

PLANAR SUBSTRATE INTEGRATED END-  
FIRE ANTENNA WITH WIDE BEAM  
WIDTH FOR Q-BAND APPLICATIONS

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# ABSTRACT

- IEEE 802.11aj (45GHz) standard, a millimeter-wave planar substrate integrated end-fire antenna with wide bandwidths in both E- and H-plane, and good impedance matching over 42.3~48.4 GHz is proposed for Q-band wireless local area network (WLAN) system.
- The proposed antenna comprises of a printed angled dipole with bilateral symmetrical directors for generating wide-angle radiation, and the beam width in both E- and H-plane can be easily adjusted.

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# EXISTING SYSTEM

- The wireless local area network (WLAN) is and will be a primary accessing and connecting way to Internet for these smart devices.
- Therefore, the demand for high data rate, ultra high throughput WLAN is growing unprecedented fast.
- The unused wide bandwidth in millimeter-wave (mmW) band is highly promising for supporting next generation ultra-high throughput WLAN.
- Wide-beamwidth characteristic of WLAN access-point (AP) antenna is highly demanded for offering extensive indoor coverage



# PROPOSED SYSTEM

- The proposed antenna along with its design parameters and the coordinate system are in which is designed based on conventional PCB process, using a single-layer substrate of Rogers Droid 5880 ( $\epsilon_r=2.2$ ,  $\tan\delta=0.0009@10\text{GHz}$ ) with a thickness of 0.508 mm.
- The antenna comprises of a printed angled dipole fed by a parallel strip line, and bilateral symmetrical directors on both left and right sides of the angled dipole.
- The angled dipole is with an umbrella-like shape, and two identical arms of the angled dipole together with the parallel strip line are symmetrical printed on the top and bottom surfaces of the substrate.



# SOFTWARE REQUIREMENT

- Ansoft HFSS(High Frequency Structure Stimulator)
- CST

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# REFERENCES

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