# CHARACTERISTICS

## Electrical Characteristics

The following electrical characteristics are valid when the CT-5 is used with a calibrated A6302/AM503 or P6021/134 combination and a calibrated oscilloscope, and operated within the limitations stated in this Specification section.

**Table 1-1**
**Electrical Characteristics**

| Characteristic | Performance Requirement | Supplemental Information |
|---|---|---|
| Bandwidth (−3 dB) | | |
| CT-5 with A6302/AM503 | 0.5 Hz to 20 MHz. | |
| CT-5 with P6021/134 | 12 Hz to 20 MHz. | |
| CT-5/A6302/DC Bucking Coil | 1 Hz to 1 MHz. | |
| Transient Response | | |
| Risetime | | 17.5 ns (With A6302/AM503 or P6021/134, calculated from bandwidth). |
| Aberrations | | |
| 20:1 Receptacle | | ±5%, total less than 7% p-p within 100 ns of 50% amplitude point. ±4% after this interval. |
| 1000:1 Receptacle | | ±9%, total less than 15% p-p within 100 ns of 50% amplitude point. ±4% after this interval. |
| Current Ranges | | |
| A6302/AM503 | | |
| 20:1 Receptacle | | 20 mA to 100 A/div. |
| 1000:1 Receptacle | | 1 A/div to 5000 A/div. |
| P6021/134 | | |
| 20:1 Receptacle | | 20 mA/div to 20 A/div. |
| 1000:1 Receptacle | | 1 A/div to 1000 A/div. |
| Accuracy | | Within 4% (when less than 20 A dc current is present). Accuracy deteriorates with higher dc current. See Fig. 2-8. |
| Maximum Continuous Input Current (25°C ambient) | 100 A peak from 20 Hz to 1.2 kHz. | Derated with frequency. See Fig. 2-4. |
| Maximum Pulse Current | 50,000 A peak. | (Figure of merit.) Derated with repetition rate and pulse duration. Maximum pulse limitation of the associated current probe must also be considered (with respect to the stepped-down pulse amplitude). See Section 2. |
| Maximum Ampere-Second Products | | |
| CT-5 Only | | 8 ampere seconds. |
| CT-5 with A6302/AM503 | 0.1 ampere second. | Probe installed in 1000:1 receptacle. |
| CT-5 with P6021/134 | 0.5 ampere second. | |

**Table 1-1 (cont.)**
**Electrical Characteristics**

| Characteristic | Performance Requirement | Supplemental Information |
|---|---|---|
| Insertion Impedance | | 20 μΩ at 60 Hz, increasing to 30 mΩ at 1 MHz. See Fig. 2-6. |
| Maximum Input Voltage | 3000 V peak with bare conductor. | |
| With HV Insulation | 10 kV (rms) or 14 kV (peak). | |
| External Magnetic Field Susceptibility | | 35 mA/Gauss (20:1 Receptacle) |
| Voltage Feedthrough Susceptibility | | Less than 3 mA/V up to 5 MHz. Less than 30 mA/V at 20 MHz. |
| CT-5 With DC Bucking Coil | | |
| Maximum DC Bucking Current | 300 ampere turns. | (300 mA, 1000 turns.) |
| Power Supply Requirement | 1 V for 20 A bucking, 300 mA 15 V maximum. | |
| Aberrations | | ±30% for the first 5 μs. Within 4% thereafter with up to 320 A dc (300 mA bucking current applied). |
| External Magnetic Field Susceptibility | | 500 mA/Gauss. May be improved by selecting physical placement. |

**Table 1-2**
**Environmental Characteristics**

| Characteristic | Information |
|---|---|
| Temperature | |
| Non-Operating | |
| In Carrying Case | −40°C to +60°C |
| CT-5 Only | −40°C to +130°C. |
| Bucking Coil | −40°C to +60°C. |
| Operating | 0°C to +50°C. |
| Altitude | |
| Non-Operating | To 50,000 feet. |
| Operating | To 15,000 feet. |
| Vibration (Operating) | 15 minutes along each axis to 0.015 inch total displacement with frequency varied from 10 Hz to 50 Hz to 10 Hz in 1 minute cycles. Three minutes at any resonant point or at 50 Hz. |
| Shock (Non-Operating) | 30 g's, one-half sine, 11 ms duration, 2 shocks per axis. |
| Transportation | |
| Package Vibration | 1 hour at 1 g. (Package just leaves vibration surface). |
| Package Drop | 36 inches on 1 corner, all edges radiating from that corner, and all flat edges. |

**Table 1-2**
**Physical Characteristics**

| Characteristic | Information |
|---|---|
| Dimensions | |
| CT-5 | 10.5 inches L × 2.2 inches W × 9.7 inches H (includes handle). |
| DC Bucking Coil | |
| Coil | 3 inches L × 3.5 inches W × 1.6 inches H. |
| Base | 5.4 inches L × 3.6 inches W × 1.7 inches H. |
| Carrying Case | 15 inches L × 11.6 inches W × 6 inches H. |
| Maximum Conductor Size | |
| CT-5 Only | 1.5 inch × 1.6 inch rectangle. |
| CT-5 With DC Bucking Coil | 0.89 inch × 1.6 inch rectangle. |
| Weight | |
| CT-5 | 4 lbs, 4 oz. |
| DC Bucking Coil | 2 lbs, 5 oz. |
| Carrying Case | 6 lbs. |