



Letter of Certification

GPS Networking, Inc. products (MIL-LDCBS1X2, MIL-HIALDCBS1X2, MIL-ALDCBS1X2, MIL-LDCBS1X4, MIL-HIALDCBS1X4, MIL-ALDCBS1X4, MIL-ALDCBS1X8, MIL-HIALDCBS1X8) were tested and certified to the following standards and specifications as summarized below:

MIL-STD-461F

Testing Lab: EMC Integrity, Inc.

Certification Data: ISO/IEC 17025:2005 by NVLAP. Lab Code: 200737-0.

Date: May 2015

Test	Description	Result
CE102: Conducted Emissions	DC Power Leads 10kHz to 10MHz	Pass
CS101: Conducted Susceptibility	DC Power Leads 30 Hz to 150 kHz	Pass
CS114: Conducted Susceptibility	Bulk Cable Injection 10 kHz to 200 MHz	Pass
CS115: Conducted Susceptibility	Bulk Cable Injection, Impulse Excitation 5 amps at 30 Hz	Pass
CS116: Conducted Susceptibility	Bulk Cable Injection, Damped Sinusoidal Transients 10 kHz to 100 MHz	Pass
RE102: Radiated Emissions	E-field Emission Detection 10 kHz to 18 GHz	Pass
RE103: Radiated E-field Susceptibility	2 MHz to 18GHz at 50 V/m	Pass

MIL-STD-810F

Testing Lab: Cascade Technical Sciences, Inc.

Certification Data: A2LA 2582.01 & 2582.01, ISTA, MIL-STD Suitability DLA

Date: May 2015

Test	Description	Result
Ambient Temperature- Operating Cold	The GPS splitters was subjected to a two-hour exposure at -40°C following stabilization. After the exposure the splitters were verified and instrumented with a thermocouple to determine stabilization.	Pass
Ambient Temperature- Operating Hot	The GPS splitters were subjected to a two-hour exposure at +71°C following stabilization. After the exposure the splitters were verified and instrumented with a thermocouple to determine stabilization.	Pass

Ambient Temperature-Non-Operating Cold	The GPS splitters were exposed to -40°C and allow to stabilize and then maintained a period of 2 hours. All transition rates were set at 2°C/minute with T/C attached to the sample for temperature monitoring.	Pass
Ambient Temperature-Non-Operating Hot	The GPS splitters were exposed to +71°C and allowed to stabilize and then maintained a period of 4 hours. All transition rates were set at 2°C/minute.	Pass
Operating Altitude	The GPS splitters were subjected to an exposure at an altitude of 45,000 ft. and all transitions were made at no greater than 10m/s or approximately 2,000 ft. per minute.	Pass
Non-Operating Altitude-(Storage)	The GPS splitters were non-operating and subjected to at least 1 hour of exposure at an altitude of 45,000 feet. All transitions were made at no greater than 10m/s or approximately 2,000 feet per minute.	Pass
Random on Random Vibration	The GPS splitters (Lab temp +68degF) (lab humidity 30%RH) were operational and were tested functional at 5.71 gRMS and tested endurance 6.6 gRMS for one hour in all axes. After testing the frequency response was measured to ensure the 1.575GHz was +/- 1.5 and the SWR is <2.	Pass
Random on Random Vibration	The GPS splitters (Lab temp +72°F) (lab humidity 41%RH) were operational and were tested functional at 5.1 gRMS and tested endurance 5.92 gRMS for one hour in all axes. After testing the frequency response was measured to ensure the 1.575GHz was +/- 1.5 and the SWR is <2.	Pass
Random on Random Vibration	The GPS splitters (Lab Temp +78°F) (lab humidity 32%RH) were operational and exposed to random vibration of ground, air and ship transportation for all 4 axes. Breakpoints were 5Hz was kept at .02g2/Hz and 8Hz was kept at .15g2/Hz.	Pass
Functional Shock Test	The GPS splitters were sawtooth shock tested with functional shock at 20G, 11ms-3 pulses per direction.	Pass
Crash Shock Test	The GPS splitters were sawtooth shock tested with functional shock at 40G, 11ms-2 pulses per direction.	Pass
Bench Handling	The GPS splitters without covers were subjected to 4 impacts on a solid wooden bench top by raising the edges to either 4"height, a 45 deg angle, and a point of counter-balance. This exposure was also tested on the rear(mounting) and front (labeling) faces.	Pass
Acceleration-(Operational)	The GPS splitters were exposed to 9.5g's of acceleration exposure in each of six directions with power at 12Vdc. Maintained 9.5g's for a period of 1 minute.	Pass
Acceleration-(Non-operational)	The GPS splitters were exposed to 14 g's of acceleration exposure in each of six directions with no power. Maintained 14 g's for a period of 1 minute.	Pass
Temperature Shock	The GPS splitters were tested with 3 cycles of temperature shock of extremes at -57°C and +71°C. The duration was for 2 hours.	Pass
Humidity	The GPS splitters non-operating were exposed to +23°C and 50%RH for a period of 24 hours. The transition from +30°C and 95%RH and then stabilized. The splitters	Pass

CERT00024

REV: B

	were tested (10) 24-hour cycles of temperatures from +30°C and +60°C with 95%RH.	
Salt Fog	The GPS splitters were exposed for 24 hours of salt fog at a temperature of +35°C, and then followed by a 24-hour drying period at lab ambient conditions. The test was conducted for a total of 2 complete cycles of exposure and drying.	Pass
Blowing Dust	The GPS splitters were exposed to blowing dust at +23°C and +70°C for a duration of 6 hours (faces only). The dust concentration was 10 +/- 7 g/m ³ and the wind speed was 1.5-8.9m/s. Hold the splitters for 2 hours in between testing.	Pass

RTCA DO-160G

Testing Lab: Cascade Technical Sciences, Inc.

Certification Data: A2LA 2582.01 & 2582.01, ISTA, MIL-STD Suitability DLA

Date: May 2015

Test	Description	Result
Overpressure	The GPS splitters non-operating were subjected to a 10-minute, minimum exposure at a pressure of 184.8kPa (26.8 PSIA).	Pass

Other Tests & Standards

Testing Lab: Cascade Technical Sciences, Inc.

Certification Data: A2LA 2582.01 & 2582.01, ISTA, MIL-STD Suitability DLA

Date: May 2015

Test	Description	Result
Touch Temperature	The GPS splitters were tested to a four-hour dwell at +29°C and instrumented with thermocouples for monitoring of surface temperature. The temperature did not exceed +49°C.	Pass

Full Qualification Test reports are available upon request.