

LIGHTNING TESTING SERVICES

**Innovation.
Integrity.
Dependability.**



When lightning strikes, you need to be confident that important systems will not be damaged. To ensure that manufacturers meet necessary lightning requirements, Dayton T. Brown, Inc. now offers state of the art lightning testing services. This system is capable of generating a wide range of single stroke, multi-stroke and multi-burst waveforms as required by the latest national and international aviation test standards. Our NARTE certified engineers and technicians can test your electrical systems or their component parts for damage tolerance from the transients created when struck by lightning. DTB's Indirect Lightning Effects capabilities include:

- Testing in compliance with RTCA/DO-160, Section 22
- Multiple burst/multiple stroke lightning per SAE ARP5412, EUROCAE/ED-14E, FAA AC:20-136, SAE AE4L, MIL-STD-1757, MIL-STD-464
- Testing for specific Boeing, Airbus and other uniquely tailored requirements

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Product Life Cycle Support Services
Serving Military and Commercial Markets
Since 1950



* Accredited Test Lab
767.01, 767.02, 767.03

**ISO 9001:2008 and AS9100C
Registered**



* NVLAP LAB CODE
200422-0

1195 Church Street, Bohemia, NY 11716-5014 USA
Please direct all inquiries to: 1-800-232-6300 • email test@dtb.com
Visit our web site at: www.dtb.com

* Please visit www.dtb.com for testing covered under our scopes of accreditation.

RTCA/DO-160, Section 22, DTB Test Capabilities

Pin Injection – Single Stroke	Waveform 3 [1MHz (and 10MHz-Not in DO-160)], Levels 1 through 5
	Waveform 4 (6.4/69µs), Levels 1 through 5
	Waveform 5A (40/120µs), Levels 1 through 5
	Waveform 5B (50/500µs, Not in DO-160) Levels 1 through 5
Cable Injection – Single Stroke	Waveform 1 (6.4/69µs), Levels 1 through 4 (Level 5 with 12µs rise time rather than 6.4µs specified)
	Waveform 2 (0.1/6.4µs), Levels 1 through 3 (Level 4 on cables > 3m, Level 5 on cables > 50µH)
	Waveform 3 (1 and 10MHz), Levels 1 through 3 (Level 4 on cables > 5m, Level 5 on cables > 47µH)
	Waveform 5A (40/120µs), Levels 1 through 4 (Level 5 on cables < 1m and with a cross section of 10mm ²)
	Waveform 5B (50/500µs, Not in DO-160) Levels 1 through 4 (Level 5 on cables < 1m and with a cross section of 10mm ²)
Ground Injection – Single Stroke	Waveform 4 (6.4/69µs), Levels 1 through 4 (Level 5 on cables > 20 ohms)
	Waveform 2 (0.1/6.4µs), Levels 1 through 3 (Level 5 on cables < 1m and with a cross section of 10mm ²)
	Waveform 3 (50/500µs, Not in DO-160), Levels 1 through 4 (Level 5 on cables < 1m and with a cross section of 10mm ²)
Cable Injection – Multiple Stroke	Waveform 1 (6.4/69µs), Levels 1 through 5
	Waveform 2 (0.1/6.4µs), Levels 1 through 3 (Level 4 on cables > 3m, Level 5 on cables > 50µH)
	Waveform 3 (1 and 10MHz), Levels 1 through 3 (Level 4 on cables > 5m, Level 5 on cables > 47µH)
	Waveform 5A (40/120µs), Levels 1 through 5
	Waveform 5B (50/500µs, Not in DO-160), Levels 1 through 5
Ground Injection – Multiple Stroke	Waveform 4 (6.4/69µs), Levels 1 through 5
	Waveform 5A (40/120µs), Levels 1 through 5
	Waveform 5B (50/500µs, Not in DO-160) Levels 1 through 5
Cable Injection – Multiple Burst	Waveform 3 (1 and 10MHz), Levels 1 through 5
	Waveform 6 (0.25/4µs), Levels 1 through 3

The Waveform Sets and Test Levels associated with each injection method are specified in RTCA/DO-160, Section 22, Test Category Designation. The specified Waveform Sets (A through H, J & K) are compiled from a combination of the waveforms specified above. The Test Category Designation is based on the design characteristics of the EUT interface cable and its routing in the aircraft.

The connotation associated with each character in the Test Category Designation is as described below:

Possible Designations	A,B	1,2,3,4, or 5	C,D,E,F,G,H,J, or K	1,2,3,4, or 5	L or M	1,2,3,4 or 5
Test Parameter	Pin Test Waveform Set	Pin Test Level	Cable Bundle Waveform Set	Cable Bundle Single and Multiple Stroke Test Level	Cable Bundle Multiple Burst Waveform Set	Cable Bundle Multiple Burst Test Level
Example:	B	3	G	4	L	3

Applying the tests specified in RTCA/DO-160, Section 22, up through rev. G, our generators can be used for pin injection, cable bundle, and Ground Injection (GI) tests, using waveforms one through six. Whether the damaging effects of lightning are frequent, occasional or a rare risk, we can assure that your system has the lightning protection required for dependable performance.

A World of Engineering and Testing Under One Roof™

**DAYTON T. BROWN, INC.
ENGINEERING & TEST DIVISION**



**PHONE: (631) 589-6300
FAX: (631) 589-3648**

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