STUTTER BAND ANALYSIS OF THE *GENEPRINT*® POWERPLEX™ 1.1 SYSTEM USING THE TYPE II CALCULATION METHOD OF FMBIO® ANALYSIS SOFTWARE

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The presence of stutter can complicate the interpretation of DNA samples especially for mixed DNA samples where several alleles may be present in varying intensity. The FMBIO® Analysis software offers four different calculation methods to calculate band intensity. The Virginia Division of Forensic Science currently uses the Type IV calculation method on casework. The Type II calculation method was investigated to determine if stutter could be more accurately and consistently determined by this calculation method.

Fifty-one gels containing bloodstains, which were extracted, amplified and typed using the *GenePrint*® PowerPlex™ 1.1 system, were analyzed using the FMBIO® Analysis software. Each of these gels were analyzed using the Type IV and Type II calculation methods and the average stutter at each locus and for each allele were compared.

The band intensities determined using the Type II calculation method were slightly higher than expected and the CSFIPO, TH01 (containing the 9.3 microvariant) and D16S539 loci were each determined to have an increase in the average stutter using the Type II calculation method. This may be significant since these loci contain alleles that appear much closer together on the typing gel. Although the calculation methods may not have an overall significant effect on the PowerPlex™ 1.1 system, these different calculation methods may need to be investigated in using the FMBIO® analysis software to determine band intensity for PowerPlex™ 2.1 which contains bands which have even less separation between alleles.