

HV Strike Attachment Point Testing System

LVG 3000

Datasheet



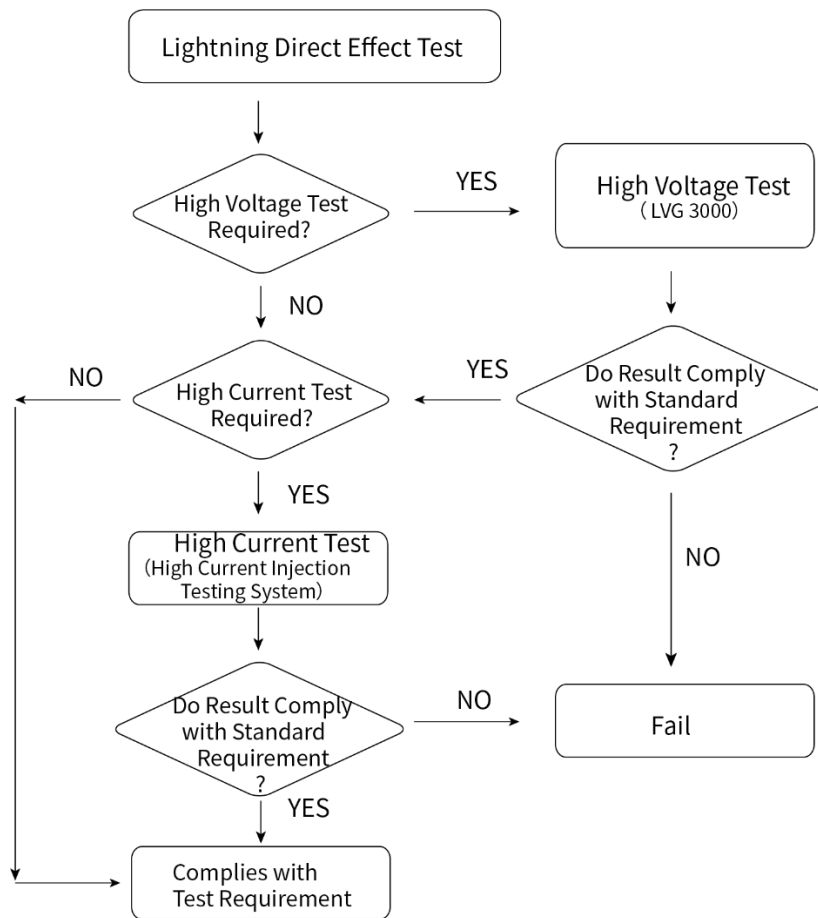
In Compliance with

- > MIL-STD-464C
- > DO 160 S23
- > GJB 3567 (1997)
- > GJB 1389A (2005)
- > GJB 8848 (2016)
- > HB 6167.24 (2014)
- > HB 6129 (1987)

Introduction

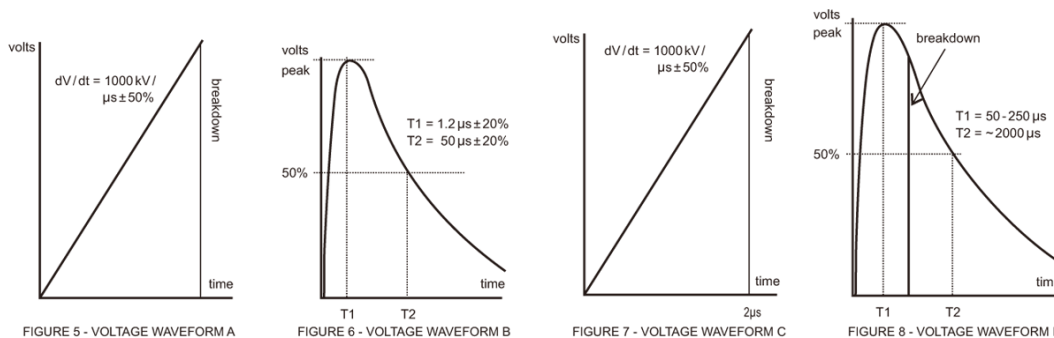
While flying in severe convective weather, aircrafts are easy to be affected by lightning strikes, which may cause high temperature, high voltage and high magnetic field, leading to fire break, corrosion, explosion, deformation and strength reduction etc. LVG 3000 is 3ctest's self-developed testing system, which can simulate the environment where an aircraft flies and find the attachment points that is easy to be struck by lightning, fully in compliance with the test requirement specified in MIL-STD-464C, DO 160 section23, SAE ARP5416, GJB 1389A and GJB 3567 etc. It can also be used for tests on the whole aircraft, aerospace materials, ships, missiles, military vehicles, radars etc.

Flow Chart for Lightning Direct Effect Test:



Waveforms:

According to MIL-STD-464C and SAE ARP5412, there are 4 waveforms to be tested as below.



Waveform Explanation

Voltage waveform A: This waveform rises at a rate of 1000 kV/ μ s (\pm 50%) until its increase is interrupted by voltage breakdown of the intervening air gap, resulting in the puncture of, or flashover across, the object under test. At that time the voltage collapses to zero. The rate of voltage collapse or the decay time of the voltage if breakdown does not occur (open circuit voltage of a lightning voltage generator) is not specified.

Voltage waveform D is a voltage rising to peak in between 50 μ s and 250 μ s with a time to 50% of peak of approximately 2000 μ s.

Voltage waveform B: This waveform is a 1.2 μ s x 50 μ s waveform which is the electrical industry standard for impulse dielectric tests.

Voltage waveform C: This is a chopped voltage waveform in which breakdown of the gap between an object under test and the test electrodes occurs at 2 μ s (\pm 50%). The amplitude of the voltage at time of breakdown and the rate-of-rise of voltage prior to breakdown are not specified.

Voltage waveform D: The slow fronted Voltage Waveform D has a rise time between 50 and 250 μ s so as to allow time for streamers from an object to develop. It should give a higher strike rate to the low probability regions than otherwise might have been expected.

Technical Parameters

Output Waveform	WF A	WF B	WF C	WF D
Front Time	1000 (+500) kV / μ s	1.2 μ s \pm 20%	2 μ s \pm 20%	50 μ s ~ 250 μ s
Attenuation	N/A	50 \pm 20%	N/A	>200
Peak Efficiency	>80%	>90%	>80%	>60%
Charging Voltage	200 kV (double charging)			
Levels	15			
Discharge Switch	Hollow copper ball type, 3 ignition gaps			
Switch Type	Linear driving, 0 ~ 100 mm (\pm 0.1 mm) adjustable			
Waveform Shaping Method	Multi-level Marx generator structure			

General Parameters

Operating Power Supply	AC 220 V, 100 A
Charging Voltage	20 kV ~ 200 kV
Charging Polarity	+ / -
Measurement of Voltage	Damped voltage divider

Standard Accessories

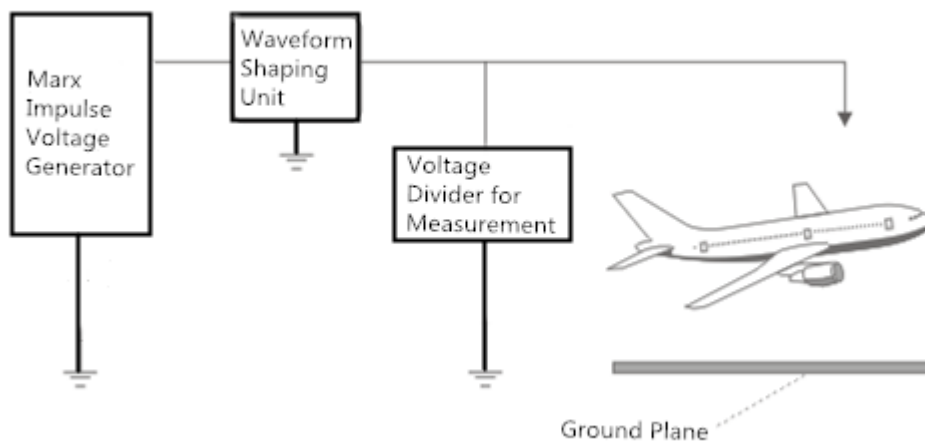
Quality Guarantee	1 pc
Factory Inspection Report	1 pc
User Manual	1 pc

Features

- Adopt the design of open main circuit; H-type tower structure with ultra-small size;
- Adopt Marx generator, realizing charge in parallel, discharge in series;
- Sphere gap can be adjusted automatically in the range of fully charging voltage with resolution 0.1 mm;
- Safety operation, sound-light alarms, automatic protection

Diagram for HV Strike Attachment Point Test

Waveform shaping unit includes adjusting unit of lightning waves, steep waves or operating waves.





SUZHOU 3CTEST ELECTRONIC CO., LTD.

Add.: No. 99 E'meishan Road, SND, Suzhou, Jiangsu Province, China

Tel: +86 (0)512 6807 7192 Fax: +86-512-68079795

Sales Email: globalsales@3ctest.cn Service Email: service@3ctest.cn

www.3c-test.com