

Aerospace Power Quality Testing

Accelerating Device Certification

CUSTOMER

Aerospace Power Quality Testing Laboratory

CHALLENGE

Deeply complex and largely manual data analysis of power quality testing

OBJECTIVE

Automate technical power certification analysis & reporting

SOLUTION

Viviota's TTI with customized report generation for Power Quality Analysis

RESULTS

Make analytics available in minutes instead of months

Aerospace power quality testing laboratories characterize and validate device power behavior for highly volatile environments. Each device undergoes testing to satisfy critical performance and safety certification resulting in hundreds of data samples per test cycle that must be meticulously organized for analyses. Results need to be documented in the form of data plots, labeled calculations, and pass/fail conditions.

SUMMARY- ACCELERATING ANALYSIS

A world-renowned power quality testing laboratory deployed a new report generation solution using Viviota Time-to-Insight™ (TTI) software to automate ingestion and organization of device power data, enable easy discovery and analysis of results, and quickly produce high-quality reports and certification results. With this solution the laboratory now validates more devices faster:

- Generating a report decreased from months to minutes
- Elimination of manual steps in the process
- Improved quality and consistency of data and analysis reduces errors

CHALLENGE – COMPLEX POWER CERTIFICATION PROCESS

Power quality labs are responsible for testing many different types of devices. Depending on the application devices may be used in navigation, communications, propulsion, or even environmental control in an atmospheric or space vehicle. With such high stakes the testing and data collection processes must be systematic and rigorous exercising a device's response to both nominal and exceptional situations and capturing accurate results. Because environmental conditions for the device can be extreme, violating a power condition can prove dangerous if not fatal in many aerospace settings.

As a result, device certification must cover a wide range of operational conditions with hundreds of tests required to prove compliance. Many devices support multiple power sources, and each must be tested based on the corresponding certification requirements. This dramatically increases the number of data files generated and adds complexity to both the physical testing and post-analysis processes.

Before the data can be analyzed, lab personnel must inspect, organize and catalog each file in addition to test information not captured by the test equipment. The analysis of a device can easily exceed a thousand calculations for evaluation and dozens of pass/fail conditions. Once results are finalized, a test engineer or lab technician copies hundreds of calculations and dozens of plots manually into a document for compliance review and certification. Depending on the device, the final report can exceed 100 pages and take 2-3 months to create even from just a few days of test data.





OBJECTIVE – ACCELERATED ANALYSIS FOR POWER QUALITY TEST TEAMS

The power quality testing laboratory was looking for a customizable, end-to-end solution that would support the data management, analysis and report generation for their test data. They needed a solution to map their certification requirements to specific test data, calculations and pass/fail conditions so results would be automatically computed and rapidly made available for inspection, sharing and use in documentation. Finally, they required a configurable process for generating a report containing data plots, calculations and pass/fail conditions from a device's test data.

Ultimately, this solution needed to enable the laboratory to:

- Ingest and organize a wide range of data files and formats generated from test equipment
- Perform required calculations on individual test files based on compliance criteria
- Automate the generation of plots, tables and pass/fail conditions
- Eliminate manual document creation
- Create a customizable document for plots, tables and pass/fail results

SOLUTION – VIVIOTA'S REPORT GENERATION FOR POWER QUALITY ANALYSIS

Aerospace engineers chose Viviota TTI with customized report generation for Power Quality Analysis to solve this challenge. Viviota deployed an end-to-end solution using the TTI platform to automate the entire report creation process. The solution imports test data files, categorizes and augments test information, facilitates report configuration, automates all calculations, and creates a report with the prescribed content. This provides multiple benefits:

- Automated import of all test data into a searchable database
- A customizable interface for adding key test configuration and categorization criteria
- Automated calculation of key statistics and certification metrics
- Reduced the time to create 100-page+ test analysis reports from ***months to less than an hour***

RESULTS – FASTER TIME TO INSIGHT

Viviota's TTI software solution fundamentally changed the way this team meets their goals:

- Freed key personnel from time consuming manual tasks
- Reduced errors by providing consistent data and analysis
- Streamlined report creation by making content and visualizations readily available for reuse
- Time savings allowed key personnel to focus on analyzing failures and other results

