

F.C.C. LINE IMPEDANCE STABILIZATION NETWORKS



The F.C.C. in **Part 15 Subpart J** has adopted the 50 microhenry **Line Impedance Stabilization Network (LISN)** described in Figure 15 of the German Document VDE 0876/1/9.78 for use in performing conducted emission tests on power lines (10 KHz-30 MHz). (Five microhenry units are required for F.C.C. Part 18. See listing on back side of "LINE IMPEDANCE STABILIZATION NETWORKS" data sheet.) In selecting the appropriate LISN, the impedance-versus-frequency characteristic is the most important parameter to be considered. The impedance curve of the units closely matches the F.C.C. requirements.

DESCRIPTION

The **Type 8012-50-R-24-BNC** is a dual network for use on 120 volt d.c. or 50-60 Hz single phase power lines. It will handle up to **24** amperes of power current to the equipment under test (EUT). It is fitted with a power cord on one end and a power receptacle on the other end. The receptacle is the style used in the USA with parallel blades and a U shaped grounding pin. A rotary switch selects which of the two power leads is connected to the BNC r.f. jack for test. The unused line is terminated in a 50 ohm resistor.

The **Type 8028-50-TS-24-BNC** is a single line LISN* rated at 270 volts for 50-400 Hz single phase or three phase test setups. It will handle up to **24** amperes of power current to the EUT. This unit is equipped with terminal studs on each end for making connections to the line and the load.

The **Type 8328-50-TS-24-BNC** is a single line LISN* with impedance characteristics similar to the **Type 8028-50-TS-24-BNC** except rated at **50** amperes.

The **Type 8610-50-TS-100-N** is a single line LISN* with impedance characteristics similar to the **Type 8028-50-TS-50-BNC** except rated at **100** amperes and uses a Type "N" r.f. connector. The unit includes a cooling fan with a power cord for connection to an a.c. power line. Line voltage 115 V. 60 Hz or 230 V. 50 Hz must be specified.

The **Type 8616-50-TS-200-N** is a single line LISN* with impedance characteristics similar to the **Type 8028-50-TS-50-BNC** except rated at **200** amperes and uses a Type "N" r.f. connector. The unit includes a cooling fan with a power cord for connection to an a.c. power line. Line voltage 115 V. 60 Hz or 230 V. 50 Hz must be specified.

NOTE: **Part 15 Subpart J, Appendix A** describes a line probe which may be used under some conditions in lieu of an LISN. Our **Type 8614-1 Line Probe** satisfies the requirements of paragraphs 5.2, 5.6 and Figure 4 of the appendix. Our **Type 9533-1 Voltage Probe** satisfies a similar C.I.S.P.R. 16-1 specification requirement, Subclause 12.2, Figure 10.

APPLICATION

When the associated measuring equipment is either a spectrum analyzer or EMI meter which uses electronically controlled solid state attenuators, **precautions must be taken**. Attenuators of this nature use FET semi-conductors which are readily damaged by transients. Transients

in the setup can be caused by switching the power to the load or by switching the measuring instrument from one power lead to another. It is recommended that a high pass filter be used between the LISN and the EMI meter. If the lowest frequency to be measured is 10 KHz, the **Type 7801-8.0 High Pass Filter** (8.0 KHz, 50 ohms) is suitable. If the lowest frequency is 150 KHz or more, the **Type 7801-100 High Pass Filter** (100 KHz, 50 ohms) is recommended. In addition, it is advisable to disconnect the EMI meter from the LISN before applying or disconnecting the power to the test sample.

For portable equipment, the EUT is isolated from the ground plane. For free-standing or equipment which will be permanently installed, the EUT is placed on the ground plane and electrically bonded to it in a manner which simulates the actual installation. For most consistent test results, the tests should be performed in a shielded room. Two approaches to the test setup are shown on the next page. Either method complies with the requirements of the F.C.C. docket. The EUT must be at least 80 cm (31.5") away from any metallic surface except for the ground plane. The EMI meter and high pass filter are grounded with the shield of the 50 ohm coaxial cable.

***Single line units are needed in each power lead. Use two for single phase or d.c. systems; three for delta connected three-phase lines; four for Wye connected three-phase lines.**



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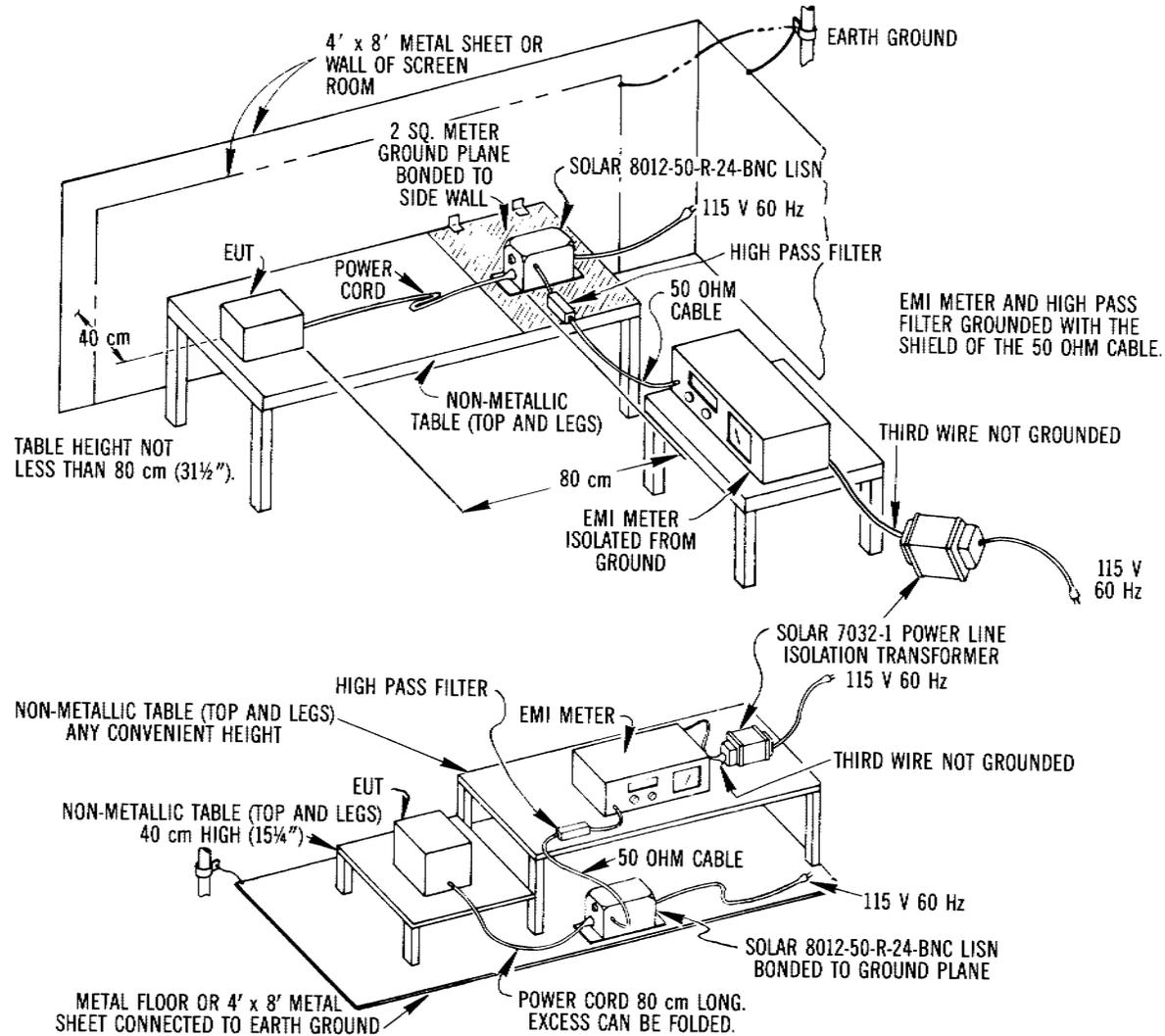
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F.C.C. LINE IMPEDANCE STABILIZATION NETWORKS



TYPICAL TEST SETUPS FOR CONDUCTED EMISSIONS

