Harmonic Analysis

Flexible
Capable
Concise

With ETAP's Harmonic Analysis module, you can identify harmonic problems, reduce nuisance trips, design and test filters, and report distortion limit violations. Comprehensive load flow and frequency scan calculations are performed using detailed harmonic models and non-integer harmonic filters. Results are shown graphically, including harmonic order, harmonic spectrum plots, and harmonic waveform plots, as well as detailed Crystal Reports®.

harmonic analysis

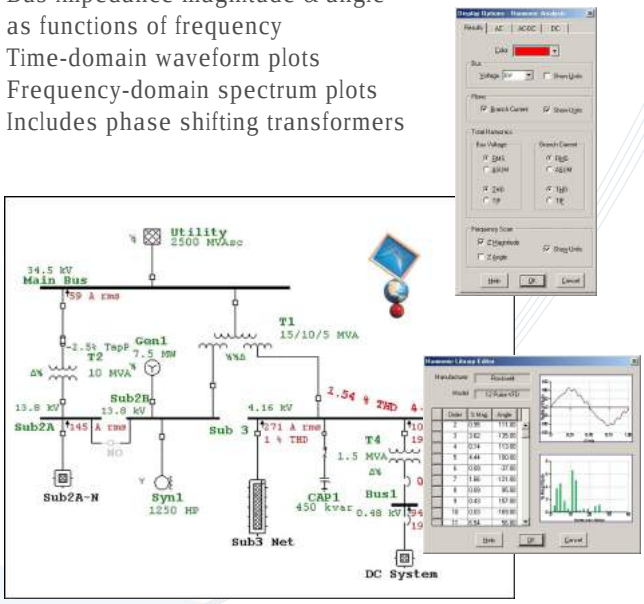
Powerful Tools for Performance Engineers

Key Features

Harmonic Load Flow
Harmonic Frequency Scan
Filter Design & Sizing
Inter-Harmonic Filter Modeling
Automatically Evaluate Harmonic Limits

Flexible Operation

- Fundamental load flow results
- Bus impedance magnitude & angle as functions of frequency
- Time-domain waveform plots
- Frequency-domain spectrum plots
- Includes phase shifting transformers



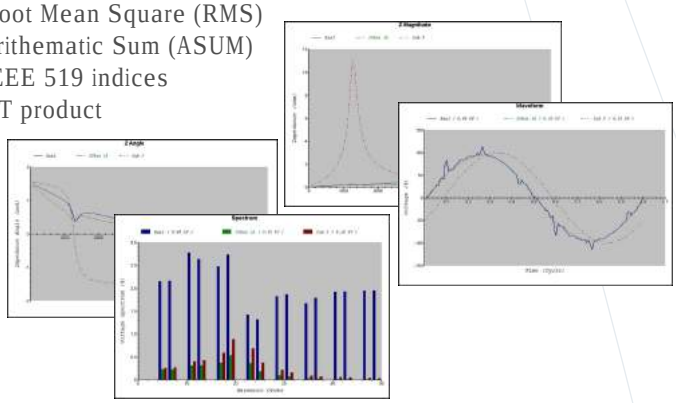
View Impedance and Load Flow Plots Simultaneously

Capabilities

- Temperature-dependent line & cable resistances
- Single-tuned, high-pass, & band-pass filters
- Create filters to shift resonance points to less harmful frequencies
- Model up to the seventy-first (71st) harmonic
- Identify & analyze telephone interference problems
- User-expandable harmonic source library
- Identify resonance conditions

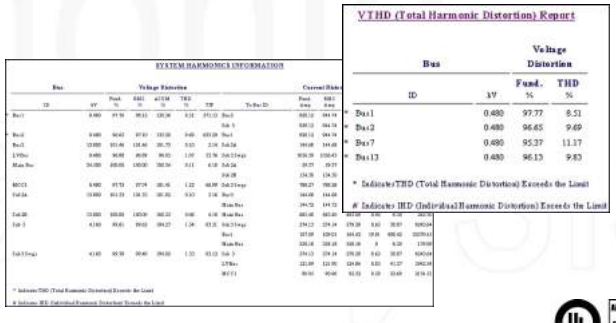
Calculate

- Harmonic filter performance
- Magnitude & angle of the system impedance at selected buses
- Telephone Interference Factor (TIF)
- Total Harmonic Distortion (THD)
- Root Mean Square (RMS)
- Arithematic Sum (ASUM)
- IEEE 519 indices
- I*T product



Reporting

- Fundamental load flow results
- Report voltage & current harmonic distortions
- Report RMS, ASUM, TIF, & I*T values
- Bus impedances (magnitude & angle) in tables
- Text output reports including violation flags
- Use Crystal Reports® for full color, customizable reports
- Export output reports to your favorite word processor
- Graphical display of harmonic results
- Export one-line diagrams to third party CAD systems



Unlimited Buses* & Elements
No Voltage Limitations
Looped & Radial Systems
Integrated 1-Phase, 3-Phase, & DC Systems
Multiple Generators & Grid Connections
Multiple Isolated Sub-Systems
Customizable Libraries
Graphical Display of Results on One-Line Diagrams
Customizable Font Types, Sizes, Styles, & Colors
Customizable Display of Ratings & Results
Graphical Display of Equipment Impedance & Grounding
Automatic Error Checking
Graphical Display of Overstressed Devices
Graphical Display of Over/Under Voltage Buses
Dynamically Adjust Display of Results

*Maximum number of energized buses during calculations is license dependent.

10 CFR 50 Appendix B • 10 CFR 21 • ANSI/ASME N45.2-1977 • ASME NQA-1
ISO 9001 A3147 • ANSI/IEEE Std 730.1-1989 • CAN/CSA-Q396.1.2-89

etap
Thinking Power for Power Engineers

Operation Technology, Inc. • www.etap.com • 17 Goodyear • Irvine, CA 92618 • 949.462.0100 • Fax 949.462.0200