SPECTRUM

- ▶ *Fully featured Graphical based rapid prototyping design tool for Digital Radio Systems to significantly reduce development effort and accelerate time to market.*

- ▶ *Significant reduction in the learning curve and effort required to configure down conversion hardware.*

- ▶ *Easy modification of A/D and Digital Down Converter parameters with graphical display of real-time plots*

- ▶ *Plots include:*
  - *Frequency Spectrum scan*
  - *Frequency (FFT)*
  - *I vs Q, I and Q*
  - *Magnitude and Phase*
  - *A/D FIFO capture*

- ▶ *Sample Code Generation:*
  - *Sample DSP code with optimized DDC parameters for integration with application code*

- ▶ *FIR Filter Coefficient Generation capability when used in conjunction with Matlab®*

Digital Radio Wizard
Rapid Prototyping Design Tool for Digital Radio Systems

Description
The Digital Radio Wizard software tool assists the designer in the development of integrated solutions based on Spectrum's Digital Radio Products.   This results in significantly reduced development times and accelerated time to market.   The Wizard allows the easy modification of various programmable features of Spectrum's A/D and digital down converter products and displays, in real time, the graphical output of the resulting data signals.

Parameter Control
The Digital Radio Wizard can control the parameters of various stages of Spectrum's digital radio products. A/D parameters such as gain and dithering control can be adjusted using the Wizard. Many of the parameters of Spectrum's digital down converter products can also be controlled. This includes input mixer, various filter stages (CIC, Halfband, FIR), Automatic Gain Control, Resampler, Discriminator, and format of the output.   Real time graphical output displays the results of the various changes in these parameters.

Real Time Graphical Output Plots
Several plots are available to help in the design of digital radio systems.   Plots of resulting on-the-fly adjustment of the various parameters of the A/D and digital down converter can be displayed. Also, snapshots of the data can be stored in a file for analysis at a later time.

Frequency Spectrum Scan
A continuous scan of a user-defined bandwidth at given increments is performed. This plot displays a power calculation at each increment.   This plot is very useful for verification that the SFDR meets system requirements. This plot also helps to identify and pinpoint a signal of interest

Baseband:
The following plots help to verify that the digital down converter is set up properly to extract a target signal of interest.
- Time Domain I and Q plot (raw data)
- Frequency Plot (FFT)
- I vs Q Plot
- Magnitude and Phase

A/D FIFO capture Plot:
The contents of the FIFO of Spectrum's A/D products (eg. PMC-MAI) can be plotted, or stored in a file for further analysis.

Sample Code Generation
The Digital Radio Wizard can conveniently generate sample DSP code for control of the down converter. These code samples can then be integrated into the application to reproduce the settings used in the Digital Radio Wizard, thus significantly reducing development time.

FIR Filter Coefficient Generation using Matlab®
The Digital Radio Wizard can be used in conjunction with Matlab (using Signal Processing Toolbox) to generate FIR coefficients.
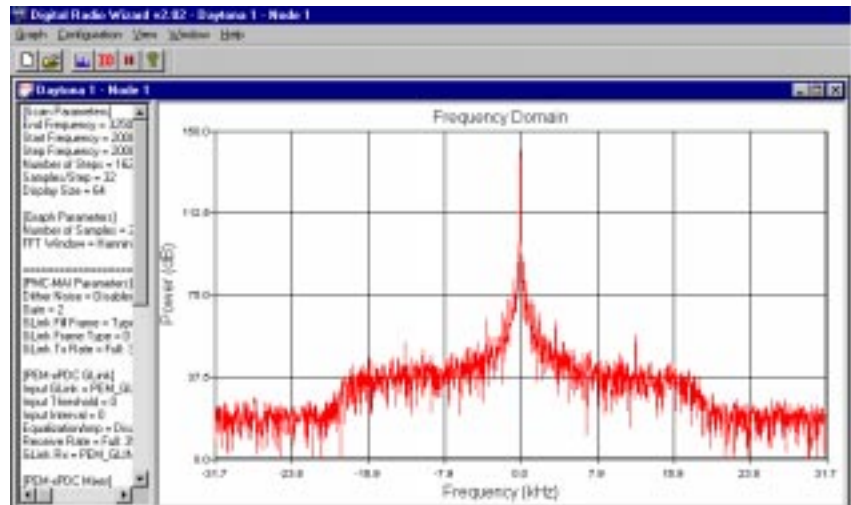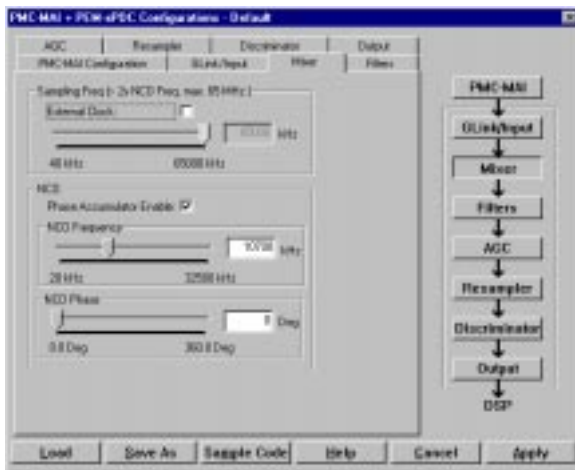
Host Requirements

- Microsoft Windows NT® Operating System

Ordering Information	The Digital Radio Wizard is bundled with Spectrum's Digital Radio Quickstart Kits, which includes the Spectrum DSP Carrier board; PMC-MAI ; PEM-2/4PDC; Digital Radio Wizard Software; Windows NT software drivers for the Carrier and modules; TI's Code Composer Studio; all the necessary cables and manuals.

Part numbers:
800-00179 Daytona Digital Radio Quickstart Kit
800-00183 Barcelona Digital Radio Quickstart Kit
800-00001 Monaco Digital Radio Quickstart Kit
800-00186 Ingliston Digital Radio Quickstart Kit |
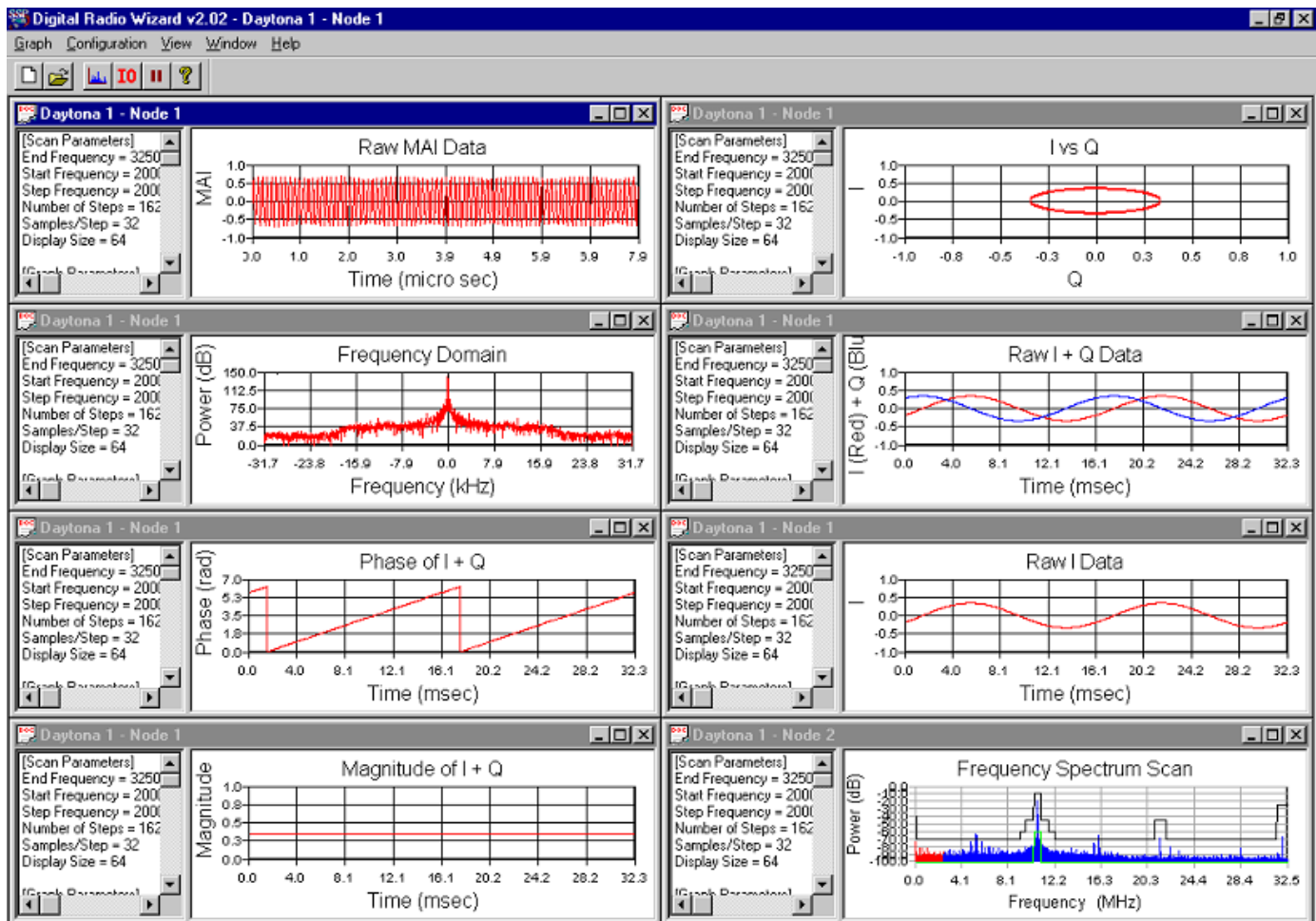
Specifications subject to change without notice.