



User Manual
GlobTek P/N: EMI-MITIGATION-KIT1

Ferrite Kit

Radiated EMI Suppression Kit for GlobTek Power Supplies & Cable Assemblies

Established in 1984, GlobTek is a world-class manufacturer of switching power supplies, chargers, cables, power cords, and batteries. Headquartered in the US, we operate our own manufacturing, sales, service, and technical operations in North America, Europe, and China.

We serve a global, diverse customer base who represent the top tier of their respective industries: medical, IT, industrial, and others. Our products are certified by most globally recognized regulatory and safety agencies including UL, ETL, Semko, TUV, and CCC.

GlobTek supports its commitment to excellence by operating its own world-class, vertically integrated manufacturing operations, and by investing in a truly global quality, technical, and customer support infrastructure.

- **Tackling system-related radiated EMI issues sometimes requires use of external ferrites.**
- **Improve EMI performance with GlobTek's snap-on ferrite kit**
- **For custom production orders, GlobTek can replace the selected snap-on ferrite with an equivalent overmolded version.**

The purpose of this kit is to facilitate the optimization of radiated emissions of an end use system coupled with a GlobTek power supply by adding ferrites to the output cord.

Within the field of EMC, the phrase *radiated emissions* refers to the unintentional release of electromagnetic energy from an electronic device or apparatus. Any electronic device may generate electromagnetic fields that unintentionally propagate away from the device's structure.

While all GlobTek power supplies meet all national and global EMI standards when connected to a resistive load, when coupled with certain systems the combination will create unintentional high levels of Radiated EMI which may exceed a system designer's margin requirements or even exceed national and global limits for Radiated EMI.

By utilizing this GlobTek kit, the system designer is able to select standard low-cost GlobTek materials rather than high cost name-brand alternatives. Please note that GlobTek can also provide power supplies or cable assemblies with any brand of ferrite per customer request should that be preferred.

It is recommended that the system designer keep this kit in hand when performing system level compliance. In the event that test results exceed expectations, a ferrite may be selected from the kit and applied to the output cord for trial and error testing until the desired results are achieved.

One or more ferrites may be added to the cable in any location provided it is at least 50mm from either the molded strain relief or the molded connector. It is suggested to match the ferrite whose impedance is maximum at or near the frequency of concern in the system level testing.

Please use the smallest possible inner diameter ferrite which fits on the unit under test.

Typically placing the ferrite 50mm from the power supply body is an optimal location and should be the first approach. If that doesn't provide enough margin try a second pass of the wire through the ferrite, move the location to 50mm near the connector, or add a second ferrite on the cable on the opposite side of the first location. Add turns to each ferrite as much as possible until the optimal margin is achieved. If these techniques do not yield the necessary results, the same techniques may be used on the input cord, with or without additional ferrites on the output cable. A shielded input cord would also provide additional margins.

Each ferrite is marked with a letter which correlates to a line of the specifications in this document. Each snap-on ferrite is equivalent a type which GlobTek overmolds onto cables on a regular basis.

Once optimal results are achieved, please contact GlobTek's sales department and inform them of the ferrite used and its location for this configuration to be specified and offered for production using either a snap-on or molded ferrite solution.

GlobTek can offer power supplies and cable assemblies with these ferrites upon request.

Please contact GlobTek for additional EMI mitigating support. Please have any and all test plots and results available for transmittal to GlobTek as it will be necessary for advanced level support.

Snap-On Ferrite						
PART NUMBER	SIZE	1. WIRE FOR PASS-THRU CORE	2. WIRE FOR PASS-THRU CORE	Z @ 25 MHz Ω	Z @ 100 MHz Ω	IMPEDANCE / FREQUENCY
Type A 311-00000020(R)	A:20mm B:35mm C:28mm D:9.5mm E:18mm	Wire OD: <UL1185/14AWG OR UL2464/16AWG	Wire OD:2.5-3.5mm UL1185(20AWG/18AWG) UL2468(22AWG/20AW- G/18AWG)	72	110	
Type B 311-00000021(R)	A:16mm B:29.5mm C:21.5mm E:16mm	Wire OD:5.0mm UL1185/14AWG UL2464(20AWG/18AWG)	UL2468(24AWG/22AWG)	35	100	
Type C 311-00000022(R)	A:22mm B:32.5mm D:11.4mm E:23mm	Wire OD <UL1185/14AWG OR UL2464/16AWG	Wire OD:3.5-4.3mm UL1185(18AWG/16AWG) UL2468(16AWG)	90	180	
Type D 311-00000035(R)	A:16mm B:30mm C:23mm D:7mm E:14.5mm	Wire OD:2.5-5.0mm UL1185(18AWG/16AW- G/14AWG) UL2464(20AWG/18AW- G/16AWG)	NC	60	150	
Type E 311-00000036(R)	A:23.5mm B:36mm C:30mm D:16mm E:22mm	Wire OD<UL1185/14AWG OR UL2464/16AWG	Wire OD:4.3-5.5mm UL1185(16AWG)(large Corund 40/0.20)/14AWG) UL2464(20AWG/18AW- G/16AWG)	50	130	

Equivalent Ferrite for Molds	
PART NUMBER	SIZE
Type A 311-00000001(R)	A:14.2mm B:28.5mm C:8.2mm
Type B 311-00000002(R)	A:10.5mm B:20mm C:5.6mm Note: Only 1 Pass thru core for UL2468 22AWG, Snap on ferrite can do 2 passes
Type C 311-00000005(R)	A:14.2mm B:28.5mm C:10mm
Type D 311-00000032(R)	A:12mm B:20mm C:7.3mm Note: 2 Passes thru core for 2468/24AW- G/22AWG/20AWG/18AWG, but Snap on ferrite only 1 pass
Type E 311-00000031(R)	A:17.5mm B:28.5mm C:12.5mm

