

# INDIRECT LIGHTNING TESTING SERVICES

**Innovation.  
Integrity.  
Dependability.**



***When lightning strikes, you need to be confident that critical flight systems will not be damaged. To ensure that manufacturers meet necessary lightning requirements, Dayton T. Brown, Inc. offers state of the art Indirect Lightning Testing Services. Dayton T. Brown, Inc. 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 iNARTE certified engineers and technicians can test your electrical systems ability to tolerate the damage created by Lightning Induced Transients. DTB's Indirect Lightning Effects capabilities include:***

- Testing in compliance with RTCA/DO-160, Section 22 and MIL-STD-461G, CS117
- Multiple burst/multiple stroke lightning per SAE ARP5412, EUROCAE/ED-14E, MIL-STD-464
- Testing for specific Boeing, Airbus and other Aircraft OEM specific standards

***[www.dtb.com](http://www.dtb.com)***



*A World of Engineering and Testing  
Under One Roof™*



\* Accredited Test Lab  
767.01, 767.02, 767.03

ISO 9001:2015 and AS9100D  
Registered



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Visit our web site at: [www.dtb.com](http://www.dtb.com)

\* Please visit [www.dtb.com](http://www.dtb.com) for testing covered under our scopes of accreditation.

**DTB Test Capabilities and MIL-STD-461G method**

<b>DO-160 PIN Injection</b>	
<b>Waveforms</b>	WF3, WF4, & WF5A
WF3 - 1MHz	100V up to 750V / 30A (Zs, 25Ω)
WF4 - 6.4/69μs	50V up to 500V / 100A (Zs, 5Ω)
WF5A - 40/120μs	50V up to 500V / 500A (Zs, 1Ω)
<b>DO-160 Single Stroke</b>	
<b>Waveforms</b>	WF1, WF2, WF3, WF4, & WF5A
WF1 - 6.4/69μs	25A up to 900A
WF2 - 0.1/6.4μs	25V up to 1600V
WF3 - 1MHz	50V up to 1900V
WF3 - 10MHz	50V up to 1100V
WF4 - 6.4/69μs	10V up to 1600V
WF5A - 40/120μs	30A up to 1800A
<b>DO-160 &amp; MIL-STD-461G Multiple Stroke</b>	
<b>Waveforms</b>	WF1, WF2, WF3, WF4, & WF5A
WF1 - 6.4/69μs	25A up to 900A
WF2 - 0.1/6.4μs	25V up to 1600V
WF3 - 1MHz	50V up to 1900V
WF3 - 10MHz	50V up to 1100V
WF4 - 6.4/69μs	10V up to 1600V
WF5A - 40/120μs	30A up to 1800A
<b>DO-160 &amp; MIL-STD-461G Multiple Burst</b>	
<b>Waveforms</b>	WF3 & WF6
WF3 - 1MHz	50V up to 700V
WF3 - 10MHz	50V up to 800V
WF6 - 0.25/4μs	2.5A up to 75A
Burst pattern DO-160	1 burst of 20 pulses 3 repetitions
Pulse spacing	50μs up to 1000μs
Burst repetition	30ms up to 300ms

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:

<b>Possible Designations</b>	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
<b>Test Parameter</b>	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
<b>Example:</b>	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.

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



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