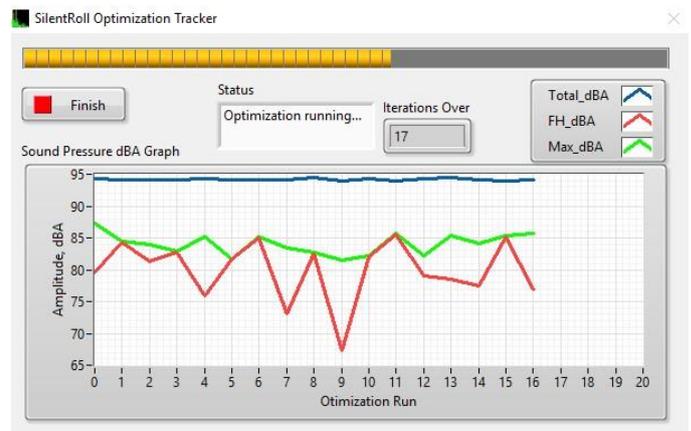




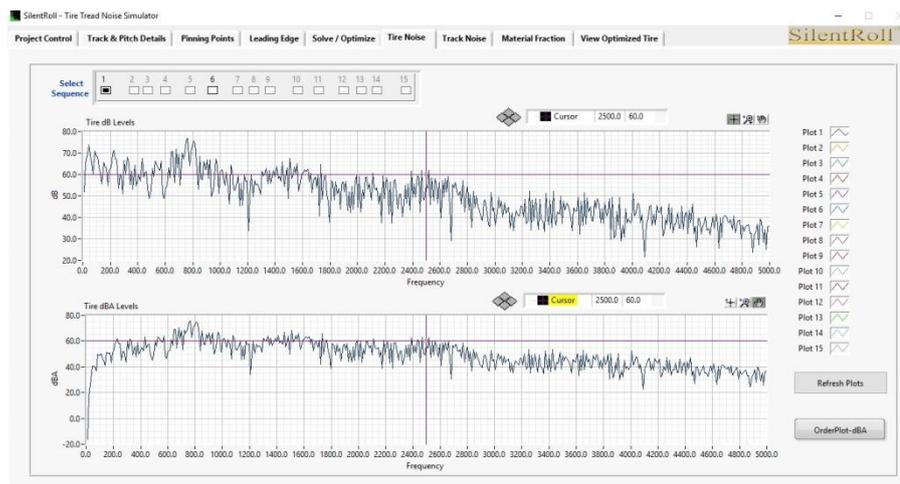
## SilentRoll

TIRE NOISE SIMULATION AND TIRE DESIGN OPTIMIZATION SOFTWARE

SilentRoll is our innovative software package to simulate automotive tire noise. The software is used by tire manufacturers to simulate tire noise and optimize tire tread design for superior noise quality.



Tire noise is the second largest noise component in an automotive vehicle external noise.



The ability to assess tire noise at design stage enables tire designers to design lower noise tires and optimize the tire design for desired noise performance. In view of UN ECE Regulation No. 117, it will be increasingly more important to design lower noise tires in the years ahead.

SilentRoll allows tire engineers to consider the effect of various tire components and the tread pitch designs. Using SilentRoll the tire designers can optimize a given tread pitch combination for most desirable sound signature. The tire could be divided into multiple tracks for track offset effect simulation on tire noise.

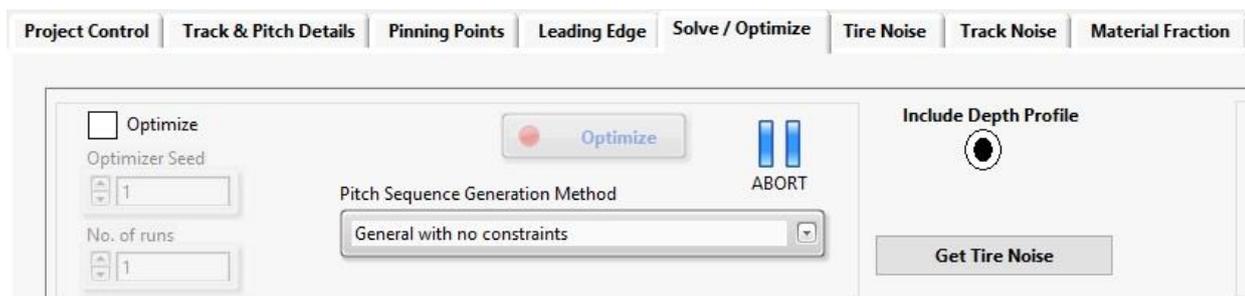


SilentRoll gives as an output the optimized tread pitch sequence and also the dB and dBA levels of tyre noise. SilentRoll models tire carcass and tire tread portion for their contribution to tire noise and the formulation arrives at the excitation of surrounding air based on the tire surface vibration under contact with the road surface.

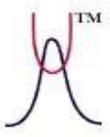


## What's New in SilentRoll version 4.11e:

1. *Optimizer capability enhancements with multiple algorithms to select from*
2. *Ability to handle bidirectional track offsets*
3. *Order plot*
4. *Pass-by noise assessment*
5. *Optimization tracker with graphical feedback and midway safe termination control*
6. *Integrated solver installation*
7. *Network floating license option*



We remain committed to providing tire designers the advanced tire noise simulation tools that assist them in designing low noise tires.



QUANTUM AGE

SilentRoll customers...

**apollo**



**CEAT**

**apollo**

**VEDESTEIN**



**GT** PT GAJAH TUNGGAL Tbk

