Reconfigurable Beamscanning Sinusoidally Modulated Reactance Surface Antenna with Period and Surface Reactance Control

I. Introduction

Microstrip leaky wave antennas have been widely used for many areas due to its high directivity and low profile features. SMRS (Sinusoidally Modulated Reactance Surface) antenna is one of the leaky wave antenna and its surface reactance is periodically modulated so that its -1st Floquet harmonic radiates. In this paper, we propose a reconfigurable beamscanning SMRS antenna using varactor components with period and surface reactance control.

II. Antenna Model and Results

Figure 1 shows the part of the proposed antenna which is composed of microstrip corrugated structure whose end of stub is connected with via and varactors are mounted at the middle of the stub so that can control the surface reactance of each unit cell.

III. Conclusion

We proposed a reconfigurable beamscanning antenna using varactor with the period and surface reactance control. From -45 to 45 degree of beamscanning range was obtained with 16 dBi of directivity at 5.8 GHz.

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References