

[INCH-POUND]  
A-A-59535  
2 February 2000  
SUPERSEDING  
MIL-P-45328D  
26 April 1989

## COMMERCIAL ITEM DESCRIPTION

### PUMP, FUEL, ELECTRICAL: 12 AND 24 VOLT DC

The General Services Administration has authorized the use of this commercial item description (CID) for all federal agencies.

1. SCOPE. This CID covers two types of electrically operated, in-line fuel pumps for use with 12 and 24 volt direct current (Vdc) automotive electrical systems.

2. CLASSIFICATION. The pumps are of the following types:

Type I	-	12 Vdc (nominal)
Type II	-	24 Vdc (nominal)

3. SALIENT CHARACTERISTICS.

3.1 Design and construction.

3.1.1 Envelope. The external dimensions of the pump shall conform to the envelope dimensions shown on figure 1.

3.1.2 Fuel filter. The pump shall incorporate a fuel filter to protect the fuel supply system. The filter shall be removable for cleaning without demounting the pump.

3.1.3 Inlet and outlet connections. The inlet and outlet connections shall be threaded to interface with the mating threaded part. Internal threads shall be 0.1250 - 27 NPT (American National Standard Taper Pipe Threads) and external threads shall be 0.2500 - 18 NPT. If internal threads are used on the pump, a threaded adapter shall be provided with external threads of 0.2500 - 18 NPT. The adapter shall not protrude from the pump body more than 0.5 inches.

3.1.4 Electrical connector and cable. The electrical connector shall be as shown on figure 1. The electrical connector shall withstand a pull of not less than 60 pounds. The mated connector shall not require more than 30 pounds to separate from its mate at a temperature of -55 degrees Fahrenheit (°F). The cable shall conform to MIL-C-13486 type I, class A, or equal. When necessary, part or all of the cable may conform to MIL-C-13486 type II, class A, or equal, provided that a separate cable ground is used. Cables shall exit the pump within or before the area marked "CABLE CLEARANCE" shown on figure 1. Both the cable and the cable ground shall be external to the pump body and shall be located within the cable clearance area shown on figure 1. The cable shall be flexible down to -55 °F. The junction between the connector and cable shall be waterproof. The boot attached to the power cable shall be made of rubber ASTM D 2000 M5BC 610 A14E034F19 Z1 (Z1 is method B of C12) in accordance with ASTM D2000, or equal.

Beneficial comments, recommendations, additions, deletions, clarifications, and any other data that may improve this document should be sent to: Defense Supply Center, Columbus, Attn: DSCC-VAI, 3990 E. Broad Street, Columbus, OH 43213-5000.
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AMSC N/A

FSC 2910

DISTRIBUTION STATEMENT A. Approved for public release; distribution is unlimited.

### 3.2 Performance.

3.2.1 Fuel compatibility. The pump shall be capable of operating with the following fuels:

- a. Diesel fuel oil, grades 1-D and 2-D, conforming to ASTM D975.
- b. Diesel fuel oil conforming to A-A-52557.
- c. Jet A-1 turbine fuel conforming to ASTM D1655.

3.2.2 Output. The output of each pump type shall equal or exceed the applicable performance curve shown on figure 2 when operated at temperatures between 65 and 75 °F. The pump fuel flow, at any given pressure, shall be not less than 67% of the value shown in figure 2 in ambient temperatures ranging from -55 to +65 °F.

3.2.3 Electrical. The pump shall operate within the voltage range listed in table I. The negative terminal of the pump shall be connected to ground. The load current shall not exceed 1.75 amperes.

TABLE I. DC voltage.

Pump type	Nominal voltage	Minimum voltage	Maximum voltage
I	12	6	18
II	24	18	30

3.2.4 Electromagnetic interference suppression. Conducted emissions and radiated emissions on power leads shall not exceed the values shown on figures 3 and 4, respectively.

3.2.5 Dry operation. The pump shall be capable of withstanding dry pumping operation for a period of not less than 4 hours without evidence of damage or impairment of performance.

3.2.6 Dry prime. The pump shall be capable of commencing and maintaining fuel pumping operation from a dry condition with the fuel source not less than 2.5 feet below the bottom of the pump.

3.2.7 Endurance. The pump shall maintain a delivery versus pressure relationship not less than that specified in 3.2.2 for a period of not less than 3,000 hours.

3.3 Materials. Materials shall conform to the manufacturer's materials specifications for pumps. Asbestos, cadmium, and radioactive materials defined by Title 10, Code of Federal Regulations (CFR), Part 40, and other radioactive material in which the radioactivity is greater than 0.002 microcuries per gram or 0.01 microcuries total activity, shall not be incorporated into the pump assembly.

### 3.4 Environmental conditions.

3.4.1 Storage temperature. The pump shall operate after being stored at temperatures ranging from -65 to +160 °F.

3.4.2 Vibration resistance. The pump shall show no evidence of damage or leakage and shall meet the output requirements of 3.2.2 when subjected to a simple harmonic motion with an amplitude of not less than 0.03 inch at a frequency range of 10 to 55 Hz along each of the three mutually perpendicular axes.

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3.4.3 Shock resistance. The pump shall show no evidence of damage or leakage and shall meet the output requirements of 3.2.2 when subjected to sawtooth wave shocks (see figure 5) of 25 gravity units (g) with a nominal duration of 18 milliseconds along each of the three mutually perpendicular axes.

3.4.4 Corrosion resistance. The pump shall resist corrosion resulting from exposure to salt fog .

3.4.5 Fungus resistance. The pump shall be non-nutritive for fungus growth.

3.5 Marking for identification. The pump shall be marked for identification in accordance with MIL-STD-130. Markings shall be permanent on the exterior of the pump, and shall include the following information:

- a. Nomenclature: "Pump, Fuel, Electrical".
- b. Part or identifying number (PIN) (see 7.1) and national stock number (NSN) (see 7.4).
- c. Manufacturer's CAGE Code (or equivalent identification).
- d. Date of manufacture.
- e. The inlet shall be marked "IN" and the outlet shall be marked "OUT".
- f. Operating voltage and electrical ground polarity shall be marked "12 Vdc Negative" or "24 Vdc Negative" as appropriate.

#### 4. REGULATORY REQUIREMENTS.

4.1 Recovered materials. The use of recovered materials is encouraged to the maximum extent practicable, in accordance with paragraph 23.403 of the Federal Acquisition Regulation (FAR) (see 7.3.1).

#### 5. QUALITY ASSURANCE PROVISIONS.

5.1 Product conformance. The products provided shall meet the salient characteristics (see 3) of this CID; conform to the producer's own drawings, specifications, standards, and quality assurance practices; and be the same product offered for sale in the commercial market. The Government reserves the right to require proof of such conformance.

5.2 Market acceptability. The pumps must have been sold to the Government or commercial market for a minimum of one year.

5.3 Warranty. The pump shall be warranted for not less than 3,000 hours in commercial or industrial use.

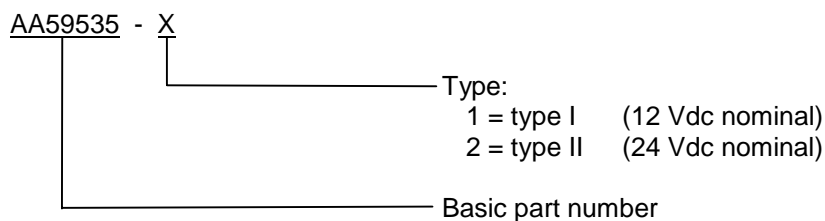
#### 6. PACKAGING.

6.1 Preservation, packing, and packaging, and marking. Preservation, packing, packaging, and marking shall be as specified in the contract or order (see 7.2).

## 7. NOTES.

7.1 Part or identifying number (PIN). The following part identification numbering procedure is for government purposes only and does not constitute a requirement for the contractor.

This example describes a part numbering system for CID A-A-59535:



7.2 Ordering data. Procurement documents should specify the following:

- a. Number, title and date of this CID.
- b. Type of pump required (see 2).
- c. Preservation, packing, packaging, and marking requirements (see 6.1)
- d. PIN (see 7.1), National Stock Number (NSN)(see 7.4), and quantity required.
- e. Issue of the DoDISS to be cited in the solicitation and the specific issue of the individual documents listed in 7.3.

### 7.3 Source of documents.

7.3.1 The Federal Acquisition Regulation (FAR) and the Code of Federal Regulations (CFR) may be obtained from the Superintendent of Documents, US Government Printing Office, Washington, D.C. 20402.

7.3.2 Federal and military specifications and standards may be obtained from the Defense Automation and Production Service, DODSSP, Standardization Document Order Desk, 700 Robbins Avenue, Bldg. 4D, Philadelphia, PA 19111-5094.

A-A-52557	-	Fuel Oil, Diesel; For Posts, Camps, and Stations
MIL-C-13486	-	Cables, Special Purpose, Electrical: Low-Tension, Heavy-Duty, Single-Conductor And Multiconductor, Shielded And Unshielded, General Specification For
MS27142	-	Connector, Plug, Electrical-Pin Contact No. 12, 14, and 16 AWG, Waterproof
MIL-STD-130	-	Identification Marking of U.S. Military Property

7.3.3 ASTM standards may be obtained from the American Society for Testing and Materials, 100 Barr Harbor Drive, West Conshohocken, PA 19428-2959.

ASTM D975	-	Diesel Fuel Oils
ASTM D1655	-	Aviation Turbine Fuels
ASTM D2000	-	Standard Classification System for Rubber Products in Automotive Applications

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7.4 National Stock Number (NSN). The following is a list of NSNs assigned, which correspond to this CID. This list may not be indicative of all possible NSNs associated with the CID.

<u>Pump type</u>	<u>NSN</u>	<u>Former MS part number</u>
I (12 volts)	2910-00-735-4013	MS51321-1-12N1
I (12 volts)	2910-00-847-9250	MS51321-2-12N1
II (24 volts)	2910-00-679-9743	MS51321-3-24N1
II (24 volts)	2910-00-710-6054	MS51321-1-24N1
II (24 volts)	2910-00-930-9367	MS51321-2-24N1

7.5 Intended use. Type I fuel pumps furnished under this CID are intended for use in military motor vehicles or other military equipment (auxiliary power units, personnel heaters, and winterization kits, for example) requiring fuel distribution. Type II fuel pumps are intended primarily for use in engine-driven portable electric generator sets and crew compartment heaters in tracked vehicles where long life is a requirement.

MILITARY INTERESTS:

Custodians:

Army - AT  
Air Force - 99  
DLA - CC

Preparing activity:  
DLA - CC

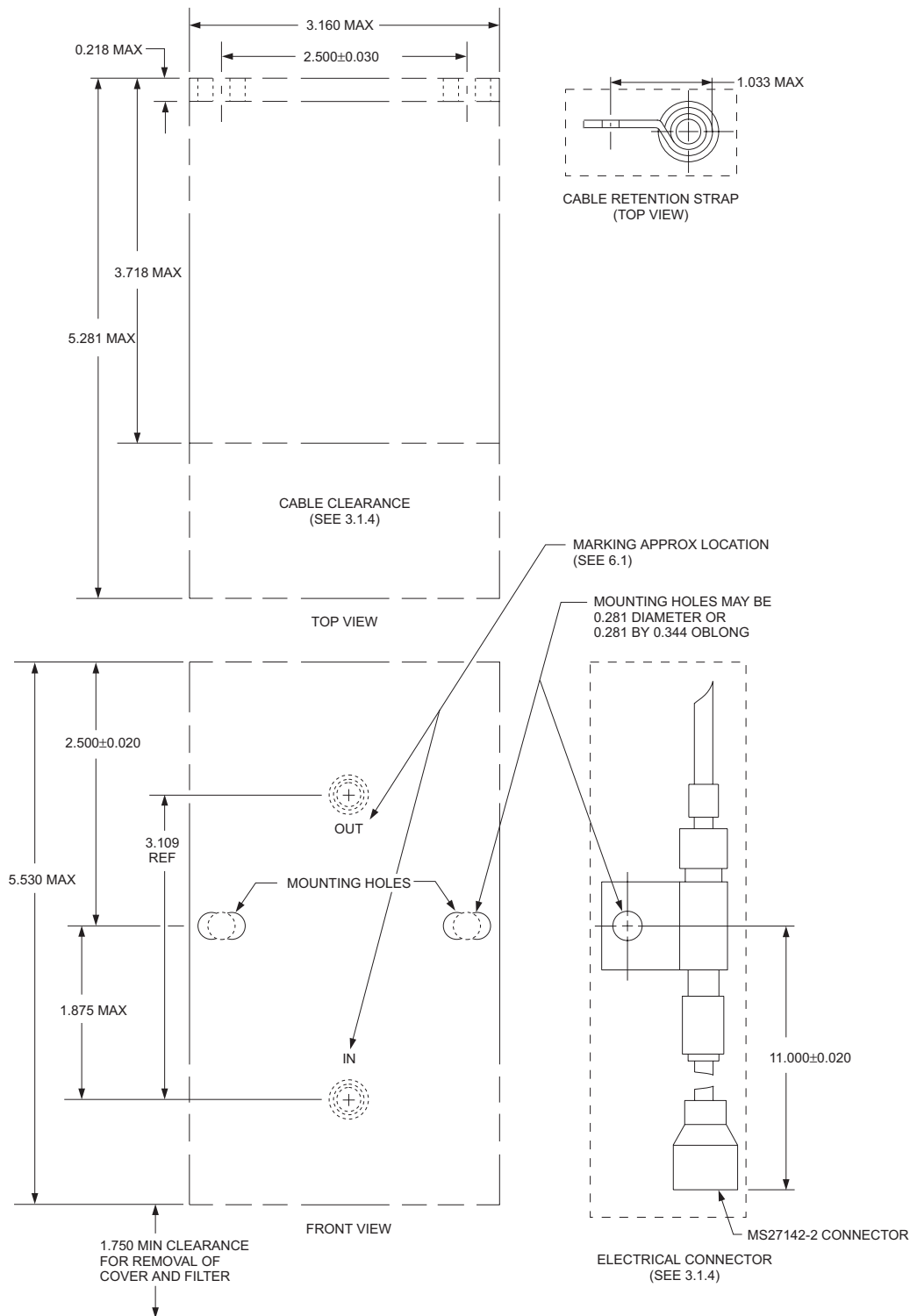
(DoD Project 2910-0255)

Review activity:

Air Force - 82

CIVIL AGENCY COORDINATING ACTIVITY:

GSA - FFAE



Dimensions are in inches. Unless otherwise specified, tolerances are ±0.010.

Figure 1. Envelope dimensions for electrical fuel pump

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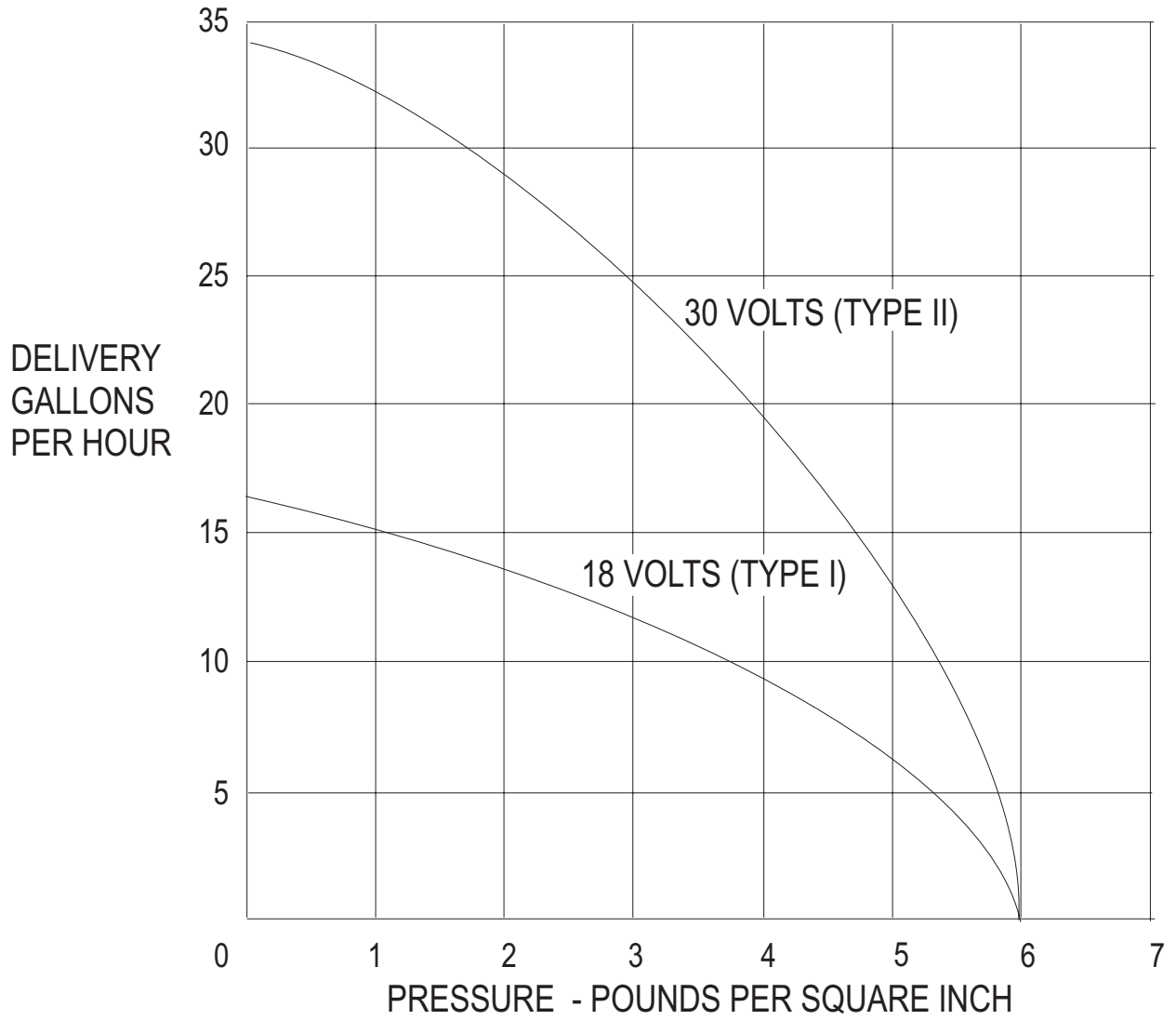


Figure 2. Output performance curves

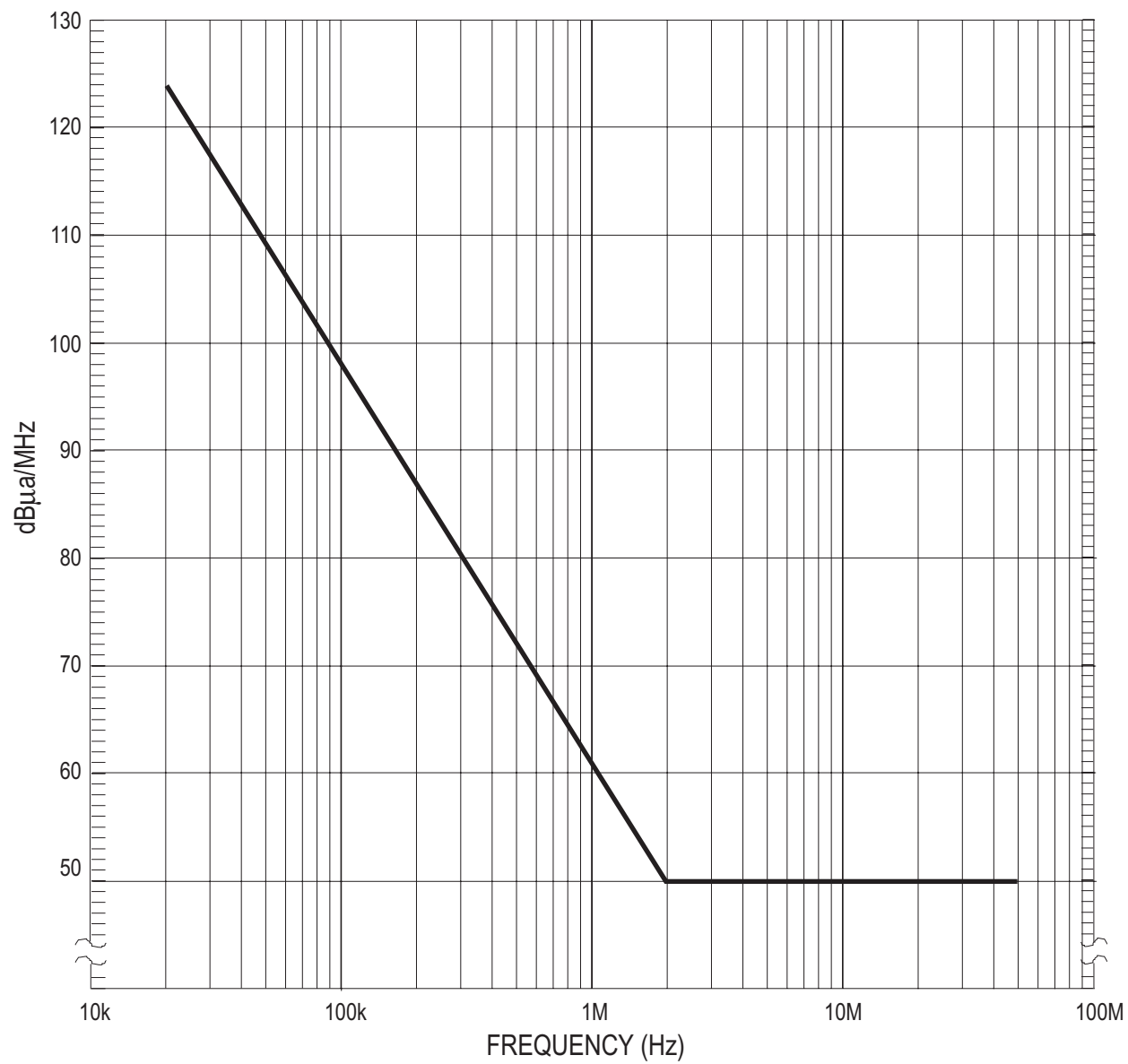


Figure 3. Conducted emission limits



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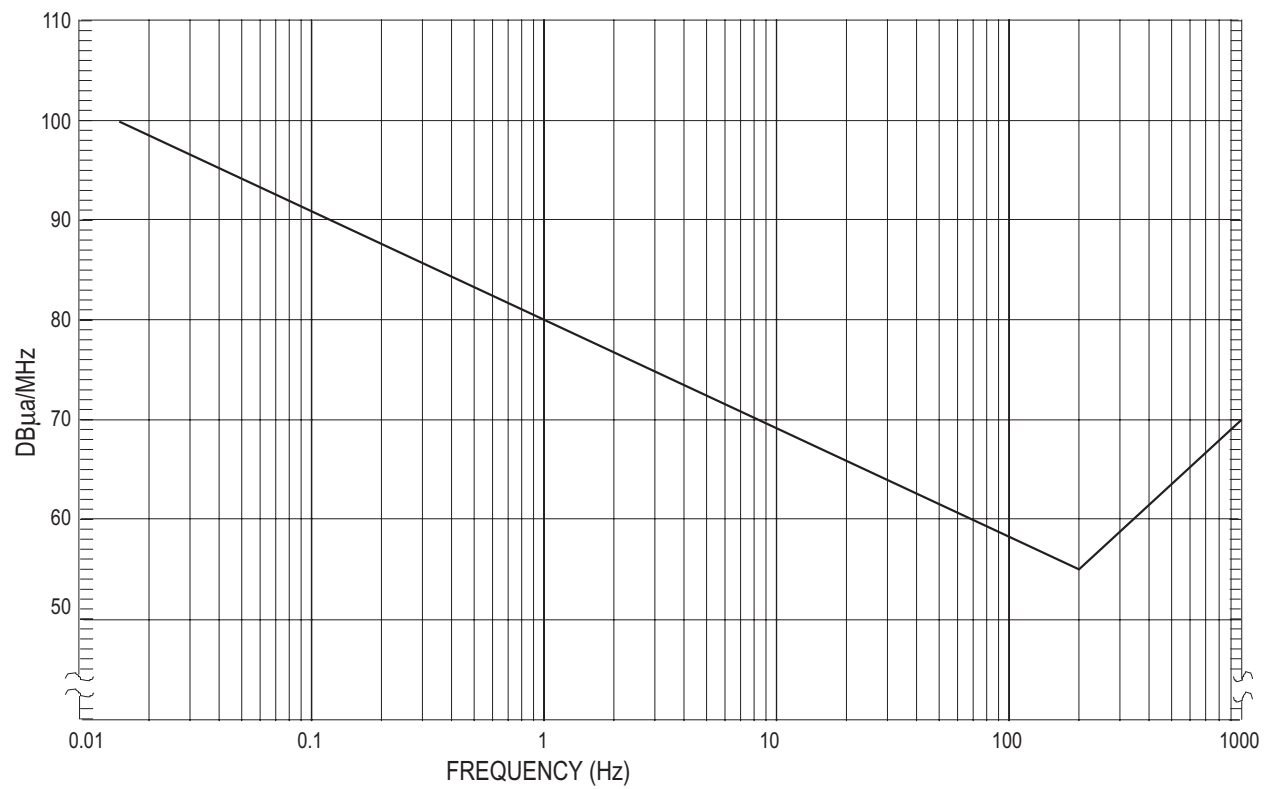


Figure 4. Radiated emission limits

