

V D E EMI SPECIFICATIONS FOR CONSUMER & COMMERCIAL PRODUCTS IN WEST GERMANY

The interest of manufacturers in the United States to sell electronic or electrical products in other countries requires an awareness of the technical and legal requirements of the importing country. In West Germany the legal aspects of interference control requirements are delineated in the "Law for the Operation of High Frequency Apparatus", dated August 9, 1949 as amended on October 1, 1968, and the "Administrative Rules for the High Frequency Law", as published by the Minister for Postal and Telecommunication Services. Violators of the law are fined up to \$4,000 (DM 10,000). The technical enforcer of the law is the Telecommunication Office (FTZ) of the Postal Service (Address: Deutsche Bundespost, FTZ, Referat C-24, Am Kavalleriesand, D-6100 Darmstadt, West Germany).

The detail technical specifications for interference control are prepared by a technical committee of the VDE (Verband Deutscher Elektrotechniker, i.e. Association of German Electrical Engineers). The VDE may be compared to our IEEE combined with the Underwriters Laboratories and with a direct link to West German legislation. VDE specification may be ordered from the VDE Publishing House (VDE Verlag, Bismarkstrasse 33, 1000 Berlin 12, West Germany). Most of the specifications are only available in German. Translated versions of the VDE interference specifications are available from McDonald Associates, Santa Monica (see last page). The direct technical contact for interference questions is the VDE Testing Labs (VDE Pruefstelle, Merianstrasse 28, D-6050 Offenbach, West Germany). Since it is usually advantageous to address knowledgeable individuals the following are suggested: Mr. Wolfgang Steinert of the VDE Testing Station published an article "Interference Control Regulations A Contribution to Electrical-Pollution Protection" in the NTZ Communication Journal of the VDE (NTZ August 1973, pp. 126-127). Dr. A. Warner will be publishing a paper "Certification in the Field of Radio Interference Suppression" at the 1975 EMC Symposium in Montreux, Switzerland. In addition, it should be pointed out that the Underwriters Lab in Chicago and the VDE Testing Station have reached a reciprocity agreement for the certification testing to the other countries standards, but only for electrical characteristics excluding interference suppression.

A generalized EMI approval procedure, also applicable to VDE, is shown in Figure 1. In dealing with VDE several points

should be remembered. VDE regulations are applicable only to West Germany. VDE is participating in CISPR and is adopting CISPR regulations. Other countries have their own regulations. However, they are all related via CISPR. VDE regulations apply only to incidental interference generating devices and ISM equipment. Intentional transmitters are governed by a series of about 30 FTZ regulations (FTZ A 446 R 2023 is applicable to Mobile VHF transmitters). The FTZ should be contacted directly for transmitter type approval.

The VDE regulations establish many different requirements for all equipment that generates, transmits, or utilizes electrical energy. The regulation structure is divided into groups. For example, the second digit of VDE 0875/7.71 shows that the regulation is from Group 8. The numbers behind the slash indicate the month and year of effectivity. The groups are as follows:

- Group 0 - General
- Group 1 - Electric Power Installations
- Group 2 - Power Lines and Cables
- Group 3 - Insulating Materials
- Group 4 - Measurement and Test
- Group 5 - Machinery and Transformers
- Group 6 - Installation Materials, Switching & HV Apparatus
- Group 7 - Power Utilizing Equipment
- Group 8 - Telecommunications & Radio Installations

The regulations specifically applicable to interference suppression are:

VDE 0110/11.73 Regulations for the Measurement of Air-gaps and Creepage Distances in Electrical Equipment.

VDE 0550
Part 1/12.69 Regulations for Small Transformers, General.

VDE 0550
Part 6/4.66 Special Regulations for Chokes and Inductors.
(Modifies Part 1. primarily in required cross-sectional area of wires for windings.)

VDE 0560
Part 7/11.67 Radio Interference Suppression Capacitors.
(Also gives differences between IEC, Publication 161, 1965 Version).

EMI APPROVAL PROCEDURE

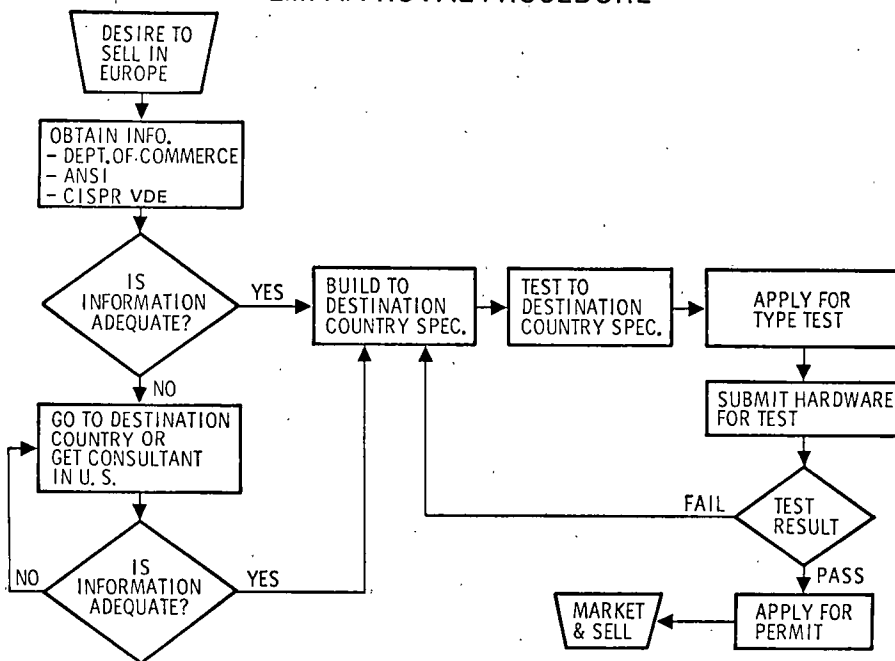


Figure 1

VDE 0875/7.71 LIMITS FOR APPLIANCES

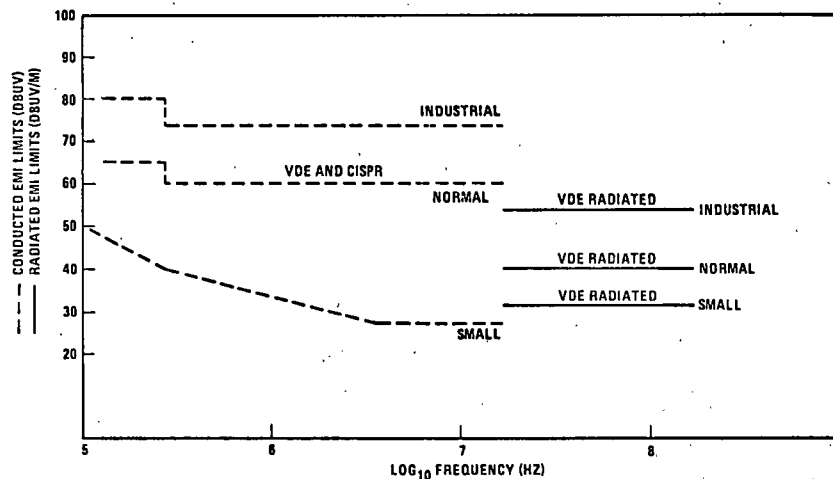


Figure 2

CISPR INSTRUMENTATION TIME CONSTANTS & BAND WIDTHS

FREQUENCY RANGE (MHz)	CHARGE TIME-CONSTANT	DISCHARGE TIME-CONSTANT	-6DB BANDWIDTH
0.015 - 0.15	45 m-sec.	500 m-sec.	200 Hz
0.15 - 30	1 m-sec.	160 m-sec.	9 kHz
30 - 400	1 m-sec.	550 m-sec.	120 kHz
400 - 1,000	1 m-sec.	550 m-sec.	120 kHz

(MECHANICAL TIME CONSTANT OF INDICATOR = 160 m-sec.)

TABLE 1

VDE 0871/3.68	Regulations for interference Suppression of High Frequency Apparatus and Systems. (Applicable to equipments known as ISM in the U.S. Also shows application procedure for obtaining VDE type approval.)	VDE 0877 Part 1/12.59	Instructions for the Measurement of Radio Interference Voltages.
VDE 0872/7.72	Regulations for the Interference Suppression of Broadcast and Television Receivers.	VDE 0877 Part 2/12.55	Instructions for the Measurement of Radio Frequency Field Strengths.
VDE 0874/10.73	Guidelines for Radio Frequency Interference Suppression. (Gives interference control design guidelines).	VDE 0879 Part 1/9.66	Interference Suppression of Vehicles and Equipment with Internal Combustion Engines.
VDE 0875/7.71	Regulations for the Radio Frequency Interference Suppression of Appliances, Machines, and Installations. (This is the main document for all electrical equipment. Gives limits as shown in Figure 2. Also specifies measurement instruments and procedures).	Part 1/7.72 Part 2/1.58	Regulation for the Far-Field Suppression of the Ignition System. Revision to Part 2/9.66. Guidelines for Near-Field Suppression.
VDE 0876/12.55	Specification for Radio Frequency Interference Measuring Sets. (Measuring set specification for 100kHz to 300MHz frequency range. Main parameters are the same as for CISPR measuring set shown in Tbl. 1.)	<p>When ordering VDE specifications and expecting a quick response, it is advisable to use a prepaid order approach. Obtain an International Bank Draft in DM, payable to VDE Verlag through Bank fuer Handel and Industrie AG, Branch 35, Konto Nr. 6,222,225. Assume that each specification costs about DM 20.00 and ask the VDE Publishing House to bill you for any additional amount. It is also advisable to correspond in German and requesting Air Mail delivery of the order.</p>	

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