Can NEXRAD and industry share the S-band? Exploring the impact of RF interference on the WSR-88D estimators

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Expanding use of wireless technology has prompted a dialogue concerning the reallocation of several bands within the RF spectrum. Included in the discussion is the 2.7 to 3.0 GHz band, where many meteorological and aircraft surveillance radars reside. Reducing the width of the allotted band or opening the band to additional transmitters will undoubtedly generate more instances of unwanted RF interference between radars. In an effort to quantify the potential impact, a simulation-based study was commissioned to explore the extent of the corruption through statistical means. RF interference can appear in three primary forms: pulsed, continuous wave, and noise-like. This study will determine realistic interference power limits based on generally accepted thresholds for each interference type and explore the impacts on the primary meteorological estimators for specific volume coverage patterns on the WSR-88D. A discussion of the simulation methodology and the results of the study will be presented.