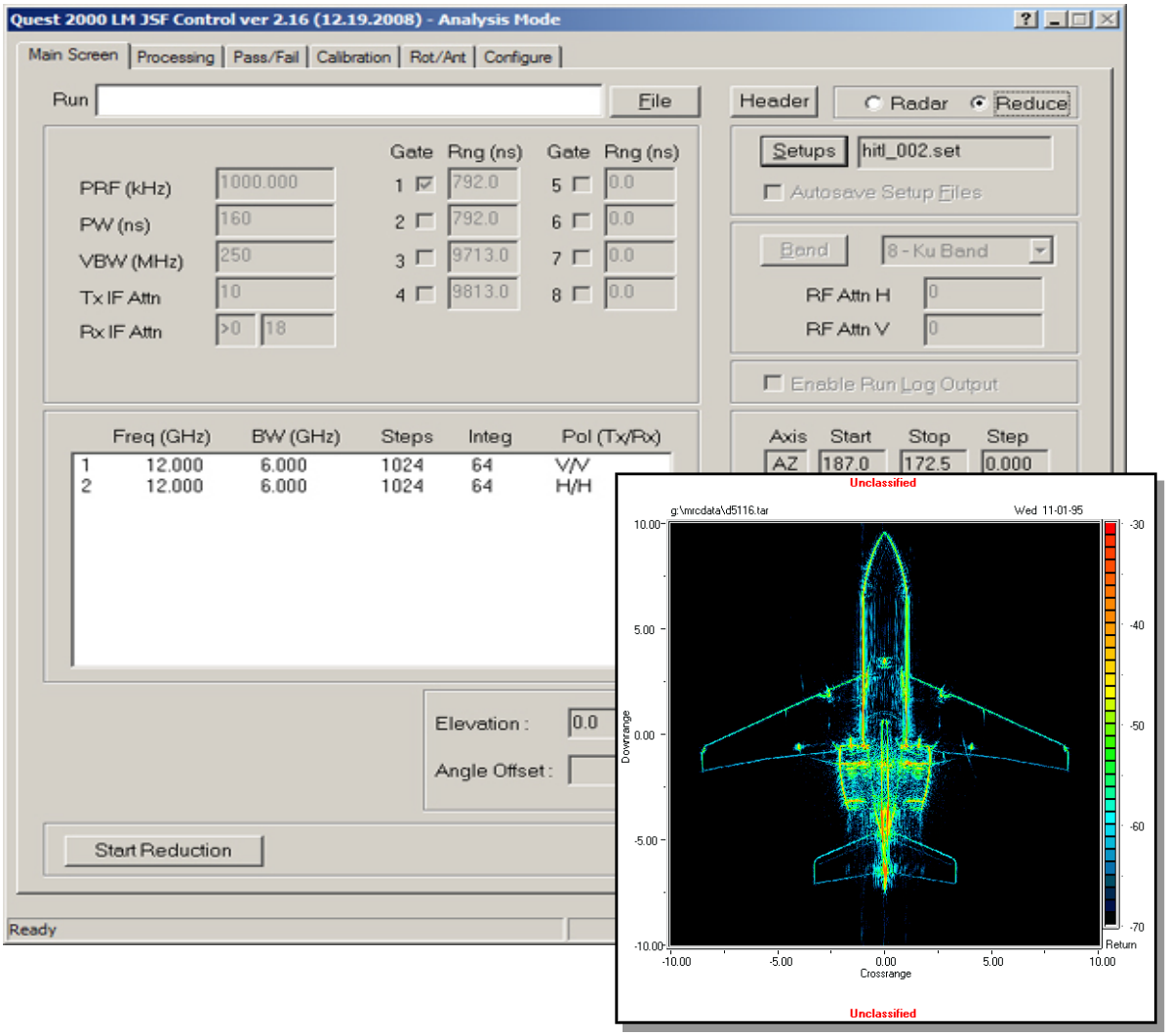
# CompuQuest, inc




The Quest family of data acquisition and analysis systems from CompuQuest, inc are true 32/64-bit MS-Windows applications utilizing a multi-threaded architecture optimized for speed and functionality. They offer the latest in power and versatility to the RCS and antenna measurement communities. While the individual systems offer slightly different styles of operator interface, they each adhere to standard Windows interface protocols. As a result, the graphical user interface (GUI) of each provides the operator with a familiar, intuitive environment for setting up and monitoring the data acquisition or data analysis process. A flexible plotting module provides the operator with a wide range of display options, including polar, rectangular, color pixel and contour formats. Operator-defined presets can be saved to disk and later recalled for quick, “one button” operation. Additionally, the operator can design complex batch processes using these presets for unattended, multi-run data collection or data processing sequences.

# Quest 2000 and Quest 2000 RTDS

The Quest 2000 Data Analysis systems from CompuQuest, inc. offer the latest in power and capability. Designed for flexibility, the systems can process data from a wide range of file formats including elan, SPC MK IV and MK V, Lintek 5000, AeroFlex elan, Common Data Format (CDF) and Radarman. Additional formats can be added for customers needing access to customized data. Numerous output plot formats are available to display the target and antenna return data in either polar or rectilinear grid format. Both 2D (e.g. RCS vs. Angle) and 3D (e.g. RCS vs. Frequency vs. Angle) plotting are supported. The 3D plots can be generated in either color pixel or contour format. Special processing capabilities are provided to perform DC bias removal, background vector subtraction, software gating and edit and reconstruction of ISAR images. In addition to standard ISAR imaging, the Quest 2000 system also provides functions for producing generalized ISAR or tomographic images. This technique allows for the generation of images using a much wider image aperture, including full body images using 360 degrees worth of data. When generating ISAR and generalized ISAR images, the imaging module provides a collection of diagnostic and utility routines for image manipulation and analysis. These routines include display zoom and pan, image addition and subtraction, image statistics, and edit and reconstruction of the processed data. Complete statistical analysis functions are included to calculate and display sector averages, medians, boxscores and cumulative probabilities. There is also a collection of antenna processing functions in addition to the standard RCS features making both of these truly complete data analysis packages.

The Quest 2000 Data Analysis system is designed for the customer who wants a flexible, powerful and creative analysis tool for radar data. It provides a simple, intuitive operator interface, allowing data to be processed quickly and easily without complex setup. With the Quest 2000 package, a wide variety of signal processing and data plotting formats are provided, each easily accessed using dialog boxes and pull down menus. All of the standard processing and output formats are supported by the Quest 2000 system, so it is ideal for the production environment.

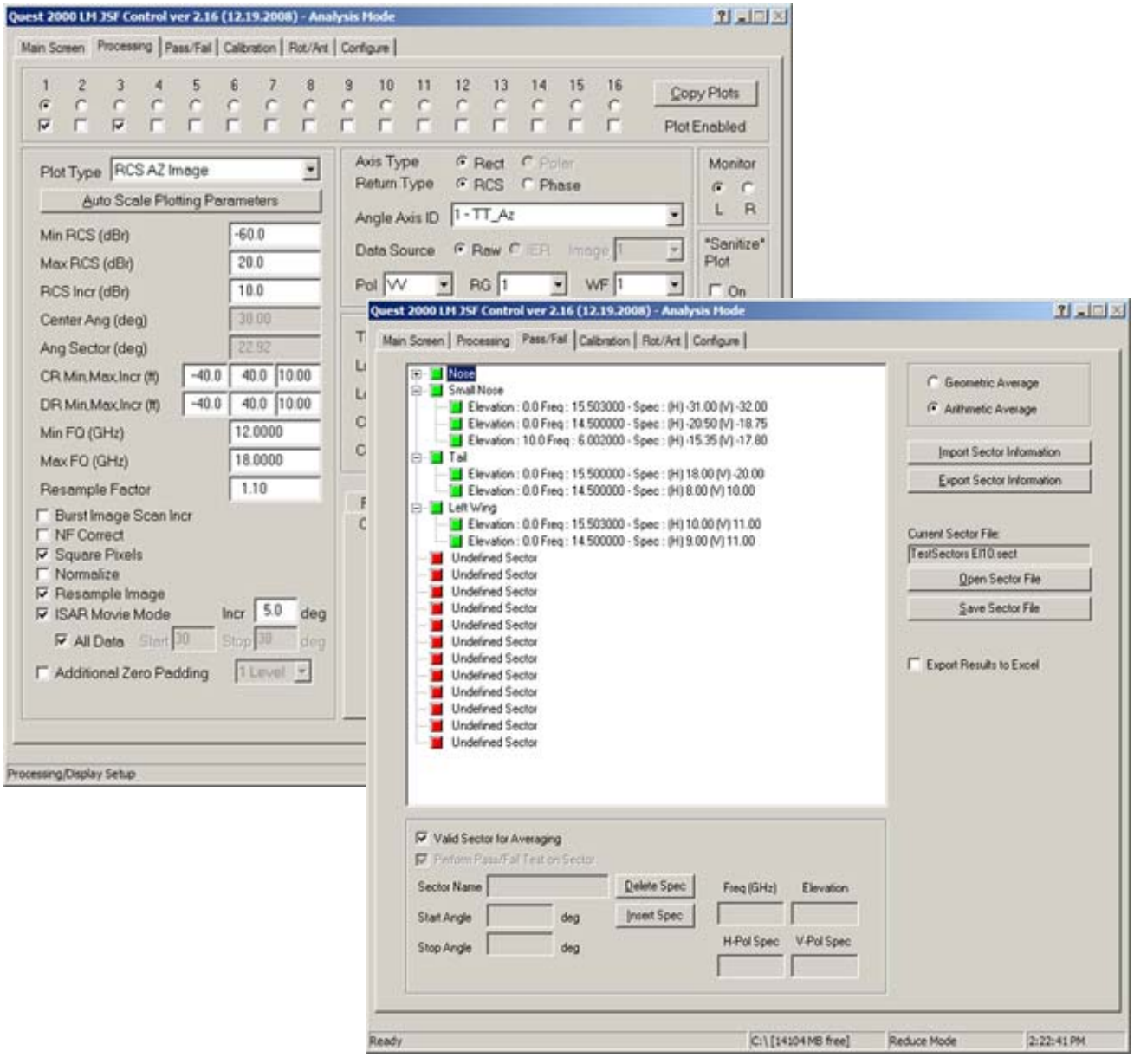
The Quest 2000 Data Analysis system is also the foundation of the powerful real time processing and display package called the Quest 2000 RTDS (**R**eal **T**ime **D**isplay **S**oftware). The Quest 2000 RTDS system provides all of the same data analysis and display capabilities that are present in the Quest 2000 offline package, but in real time during the data acquisition process. As a passive “listener” on the shared memory network, the Quest 2000 RTDS system communicates directly to the radar hardware. It runs transparently and asynchronously to the radar system, causing no impact on the operation of the radar. Processing and display begin automatically when a data collection run is started on the radar, with all of the required radar setup information being parsed from the data header provided by the radar. Once the RTDS software is configured, it requires no further user interaction.

The Quest 2000 RTDS system allows the user to process and display up to 16 individual plots for each data acquisition run. The real time data can be displayed either raw or calibrated. The Quest 2000 RTDS system also allows for background, zero-doppler filtering, and additional coherent integration. In addition to the 16 real time plots, the user is also provided with the capability to define up to 32 individual angle sectors, with each sector allowing multiple spec frequencies and spec levels. The Quest 2000 RTDS will compute a sector average across each and, using the defined specs, provide a real time Pass/Fail analysis.

The Quest 2000 RTDS system provides real time Image Edit and Reconstruction (IER) processing. The user creates an IER mask file by defining multiple “include” and “exclude” polygons. If real time IER is enabled for a particular ISAR Image plot, as each image is generated in real time, the IER mask is rotated to the appropriate angle and applied to the selected ISAR image. The resultant edited and reconstructed I/Q data can then be reprocessed and displayed in any of the other available plot windows.

The Quest 2000 Data Analysis provides an intuitive user interface for defining the up to 16 possible plots for the display of data in both real time and post-processing (see below left). Each of the plots are individually setup in regards to the type of plot, the type of processing to perform, the grid layout and labeling, and special processing functions. After the plot(s) have been defined, each can be independently enabled/disabled on a run-by-run basis. The plot definitions are also saved as part of the program setups so that they can be easily recalled for use on other data runs.

In addition to the 16 real time plots, the user is also provided with the capability to define up to 32 individual angle sectors, with each sector allowing multiple spec frequencies and spec levels. These sector definitions can be setup and displayed on a dedicated property sheet page within the Quest 2000 GUI (see below right). The setup screen utilizes a standard MS-Windows "tree" interface that provides a simple mechanism for enabling (creating) and naming sectors. After a sector has been enabled, the angle limits can be defined. Within the sector, the user can then define up to a maximum of 16 pass/fail "tests". Each of these tests is defined by a specific elevation and frequency value; both of which must match for the pass/fail test to be performed on the data. The tests each have two specification levels – one for horizontal polarization and one for vertical polarization. All of this information can be provided by the user using the GUI or by importing a "spec definition file". These files can be created in Excel or by saving a setup defined from the GUI screen.



**COMPLETE SYSTEM**
- Real Time & Offline Processing
- Calibrated RCS
- Fine Downrange Profiles
- Background Subtraction
- Time-domain Gating
- Configurable Interface
- Doppler Spectra
- Numerous Printing Options

**POWERFUL OPTIONS**
- ISAR Imaging
- SAR Imaging
- 3D Imaging
- Nearfield Correction
- Edit and Reconstruction
- Image Math
- Antenna Measurement
- Full Scattering Matrix
- Statistical Analysis
- Movie Generation / Animation

**FLEXIBLE INTERFACES**
- Agilent PNA
- MK-IV / MKV / elan
- HP 8510 / HP 8530 / HP 8720
- National Instruments IEEE-488/DIO
- Multi-axis Positioner Control
- Switch Box Control

**MULTIPLE DISPLAY FORMATS**
- RCS and Antenna Processing
- Global Range and Swept Frequency
- Line, Pixel, Contour, “Waterfall"
- Rectilinear and Polar Plots

**USER FRIENDLY**
- Standard Windows GUI Protocols
- Single, Intuitive User Screen
- Screen Edit of all Parameters
- Pre-defined Setups
- Multi-level Error Checking

**PC PLATFORM**
- Inexpensive, Off-the-shelf Hardware
- Easily Upgradable or Expandable
- Multiple Displays Support
- Network Communications
- Supports Standard Peripherals
- Windows Vista/XP/2000

**FLEXIBLE FILE FORMATS**
- elan
- Lintek 5000
- Radarman
- Common Data Format (CDF)
- SPC MK III / IV / V

**ANTENNA STATISTICS**
- Beamwidths at 1, 3, 6, 10 dB
- Peak, Sidelobe and Null Locations
- Hemispherical and Radiative Levels
- Efficiency and Directivity
- Full Antenna Gain Listings
- Automated PASS/FAIL Testing

**COMPUQUEST BACKED**
- Source Code Included
- One Year Warranty
- Full Documentation
- On-Line Help

For additional information or a demo version of any of the CompuQuest products, please contact CompuQuest, inc. at:

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