

Supplementary File

Azimuth-cut plane, $f = 1.25$ GHz, $\theta = -29^\circ$
(LHCP), $\theta = 30^\circ$ (RHCP)

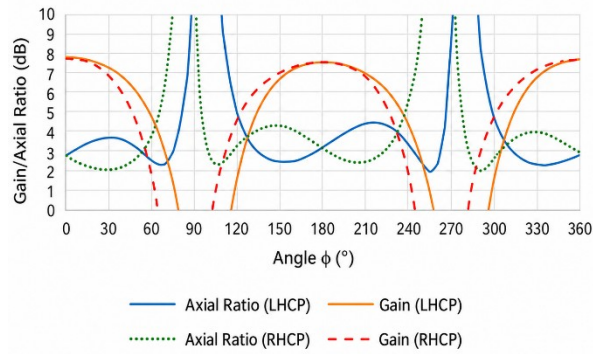


Figure 9 Azimuth-cut plane 2×1 patch

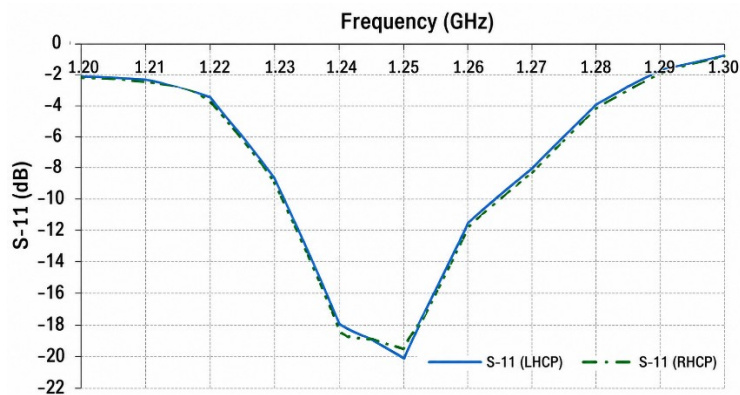


Figure 10 S -parameter 2×8 patches

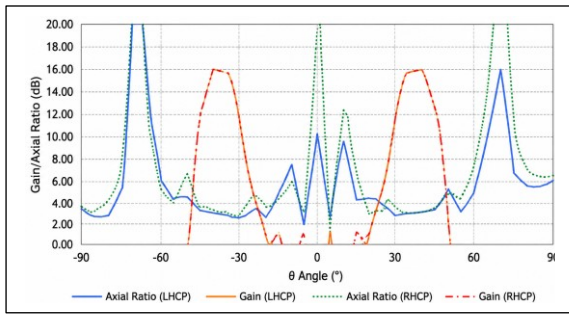


Figure 11 Elevation x - z plane, 2×8 patches

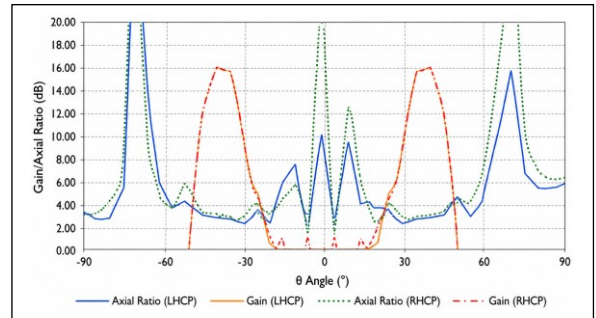


Figure 12 Elevation y - z plane, 2×8 patches

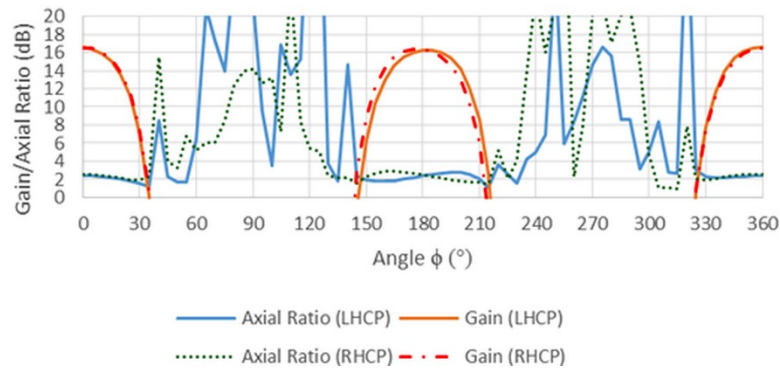


Figure 13 Azimuth x - y plane, 2×8 patches

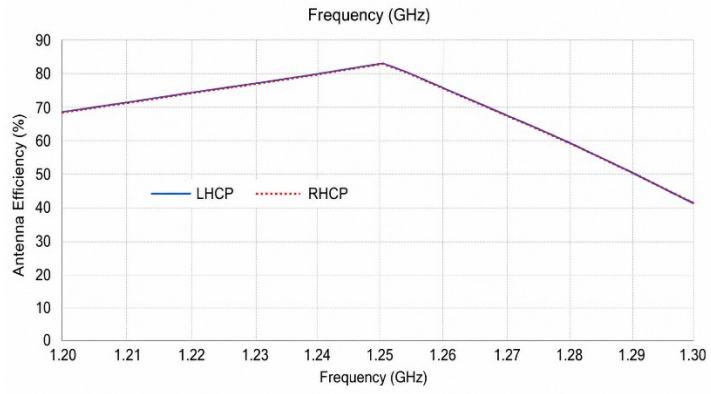


Figure 14 Antenna efficiency, 2×8 patches

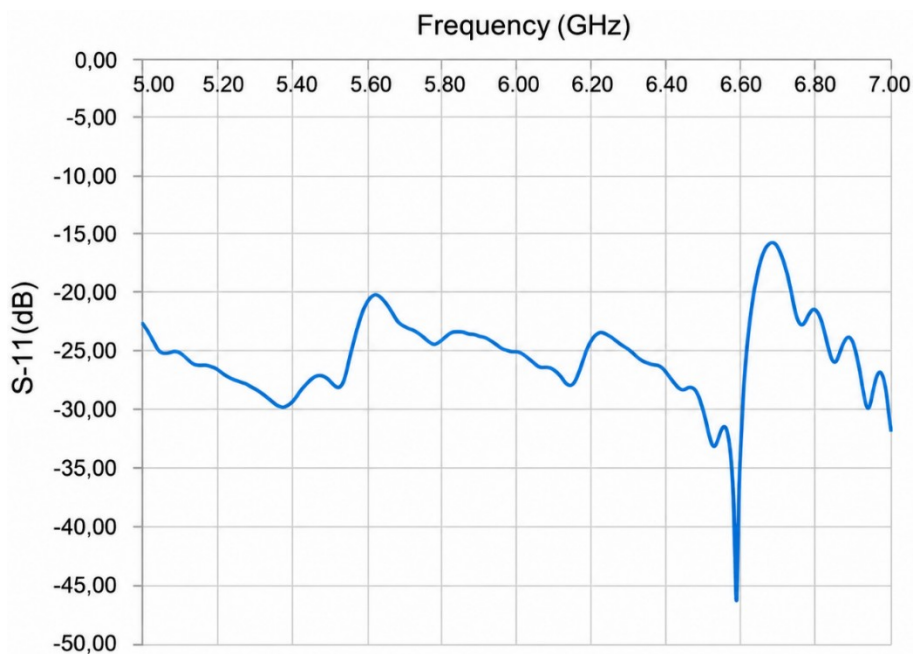


Figure 15 Simulation result of S_{11} (return loss) of array eight patches microstrip antenna

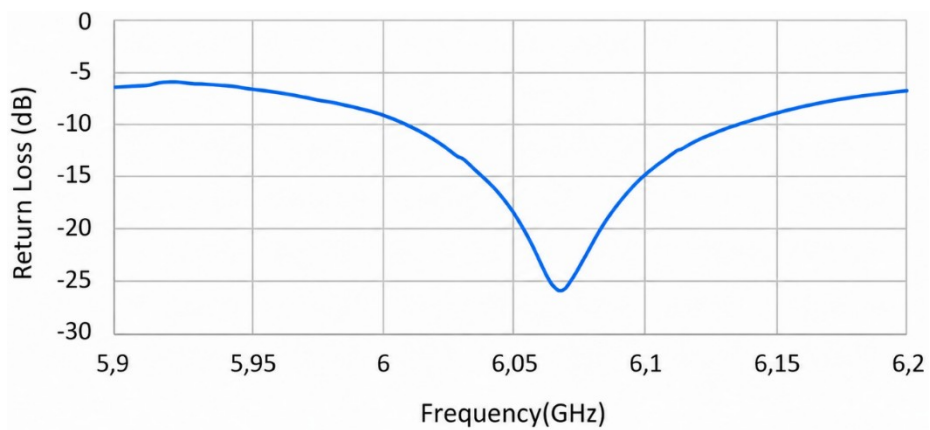


Figure 16 Measurement result of S_{11} (return loss) of the eight-patch microstrip antenna array

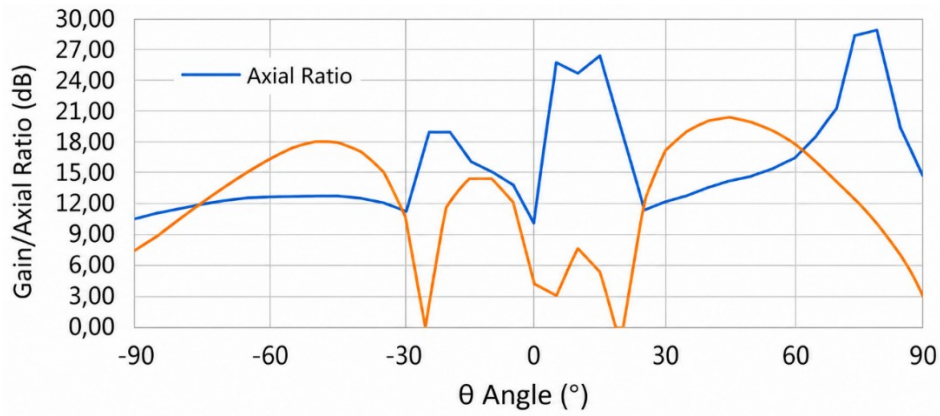


Figure 17 Simulation result of the elevation cut-plane of the eight-patch microstrip antenna array, $f = 5.5$ GHz, $\phi = 0^\circ$

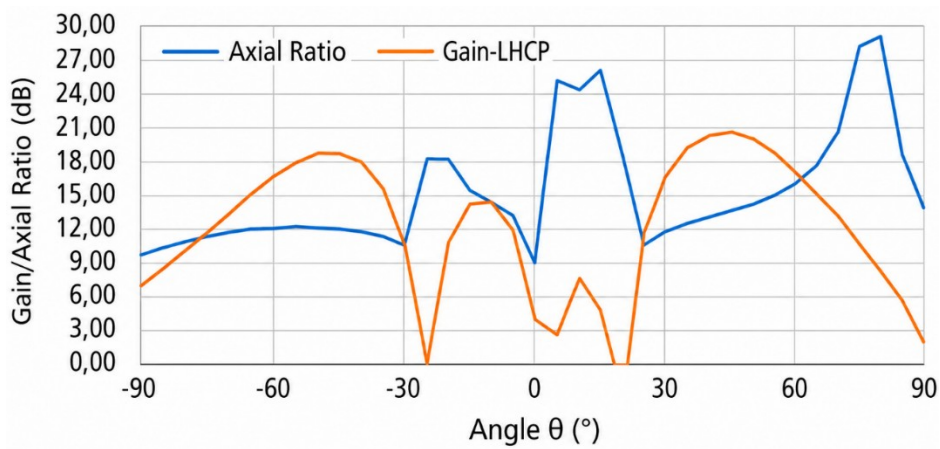


Figure 18 Simulation result of the elevation cut-plane of the eight-patch microstrip antenna array, $f = 5.5$ GHz, $\phi = 90^\circ$

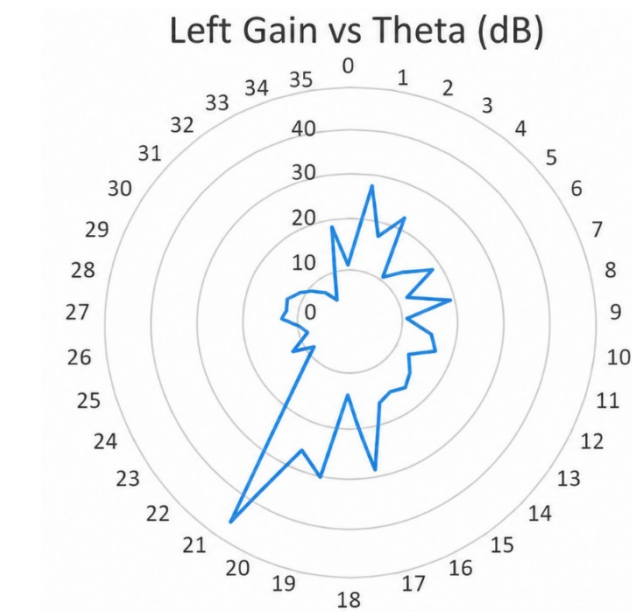


Figure 19 Measurement result of the elevation cut-plane of the eight-patch microstrip antenna array, $f = 5.5$ GHz, $\phi = 0^\circ$

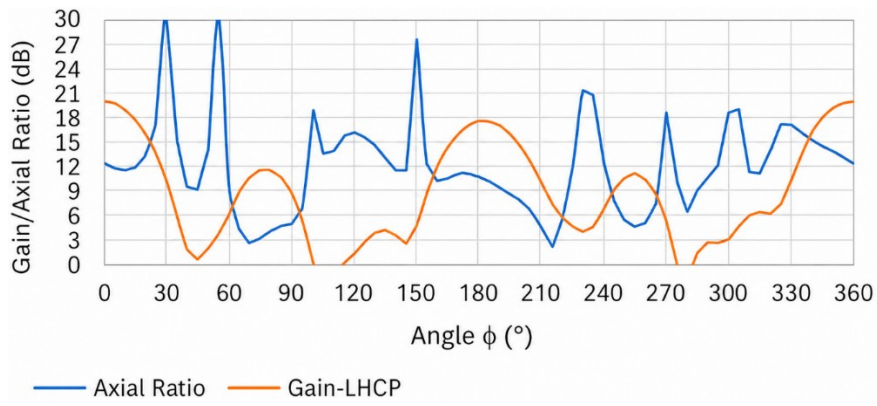


Figure 20 Simulation result of azimuth cut-plane of array eight patches microstrip antenna, $f = 5.5$ GHz, $\theta = 41^\circ$

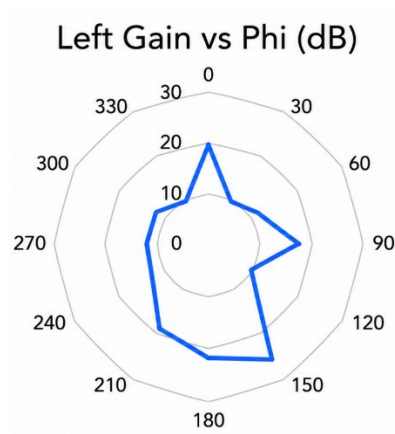


Figure 21 Measurement result of azimuth cut-plane of array eight patches microstrip antenna, $f = 5.5$ GHz, $\theta = 45^\circ$