

Design a printed 60GHz circularly polarized dipole antenna array with complementary sources



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What is the expectation for the design?

Wireless devices



Unlicensed 60 GHz band
High data rate: 7Gbps



Existing 2.4 GHz, 5 GHz

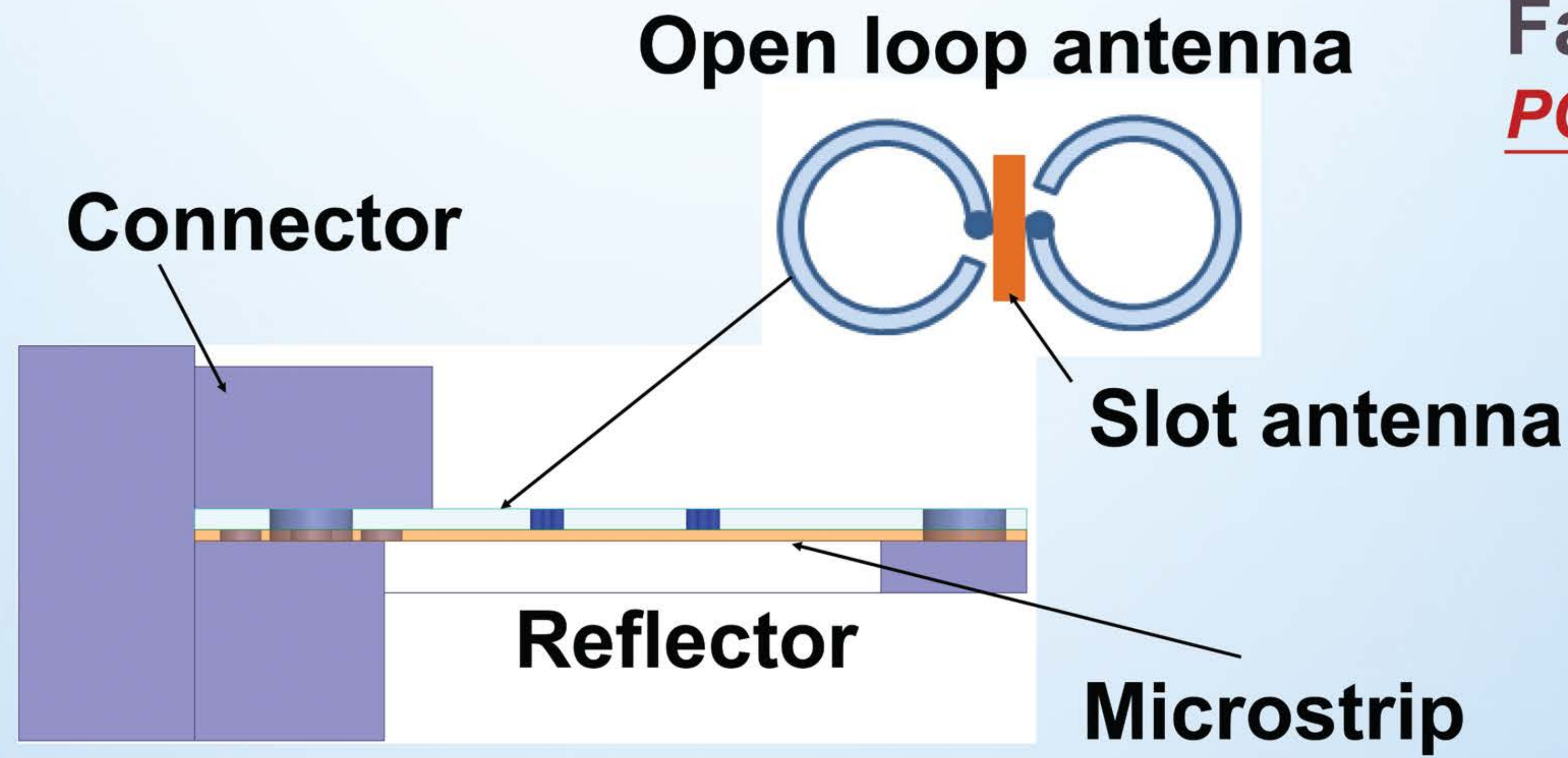
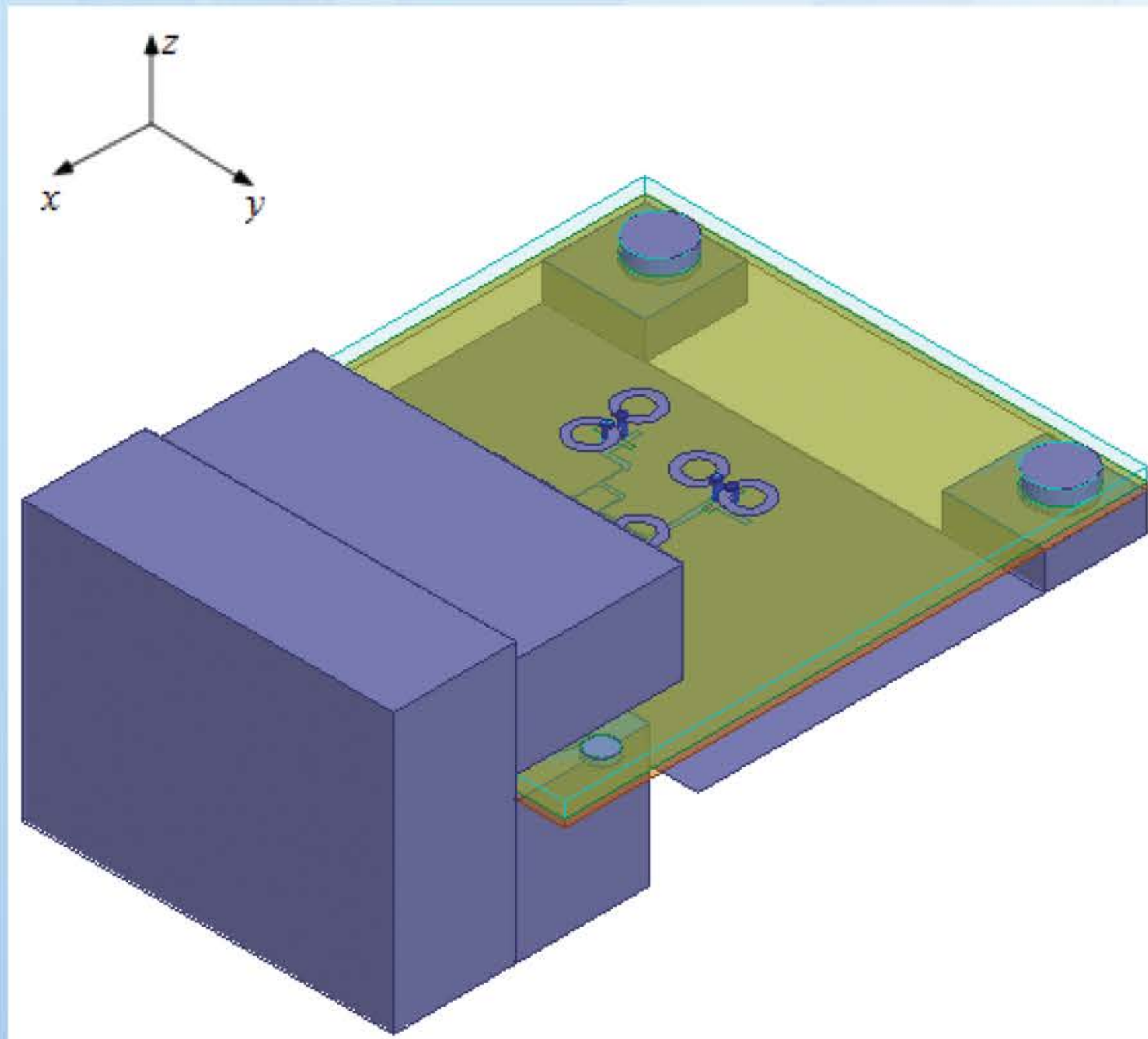


Tri-band communication

Short-range distance
Instant synchronization;
Uncompressed display;
Fast cordless computing;
Immediate internet access.

Far distance
Internet access

How to achieve the expectation?



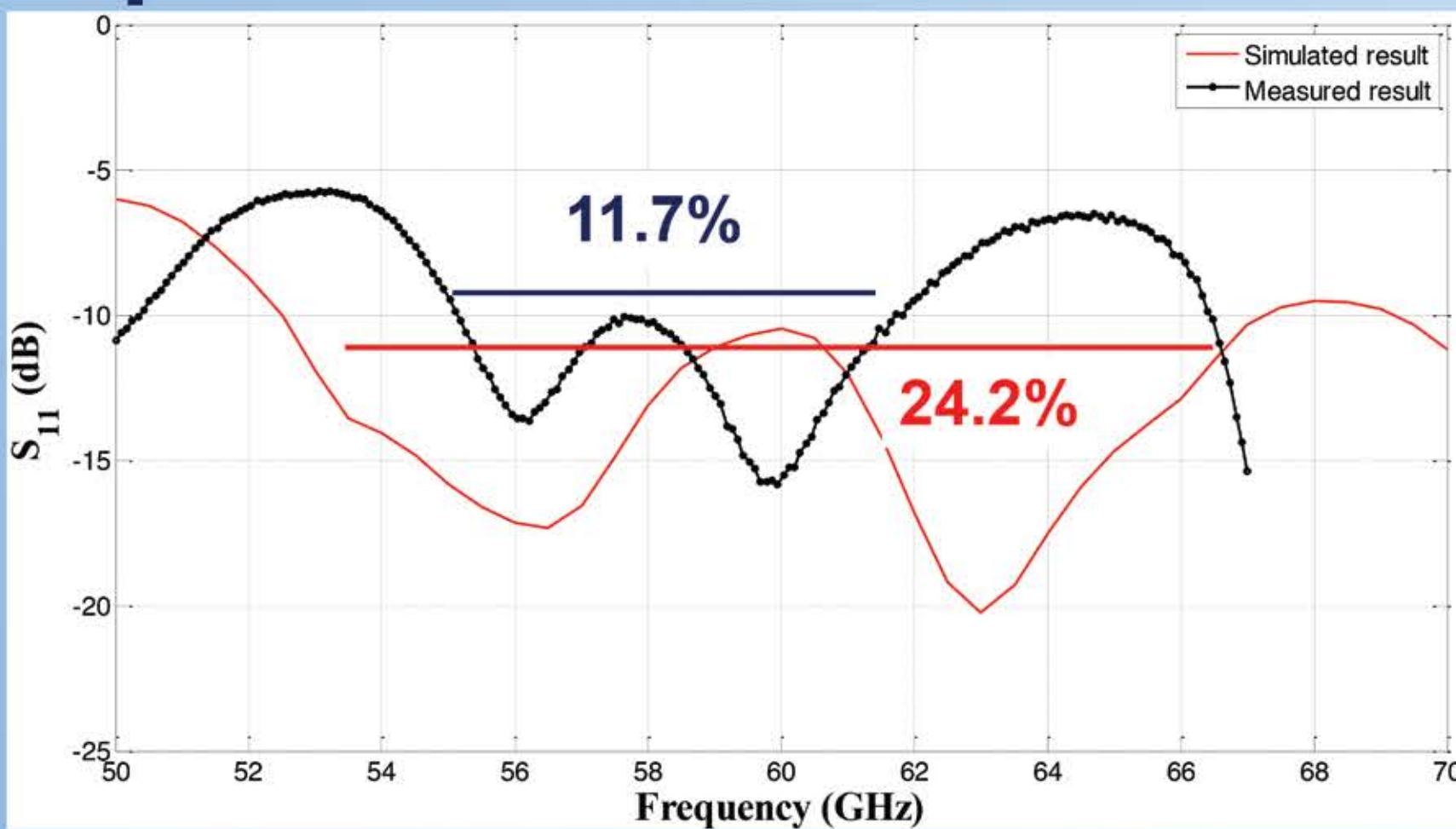
Fabrication:
PCB & plated through hole



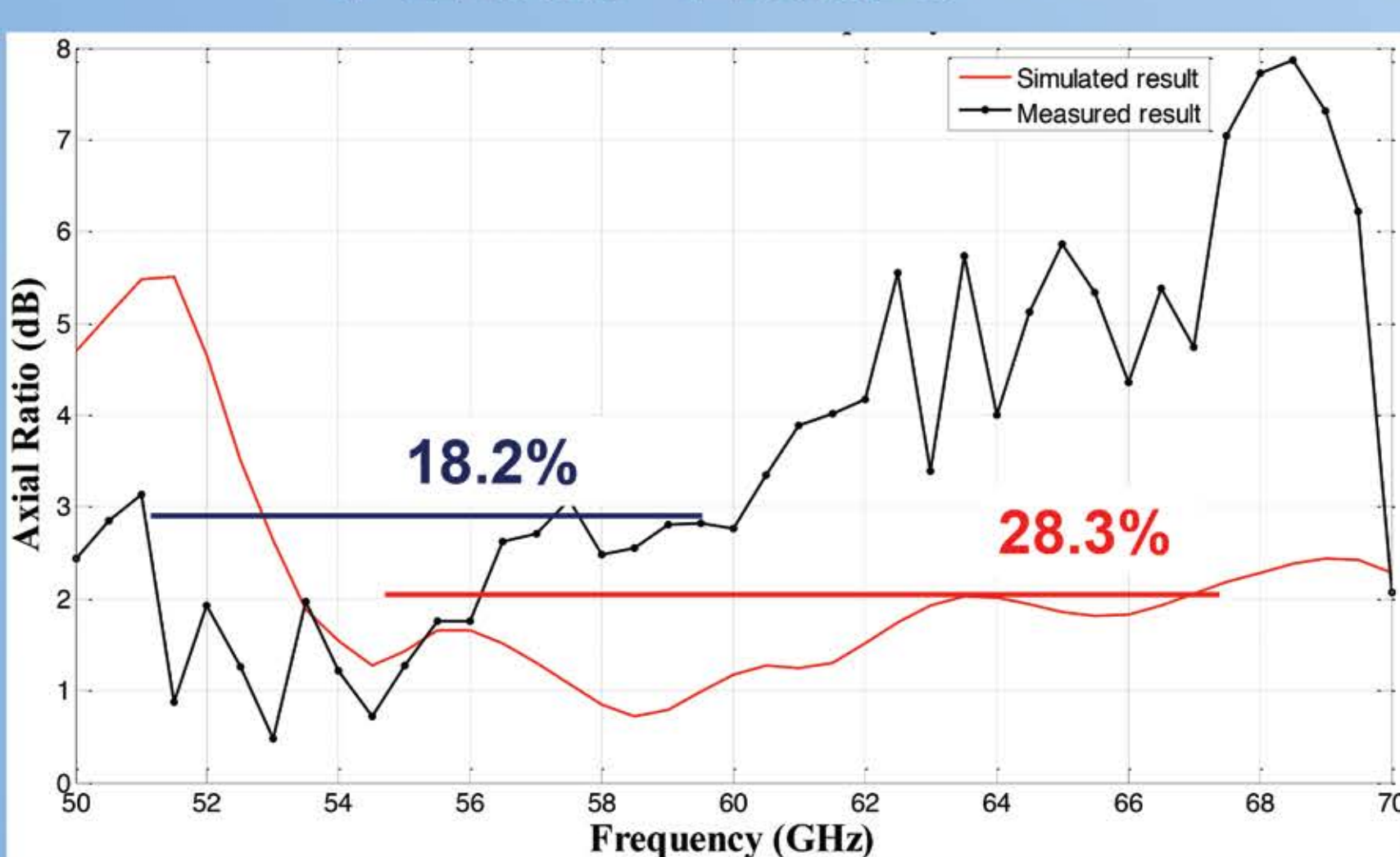
Parallel feeding network with sequential rotation

Does the designed antenna meet the expectation?

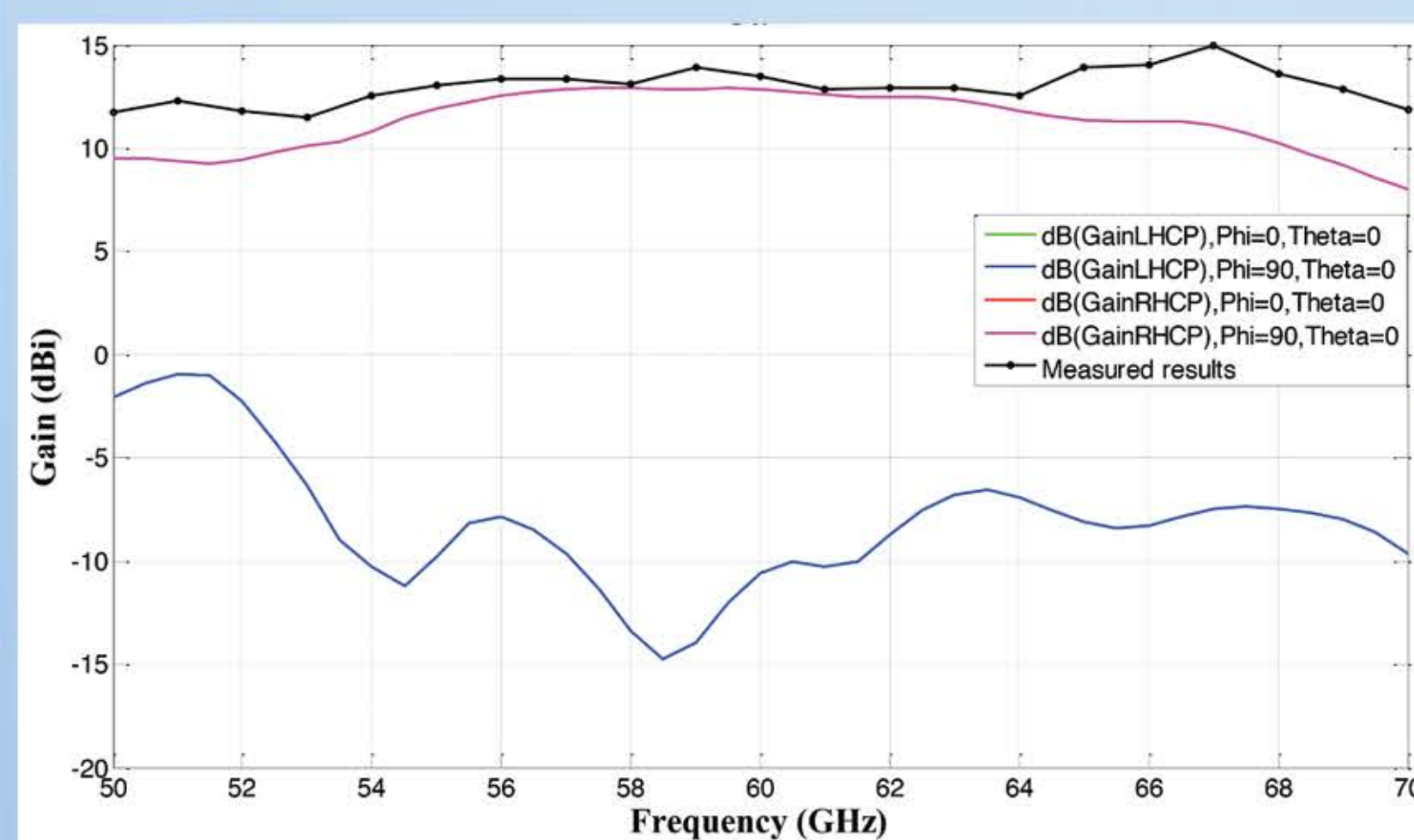
Input Reflection Coefficient



Axial Ratio



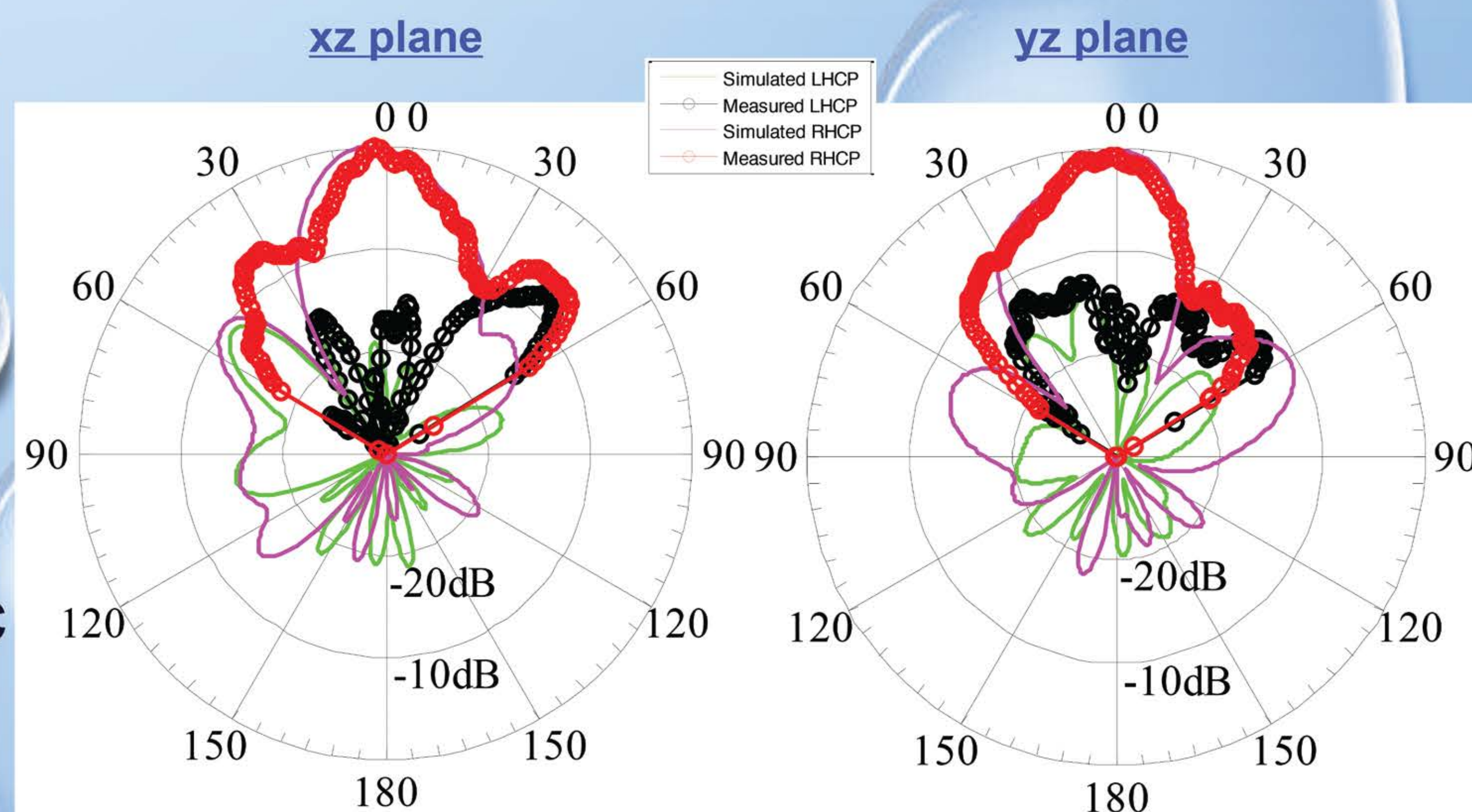
Gain



Gain: stable; > +12 dBi

Broad bandwidth

Measured radiation pattern at 60GHz



Broadside
Suppressed side & back lobes

The design satisfies the WiGig specification.