Abstracts

An adaptive multi-functional array for wireless sensor systems

R.Y. Miyamoto, K.M.K.H. Leong, Seong-Sik Jeon, Yuanxun Wang and T. Itoh. "An adaptive multi-functional array for wireless sensor systems." 2002 MTT-S International Microwave Symposium Digest 02.2 (2002 Vol. II [MWSYM]): 1369-1372 vol.2.

Smart antenna and retrodirective array technologies are combined to establish a reconfigurable phased array communication system. The array serves as a retrodirective transponder with a LO frequency at 11.6 GHz. By changing the LO frequency to 2.9 GHz, the array can be reconfigured to a smart antenna enabling multi-user communications. The retrodirective transponder provides 20 dB circuit gain and 20 dB RF-IF Isolation exhibiting excellent retrodirectivity. When operating as a smart antenna, the receiver array successfully demodulates a QPSK modulated signal with circuit gain of 7 dB and E/sub b//N/sub 0/ for BER=10/sup -4/ is approximately 12 dB without any error correction. In the retrodirective array mode, the system provides 20 dB.

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