B138 Tire Impressions: Does Size Really Matter?

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The goal of this presentation is to provide some insight into the variation in noise treatment/pitch sequence in tires of the same design but of different sizes and will help an examiner understand how this feature can be used to conclude that a tire impression corresponds in tread dimension as well as tread design. The attendee will learn the minimum length of an impression necessary to differentiate between two different sized tires of the same design.

This presentation will impact the forensic community by allowing an examiner to render a stronger association that a tire impression "corresponds in tread design and tread dimension" with a known tire. The majority of tire tread examiners are familiar with the concept of noise treatment/pitch sequence and its importance in the examination and comparison of tire tread impression evidence. However, many examiners lack the experience and/or confidence necessary to conclude that a tire impression was made by a tire of a particular size and will instead render a weak association that a tire impression "corresponds in tread design" alone. This presentation will stress the importance of conducting a complete and thorough examination to include making full rotation test impressions of the known tires as well as comparing the noise treatment/pitch sequence of the questioned and known impressions.

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Multiple sizes of the Michelin LTX M/S tire were collected from various sources. Full rotation test impressions were made from each tire and were used to compare the size of the tread design features and/or the noise treatment/pitch sequence of each tire one to another. Discrepancies between the size of the tread elements and/or the overall width of the impression were noted, readily differentiating a majority of the tires from the others. In other tires where the size of the tread elements and the overall width of the impression corresponded, portions of the noise treatment/pitch sequence were identified for closer comparison. The results of this study of the Michelin LTX M/S model tire demonstrated that short areas, at best, aligned.

The author will present an easy method of making full rotation test impressions from tires and discuss methods of comparing these test impressions one to another. The author will discuss the differences between the multiple sizes of the Michelin LTX M/S tire and how this information can be used to determine the minimum length of an impression necessary to confidently conclude that an impression "corresponds in tread design and tread dimension" with a known tire.

Tire Impression, Tire Size, Tire Examination and Comparison

 ** Presenting Author*