

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202341072093 A

(19) INDIA

(22) Date of filing of Application :21/10/2023

(43) Publication Date : 01/12/2023

(54) Title of the invention : A METHOD FOR DEVELOPING A LOW PROFILE WIDEBAND SIW CAVITY-BACKED I-SHAPED SLOT ANTENNA

<p>(51) International classification :H01Q0013100000, H01Q0013180000, H01Q0001500000, H01Q0001380000, H01Q0021000000</p> <p>(86) International Application No :NA Filing Date :NA</p> <p>(87) International Publication No : NA</p> <p>(61) Patent of Addition to Application Number :NA Filing Date :NA</p> <p>(62) Divisional to Application Number :NA Filing Date :NA</p>	<p>(71)Name of Applicant : <b>1)Anil Kumar Katta</b> Address of Applicant :Department of ECE, A.U. TDR-HUB, Andhra University, Visakhapatnam-530003, India. Visakhapatnam -----</p> <p><b>2)Dr. Praveen Babu Choppala</b> <b>3)Nagarjuna Tanikonda</b> <b>4)Dr. James Stephen Meka</b> <b>5)Srinivas Rao Gantenapalli</b> Name of Applicant : NA Address of Applicant : NA</p> <p>(72)Name of Inventor : <b>1)Anil Kumar Katta</b> Address of Applicant :Department of ECE, A.U. TDR-HUB, Andhra University, Visakhapatnam-530003, India. Visakhapatnam -----</p> <p><b>2)Dr. Praveen Babu Choppala</b> Address of Applicant :Department of ECE, Andhra University, Visakhapatnam-530003, India. Visakhapatnam -----</p> <p><b>3)Nagarjuna Tanikonda</b> Address of Applicant :Department of ECE, A.U. TDR-HUB, Andhra University, Visakhapatnam-530003, India. Visakhapatnam -----</p> <p><b>4)Dr. James Stephen Meka</b> Address of Applicant :Dr. B.R. Ambedkar Chair Professor, Andhra University TDR-HUB, Vishakapatnam-530003, India. Visakhapatnam -----</p> <p><b>5)Srinivas Rao Gantenapalli</b> Address of Applicant :RGUKT ONGOLE, (IIIT ONGOLE), Ongole-523225, India. Ongole -----</p>
---	---

(57) Abstract :

ABSTRACT: Title: A Method for Developing a Low Profile Wideband SIW Cavity-Backed I-Shaped Slot Antenna The present disclosure proposes a method for developing wideband substrate integrated waveguide (SIW) cavity-backed I-shaped slot antenna. A microstrip line feeding is incorporated into the antenna to excite the SIW cavity. A simple rectangular slot is wedged at the bottom plane for radiating electromagnetic waves. The TE<sub>210</sub> mode is apportioned into odd and even TE<sub>210</sub>, which results in more impedance bandwidth and modified to an I-shaped structure to achieve an improvement in bandwidth. Simulated and measured results show impedance bandwidths of 13.94% and 14.4%, respectively. The proposed method improves impedance bandwidth by perturbing a single TE<sub>210</sub> mode instead of multiple modes. The proposed method achieves high gain and unidirectional pattern. The proposed method makes the fabrication and integration easier.

No. of Pages : 29 No. of Claims : 8