







## VI. CONCLUSION

An efficient wide band and dual pattern heart-patch antenna with two varactor diodes and strip line feed is proposed for on-body and off-body communication modes is proposed and analysed with respect to the bandwidth, average gain, radiation pattern. The impedance bandwidth of proposed antenna achieved 130% from frequency range 2.8 to 12 GHz. The average gain of the antenna is about 3.5 dBi. The radiation pattern of E- plane & also studied. It has Bi-directional E-plane & Omni-directional H-plane. This antenna is simple in structure and easy to fabricate with MIC/MMIC systems. This antenna can be used for wireless communication systems, especially for medical purposes. We can adjust notch frequency band of the antenna easily by changing DC bias of the varactor diodes. The proposed antenna presents much improved gain with one tapered shape radiating element than the previous works of the compact dual band and dual mode antennas. The results show that this antenna does not experience significant frequency detuning from the free space resonance at whole frequency bands when simulated on the human body.

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