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-160E, Section 22
- Multiple burst / multiple stroke lightning per SAE ARP5412, EUROCAE/ED-14E, FAA AC:20-136, SAE AE4L, MIL-STD-1757
- Testing for specific Boeing and Airbus requirements

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A World of Engineering and Testing Under One Roof ™

DAYTON T. BROWN INC. ®

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See our web site for most current list of accreditations

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NVLAP accredited 461/462

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Please direct all inquiries to: 1-800 test 456 • email test@dtbtest.com
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RTCA DO 160E Section 22 DTB Test Capabilities

Pin Injection – Single Stroke	Waveform 3 (1&10MHz), Levels 1 through 5
	Waveform 4 (6.4/70 µs), Levels 1 through 5
	Waveform 5A (40/120 µs), Levels 1 through 5
	Waveform 5B (50/500 µs, Not in DO 160) Levels 1 through 5
Cable Injection – Single Stroke	Waveform 1 (6.4/70 µs) , Levels 1 through 4 (Level 5 with 12µSec. rise time rather than 6.4 µSec.specified)
	Waveform 2 (0.1/6.4 µs) , Levels 1 through 3 (Level 4 on Cables > 3 m, Level 5 on Cables > 50 µH)
	Waveform 3 (1 &10MHz), Levels 1 through 3 (Level 4 on cables > 5 m, Level 5 on Cables > 47 µH)
	Waveform 5A, (40/120 µs), Levels 1 through 4 (Level 5 on cables < 1 m and with a cross section of 10mm2)
	Waveform 5B, (50/500 µs, Not in DO 160) Levels 1 through 4 (Level 5 on cables < 1 m and with a cross section of 10mm2)
Ground Injection – Single Stroke	Waveform 4 (6.4/70 µs), Levels 1 through 4 (Level 5 on cables > 20 ohms)
	Waveform 5A, (40/120 µs), Levels 1 through 4 (Level 5 on cables < 1 m and with a cross section of 10mm2)
	Waveform 5B, (50/500 µs, Not in DO 160) Levels 1 through 4 (Level 5 on cables < 1 m and with a cross section of 10mm2)
Cable Injection – Multiple Stroke	Waveform 1 (6.4/70 µs), Levels 1 through 5
	Waveform 2 (0.1/6.4 µs), Levels 1 through 3 (Level 4 on Cables > 3 m, Level 5 on Cables > 50 µH)
	Waveform 3 (1 &10MHz), Levels 1 through 3 (Level 4 on cables > 5 m, Level 5 on Cables > 47 µH)
	Waveform 5A, (40/120 µs), Levels 1 through 5
	Waveform 5B, (50/500 µs, Not in DO 160) Levels 1 through 5
Ground Injection – Multiple Stroke	Waveform 4 (6.4/70 µs), Levels 1 through 5
	Waveform 5A, (40/120 µs), Levels 1 through 5
	Waveform 5B, (50/500 µs, Not in DO 160) Levels 1 through 5
Cable Injection – Multiple Burst	Waveform 3, (1 and 10 MHz), Levels 1 through 5

The Waveform Sets and Test Levels associated with each injection method are specified by the .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	G,H,J or K
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 Test Level
Example:	B	3	G	4	3

Applying the tests specified in DO-160 section 22, our generators can be used for pin injection, cable bundle, and Ground Injection (GI) tests, using waveforms one through to five. 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.

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