

Session 20. G-band TWTs

May 1 (Wednesday) / 10:00 ~ 11:20 / Room 2

Session Chair: Jinjung Feng (Beijing Vacuum Electronics Research Institute, China)

10:00 ~ 10:20

20.1 / [Keynote] A G-band wideband CW folded waveguide TWT

Lei Wenqiang (China Academy of Engineer Physics, China), Hu Peng (China Academy of Engineer Physics, China), Huang Yinhu (China Academy of Engineer Physics, China), Jiang Yi (China Academy of Engineer Physics, China), Song Rui (China Academy of Engineer Physics, China), Chen Hongbin (China Academy of Engineer Physics, China)

Institute of Applied Electronics has developed a wideband continuous waves (CW) folded waveguide Traveling Wave Tube (FWTWT) amplifier operating at G-band. The design and fabrication on CW FWTWT was presented, including electronic-optical system, folded waveguide slow wave structure (FWSWS) and input/output (I/O) windows system. By the measurement, the amplifier produced the maximum output power 18W at frequency 216GHz with 10GHz -3dB bandwidth at CW work. The maximum gain is 28.2dB.

10:20 ~ 10:40

20.2 / Dispersion Measurements of 220 GHz FWSs

Sudhamani HS (Ministry of Defence, India), SUM Reddy (Ministry of Defence, India), Jyothi Balakrishnan (Bangalore University, India)

In this paper, the fabrication of Folded Waveguide Structures operating at 220 GHz using micro machining method is briefly described. Dispersion measurements have been carried out and the results presented. The comparison with the simulations shows that they are closely matching within 0.5%. Simulated experiment is carried out to determine the interaction impedance and found to match within 10% in the passband.

10:40 ~ 11:00

20.3 / Study of an Airborne 220 GHz Traveling Wave Tube Amplifier

Pan Pan (Beijing Vacuum Electronics Research Institute, China), Ye Tang (Beijing Vacuum Electronics Research Institute, China), Yinxing Chen (Beijing Vacuum Electronics Research Institute, China), Jinjun Feng (Beijing Vacuum Electronics Research Institute, China)

An airborne 220 GHz traveling wave tube (TWT) amplifier with output power of 10 W and bandwidth of 5 GHz is being developed. The design of the TWT and the test of a TWT prototype are presented.



11:00 ~ 11:20

20.4 / Loss Measurements of 220 GHz FWSs

Sudhamani HS (Defence Research and Development Organization Bangalore, India), SUM Reddy (Defence Research and Development Organization Bangalore, India), Jyothi Balakrishnan (Bangalore University, India)

In the present work, the fabrication of folded waveguide structures operating at 220 GHz is presented. The structure is fabricated using three different materials brass aluminium and OFHC copper and their surface characteristics are compared. The FWS was fabricated using different micromachining methods. Cold test measurements have been carried out for estimating the losses.