DISTRIBUTED REACTIVE NEARFIELD PARASITIC ELEMENT BASED COMPACT CPW FED ANTENNA FOR NEARFIELD SENSOR APPLICATIONS

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An Electrically small metamaterial inspired antenna with narrow bandwidth suitable for nearfield sensor application is presented. The operation principle is based on a Distributed Reactive Nearfield Parasitic Element (DRNPE). The DRNPE unit cell with high distributed inductive reactance is introduced near a highly capacitive open ended CPW transmission line, resulting in good impedance matching. The resonant behavior is independent of the transmission line parameters and hence can be tuned with respect to the DRNPE parameters. The prototype used as a sensor for the measurement of dielectric constant variation is also discussed.

Index Terms — Distributed Reactive Nearfield Parasitic Element, sensor, antenna.