

(54) Title of the invention : MIMO ANTENNA SYSTEM AND METHOD FOR MIMO ANTENNA SYSTEM WITH DUAL-BAND REJECTION

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(71)Name of Applicant :**1)Chitkara University**

Address of Applicant :Chitkara University, Chandigarh-Patiala National Highway, Village Jhansla, Rajpura, Punjab - 140401, India -----

2)Chitkara Innovation Incubator Foundation

Name of Applicant : NA

Address of Applicant : NA

(72)Name of Inventor :**1)Dr. Manish Sharma**

Address of Applicant :Chitkara University Institute of Engineering & Technology, Chitkara University, Chandigarh-Patiala National Highway, Village Jhansla, Rajpura, Punjab - 140401, India -----

2)Dr. Surya Narayan Panda

Address of Applicant :Chitkara University Institute of Engineering & Technology, Chitkara University, Chandigarh-Patiala National Highway, Village Jhansla, Rajpura, Punjab - 140401, India -----

3)Dr. S Sreenivasa

Address of Applicant :Tumkur University, Vishwavidyanilaya Karyalaya, Bengaluru - Honnavar Rd, Venkatesh Rao Colony, Tumakuru, Karnataka 572103, India -----

4)Dr. Pankaj Ramesh Natu

Address of Applicant :Thakur Institute of Management Studies & Research, TIMSR, C Block, Thakur Educational Campus, Gate, 8, Shyamnarayan Thakur Rd, Thakur Village, Kandivali East, Mumbai, Maharashtra 400101 -----

(57) Abstract :

A multiple-input-multiple-output (MIMO) antenna system (100) comprising a dielectric substrate (102) having first and second surfaces, a pair of identical 12-sided polygonal radiating patches (104) disposed on the first surface, a shared rectangular ground plane (106) disposed on the second surface with two semi-elliptical slots and a T-shaped stub positioned between the radiating patches for mutual coupling reduction, first and second microstrip feedlines (108) connected to respective radiating patches, a first band-stop structure (110) comprising a C-shaped slot in the radiating patches for WLAN interference suppression (5.150-5.825 GHz), and a second band-stop structure (112) comprising an inverted U-shaped slot in the microstrip feedlines for Downlink-Uplink Satellite (DUS) interference suppression (7.25-8.30 GHz). The antenna system operates over ultra-wideband (3.10-10.60 GHz) and X-band (8.00-12.00 GHz) frequencies, exhibits mutual coupling greater than 15 dB, and achieves superior diversity performance with envelope correlation coefficient (ECC) less than 0.003, diversity gain (DG) greater than 9.95 dB, total active reflection coefficient (TARC) less than -15 dB, and channel capacity loss (CCL) less than 0.01 b/s/Hz. FIG.1

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