Influence Different Dielectric Materials For Square Patch Antenna on RCS

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Abstract:

RCS has an important role in discovered or identified data for target designation. Each target has a unique signature utilizing to recognize the structure kind that will test. The monostatic radar uses a single antenna because it reduces the scattering of signals for a specific polarization. Moreover, it receives and transmits in the same location. There are many applications utilizing the Square patch antenna (SPA) such as microwave systems, space applications and .... etc. This paper is designing and simulating the SAP in 2.4 GHz frequency also it is used as a target to determine RCS area by utilizing CST software version 2014. Furthermore, the designed antenna is modeled and simulated for various kinds of substrate material)FR4, RT- Roger 5880, Taconic, Baklite, and DuPont-951). The radar cross-section of monostatic radar is simulated at 3-13 GHz and the incident angles utilized from (0,60, and 90) degrees. Finally, the simulation result appears that the best RCS of the designed antenna with the substrate dielectric material (Dupont (951-is around -26 m² at the incident angle $\theta = 0$.