose your color!





## EMI Cable Coating

*ARC Technologies is proud to offer our latest cutting edge technology specifically designed for the cable industry. Wave-X Z is an EMI / RF absorbing cable coating -designed to serve many functions and solve a multitude of problematic cable interference issues.*

### How It Works

In constructing **Wave-X Z**, ARC Technologies utilizes sophisticated and advanced metallurgical processes, resulting in highly permeable materials designed for maximum RF absorption. With its unique formulation for EMI suppression, **Wave-X Z** provides versatile solutions that support a wide range of frequency absorption requirements. **Wave-X Z** EMI noise absorbing materials eliminate signal mode issues in cable assemblies. The WZ series is the only EMI noise absorption technology that can be seamlessly integrated over the wire and directly under the jacket during the manufacturing process. The entire WZ Series product line has been engineered for durability and flexibility, even at low temperatures.

**WAVEX Z** provides versatile solutions that support a wide range of frequency absorption requirements.

A close-up photograph of a cable's cross-section. The outer white jacket is partially cut away, revealing a black layer of WAVEX Z coating. Inside the coating, several individual wires are visible. A grey callout box with a white dot points to the black coating layer.

**WAVEX Z** Cable Coating

## Maximize Signal Integrity

Signal integrity primarily involves the electrical performance of wires, cables and other packaging structures used to

move signals around within an electronic product.

Signal integrity or SI is a measure of the quality of an electrical signal. In digital electronics, a stream of binary

values is represented by a voltage or current waveform. Over short distances and at low bit rates, a simple conductor can transmit this with sufficient fidelity. However, at high bit rates and over longer distances, various effects can degrade the electrical signal to the point where errors occur, and the system or device fails. Some of the main issues of concern for signal integrity are: traveling waves, ringing, cross talk, ground bounce and power supply noise.

ARC's **Wave-X Z** Cable Coating maximizes signal integrity by encapsulating the entire length of the cable. **Wave-X Z** is non conductive and loaded with our proprietary fillers which are tailored to exact customer specifications. Once the cable is coated, the absorber allows signals to be easily transmitted from one end to the other. No interference, no delays, just pure speed to the target.

## Eliminate Ferrite Chokes (Passive low-pass filters)

They come in many shapes, sizes and names. Beads, chokes, dongles, toroids, inductors, bumps, clamps, blocks, cores, rings and are all passive low-pass filters. The geometry and electromagnetic properties of coiled wire over the ferrite bead result in a high resistive impedance mostly for high-frequency signals, attenuating high frequency EMI / RF electronic noise. When frequencies escalate, using this "choke" method often results in the energy reflected back up the cable. When **Wave-X Z** Cable Coating is applied unwanted noise and interference are absorbed and dissipated throughout the entire length of the cable. Ferrite chokes are unsightly, heavy, labor intensive, break apart, and add significant application cost to



the manufacturing process. Additionally, in consumer electronics, end users are not comfortable trying to work with them. Ferrite chokes add weight and lack symmetry; heavy cables will pull expensive electronic devices from a surface. This out dated technology is now being replaced by **Wave-X Z** Cable Coating.

Cables now become smooth, streamlined and aesthetically pleasing. Weight, labor, interference and consumer frustration are now eliminated.

## Pass Compliance Testing

With **Wave-X Z** designed into your cable assembly, there is no second guessing whether your cable configuration will be the cause of immunity or performance failure at test time.

Cables are the largest emissions source in an electronic system, they tend to create the highest radiation. Normal wires become good transmission lines and thus tend to radiate into perfect antennas. Integrated circuits are often a source of EMI, but they usually couple their energy to larger objects such as heat sinks, circuit board planes and cables to radiate significantly. This RF signal is then coupled to the cable through the line driver as common mode noise. Since the noise is common-mode, shielding has very little effect, even with differential pairs. The RF energy is capacitively coupled from the signal pair to the shield and the shield itself does the radiating. Cables coated with **Wave-X Z** reduce common-mode signal.

## Cables Typically Coated with Wave-X

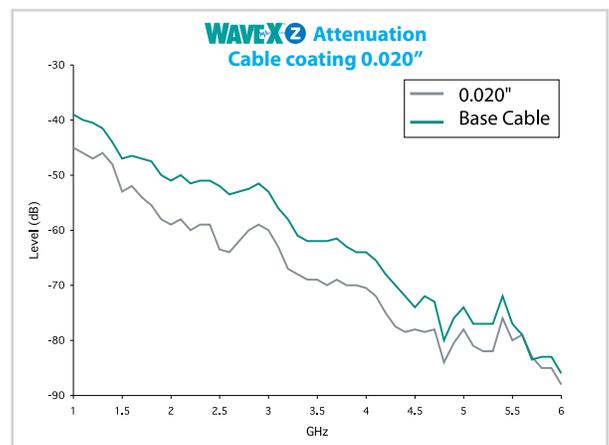
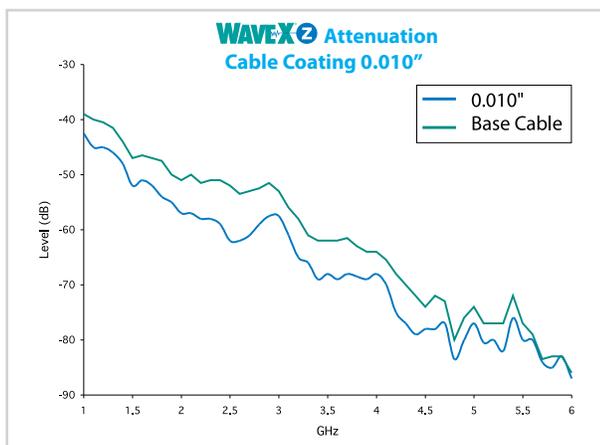
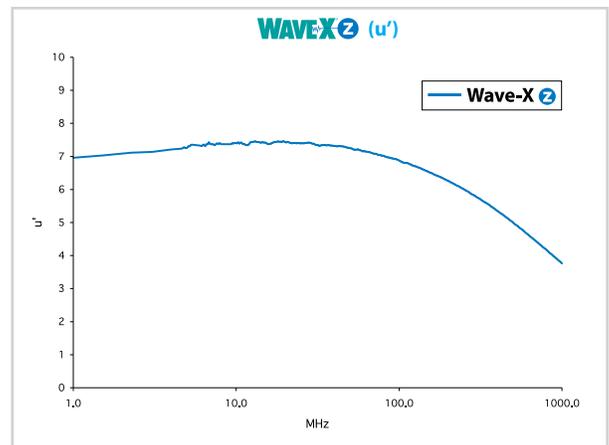
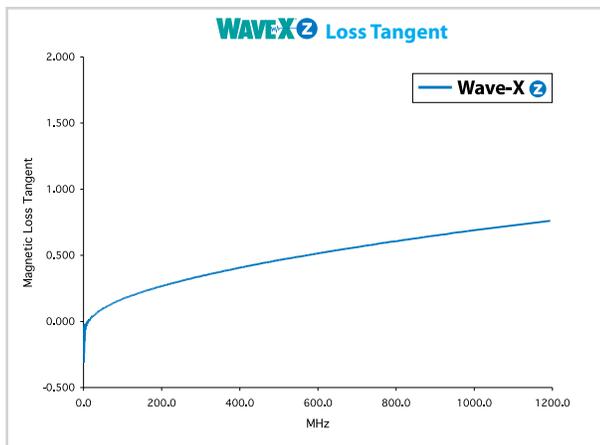
- Ethernet (Cat 5 and Cat 6)
- USB
- Ribbon
- Flat Flexible Cables (FFC)
- Infiniband
- High Definition Multimedia Interface (HDMI)

## Additional Information

- **Wave-X ** standard thickness is 0.010" to 0.020". Thinner coatings are available upon request.
- **Wave-X ** is RoHS and REACH compliant.
- **Wave-X ** EMI coating is also available for any type of custom cable.
- **Wave-X ** can be seamlessly integrated with your current cable manufacturer.
- Prototypes/Custom configurations available upon request including
  - Extrusion
  - Tape
  - **WAVEX HEAT** Shrink Tube Absorber
- Engineering support and consultation is available.



Cables coated with **WAVEX ** maximize signal integrity.





ABSORBED IN TECHNOLOGY

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**Dedicated To:**

- Understanding our customer's needs.
- Engineering innovative solutions.
- Delivering quality products on-time.

flexible  
noise absorption  
seamless intergration  
signal integrity  
durable