

Supporting Information File

Preparation of Phase Pure MgTiO₃ Microwave Dielectric Ceramic for GPS antenna

Application

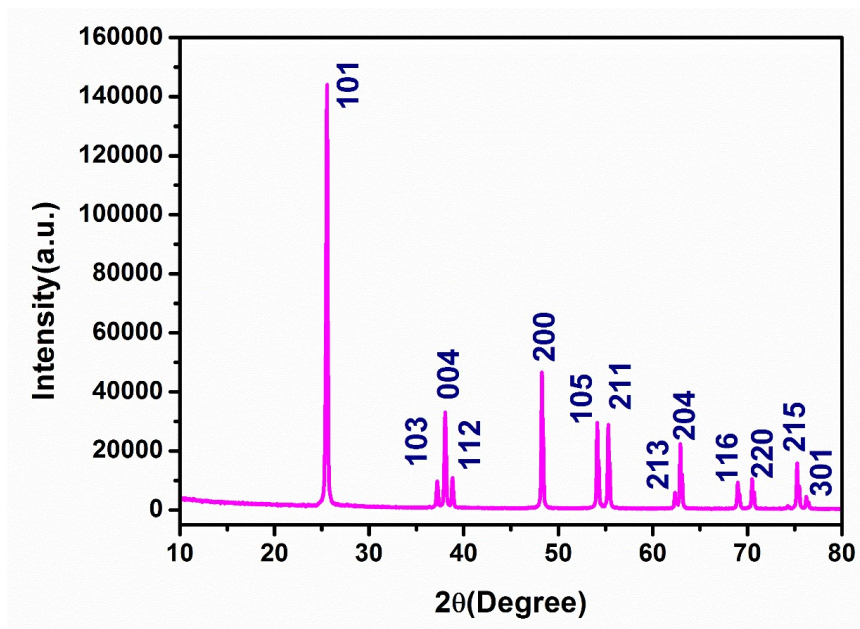


Fig. S 1 XRD of raw TiO₂ powder

Table S1 Designed dimensions of MPA

Parameters	Dimensions (mm)
Length of Substrate, L _s	40.50
Width of Substrate, W _s	40.50
Height of Substrate, H	2.1
Length of Patch, L _p	21.62
Width of Patch, W _p	30.90
Height of Patch, H _p	0.03
Width of Feedline, W _f	2.03

Table S2 Optimized results of simulated MPA

Results:

Frequency (GHz)	1.572
S_{11} (dB)	-23.7326
VSWR	1.139
Bandwidth (MHz)	10.3
Directivity	3.316
Gain (dBi)	1.543
Impedance (Ω)	50.73
Radiation Efficiency (%)	66.48

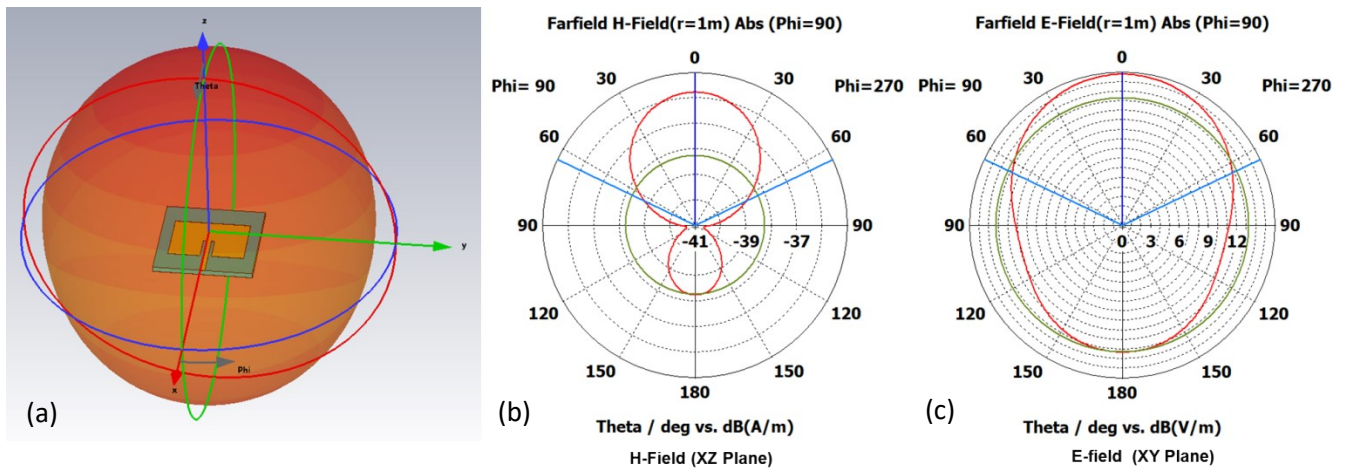


Fig. S 2 Far fields of Simulated MPA (a) 3D radiation pattern, (b) (c) 1D radiation of E-field and H-field

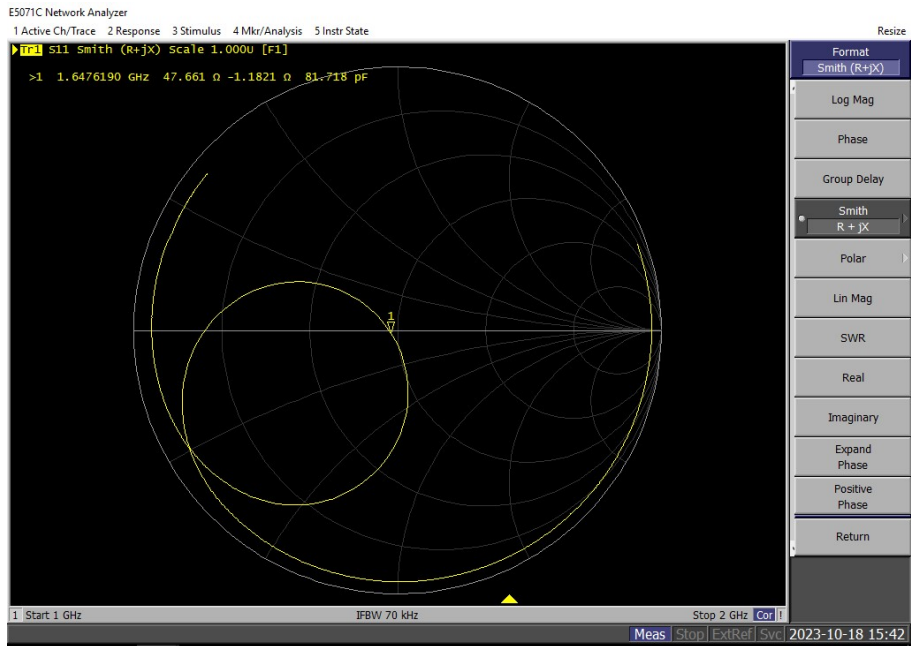


Fig. S 3 Impedance measurement results from Smith chart.

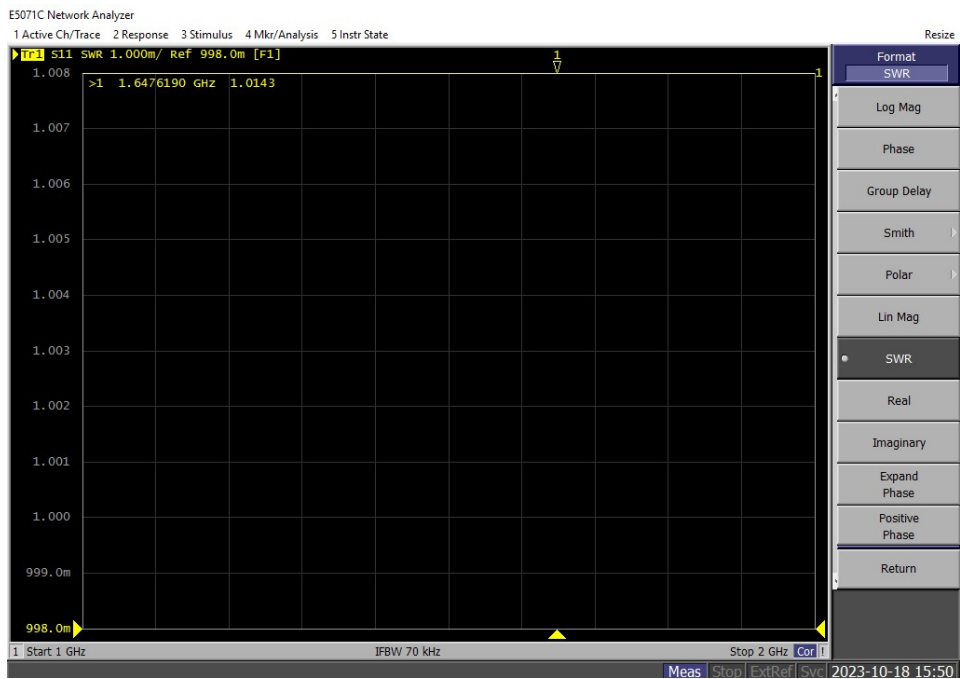


Fig. S 4 VSWR measurement results.