S&R Metrics

## A Measurement System Dedicated to Squeaks & Rattles

❖ *Complies with GMW14011, 7293, and 9842P and Ford DV/PV Outline and CETPs*

❖ *Correlation documented to Head Acoustic Artemis – details available in MB Dynamics' Application Note AN179*

❖ *Measures time varying loudness and displays results in Sones using average loudness or N statistics*

❖ *Measures Sound Pressure Level and reports results using 1/3 Octave Bands*

❖ *User sets thresholds for "red light/ green light" of S&Rs*
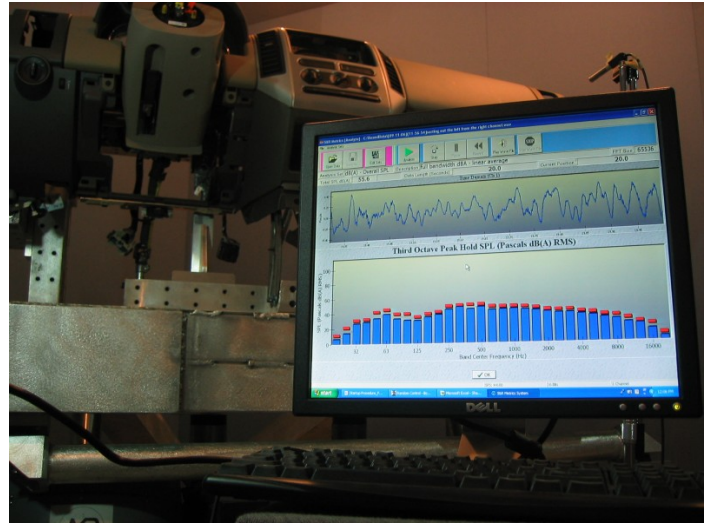

S&R Metrics is software and acoustic data acquisition hardware dedicated to measuring buzzes, squeaks and rattles. Sound quality packages are often used to quantify S&Rs, but contain extra features that are not needed like: Sharpness, Tonality, Articulation, and Roughness. *S&R Metrics* is the **COST EFFECTIVE** S&R detection system. Easy to use modules make it suitable for any setting from R&D facilities to factory installations where technicians have little time for intricate setups and complex options.

Flowchart Design Leads to Ease of Use

With 3 modules and step by step setup parameters *S&R Metrics* flows naturally from Configure to Record to Analyze

Go from Record to Analyze to Reporting with one mouse click.
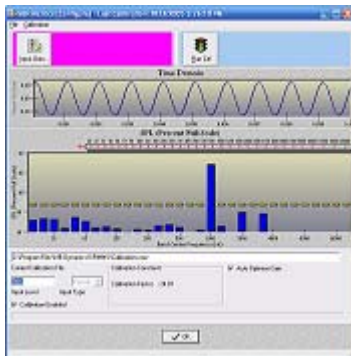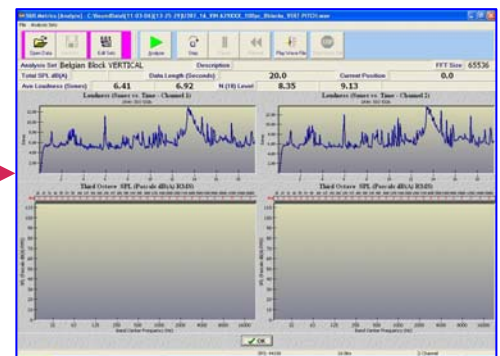

CONFIGURE

- Calibrate the system once and move on
- Auto-optimized gain automatically selects the highest usable gain without clipping
- Select one channel or two channels, and input and playback settings

RECORD

- Two steps to recording – configure your test setup and click record
- Configure the test setup by selecting the test name, length, graph display type, auto-save, and auto-run analysis
- Auto-saves recordings with date and time to prevent loss of data
- Auto-run Analysis saves time by automatically analyzing after measuring

ANALYZE

- Analyze data according to different sound parameters like dB, SPL, N10 loudness
- Pre-configured Analysis Sets for the specs that you need to meet including GMW14011 and Ford CETPs
- Set limits for OK/Not OK testing
- Export Analysis results to a customized Excel report or use one of the included templates

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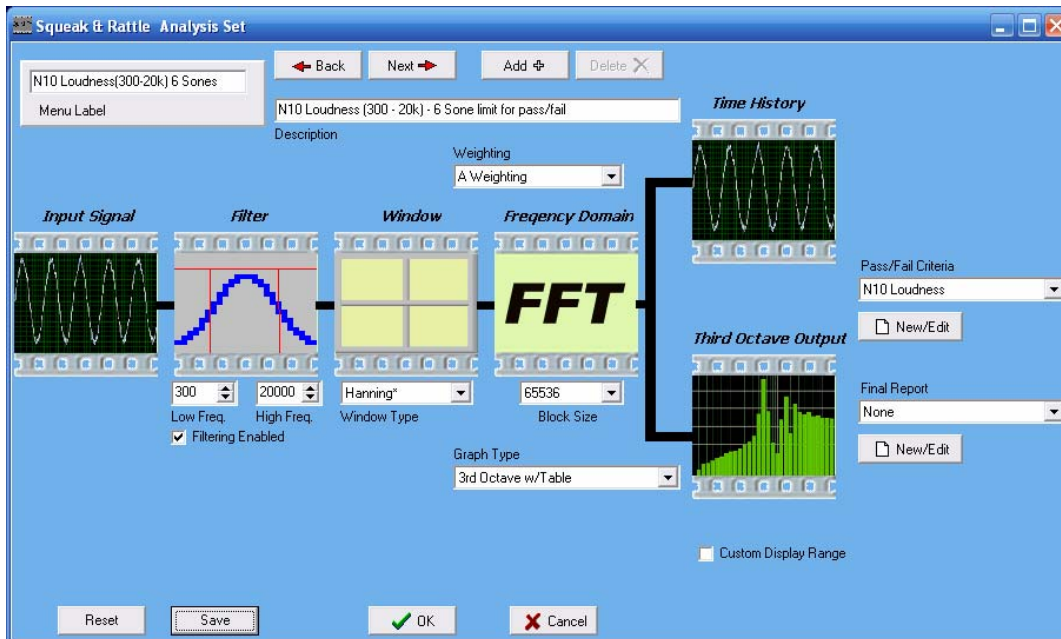
ANALYSIS SETS

S&R Metrics stores Analysis criteria in Analysis Sets. These sets of parameters contain vital information used to determine how each wav file is analyzed. Choose from a variety of settings including:

- Filters
- Window type
- Weighting
- Pass/Fail criteria
- Graph types
- Final report template

Analysis Sets can be selected from the Analyze Module and from test setup under the Auto Run Analysis option. The Auto Run option allows the Set to be connected to the test and will automatically analyze data recorded by that test.

REPORT DESIGNER

The Report Designer lets the user create a customized Excel report. Test results and data are exported to an Excel spreadsheet that can be customized as the user sees fit. Any *S&R Metrics* option or result can be added to the report including important parameters like OK/Not OK thresholds, target levels, actual measured values, date and time, and even user data (the list of all selectable parameters is extensive). User Data are customized parameters that the user enters before or after a measurement. In the example to the right VIN, First Check Done, and Percent Full Level were all User Data – data that was pertinent to the test but not native to *S&R Metrics*.

S&R METRICS MEASUREMENT SYSTEM SPECIFICATIONS

- ❖ Sampling rates of 44.1, 48 & 96 kHz at 16 or 24 bit
- ❖ 1 channel standard – 2 channel option available
- ❖ Spectral Weighting: None, A, B, and C
- ❖ OK/Not OK Criteria: None, Total SPL, Third Octave Bands, AVG Loudness, N Loudness, Bonus Stock
- ❖ Sound field: Free or Diffuse
- ❖ Window Types: Rectangular, Hanning, Hamming, Flat Top, Blackman-Harris, Exact Blackman, Blackman

- ❖ Filtering: None, High Pass, Low Pass, and Band Pass
- ❖ FFT Block size: 512 – 65536
- ❖ Graph Types: 1/3 Octave, 1/3 Octave with table, 1/3 Octave Peak Hold, 1/3 Octave Peak Hold with Max Bars, 1/3 Octave Peak Hold with Max Bars and Table
- ❖ Includes MS Excel for reports
- ❖ Loudness calculation method in accordance with ISO532B
- ❖ Standard or extensible wav format playable on any media player