Modulation of the Europay, MasterCard, and VisaCard Authentications by Using Avispa Tool

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Abstract : The Europay, MasterCard, and Visa (EMV) is the transaction protocol for most of the world and especially in Europe and the UK. EMV protocol consists of three main stages which are: card authentication, cardholder verification methods, and transaction authorization. This paper details in full the EMV card authentications. We have used AVISPA and SPAN tools to do our modulization for the EMV card authentications. The code for each type of the card authentication was written by using CAS+ language. The results showed that our modulations were successfully addressed all the steps of the EMV card authentications and the entire process of the EMV card authentication are secured. Also, our modulations were successfully addressed all the main goals behind the EMV card authentications according to the EMV specifications.