Parametric Modelling of Passive Radar Systems

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There is increasing interest in the radar community in passive radar systems and their application in Defence. DST Group have developed several passive radar systems that are used for science and technology research and are deployed on trials. Modelling and simulation can play an important role in the design, development and deployment of any system and can help to understand the data and results that are collected from trials. There are many factors, including the transmitter and receiver, the target and the environment, which can impact the performance of a passive radar system and it is important to be able understand the contribution to the final detection performance from these factors.

In this presentation we will discuss the progress made on the parametric modelling of passive radar at DST Group and present some preliminary results from trials data. Topics will include an approach on efficiently using FEKO to model the bistatic RCS, creating representative steered antenna patterns for the surveillance area of interest and the development of DST Group's parametric model, Miranda. We will show a comparison to trials data and discuss the plans for future work.