



(1)

Prediction formulas of a notched frequency response of a printed ultra-wideband antenna loaded with notching resonators

A. A. R. Saad, M. M. M. Ali, and E. E. M. Khaled

Abstract:

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Keywords:

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(2)

IMPLEMENTATION AND JUSTIFICATION OF A TRIPLE FREQUENCY-NOTCHED UWB PROXIMITY-FED ANTENNA WITH SHUNT STUBS

Mohamed Mamdouh M. Ali, Ayman Ayd R. Saad, and Elsayed Esam M. Khaled

Abstract:

In this article, an ultrawideband (UWB) antenna with triple band-rejection characteristics is proposed. The antenna is compact with size of $22.5 \times 24 \text{ mm}^2$. Matching between a sector-disk shaped radiating patch and the 50- Ω microstrip line is manipulated through a proximity-feed technique. An elliptically-shaped aperture is etched in the ground plane to enhance the antenna bandwidth. Double shunt stubs are used to get more enhancement of the impedance bandwidth of the antenna. The band notches at WiMAX of 3.3–3.9 GHz, lower WLAN of 5.15–5.35 GHz, and upper WLAN of 5.725–5.825 GHz are realized by embedding three elements; a reversed F-shaped slot etched off in the patch, a reversed U-shaped slot etched off in the feed line, and adding a parasitic flipped C-shaped strip around the patch, respectively. The antenna is fabricated and the experimental data show that the designed antenna has an impedance bandwidth of 3.2–11.6 GHz for VSWR less than 2, except at three frequency stop-bands of 3.20–4.19, 5.02–5.32, and 5.51–6.10 GHz. Curve fitting formulations to describe the influences of the embedded structures on the corresponding notched frequencies are obtained by using a second-order polynomial. Moreover, physical lumped elements of an electrical equivalent circuit model of the proposed antenna are obtained using a rational function approximation based on the vector fitting technique. The antenna provides almost omnidirectional patterns, relatively flat gain, and high radiation efficiency over the entire UWB frequency excluding the rejected bands. VC 2014 Wiley Periodicals, Inc. *Microwave Opt Technol Lett* 56:646–654, 2014; View this article online at wileyonlinelibrary.com. DOI: 10.1002/mop.28149

Keywords:

ultrawideband; proximity-fed; triple band-notched; aperture antenna; rational function; equivalent circuit modeling

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(3)

An integrated 3G/Bluetooth and UWB antenna with a Frequency band-notched feature

Ayman Ayd R. Saad, Mohamed Mamdouh M. Alib & Elsayed Esam M. Khaled

Abstract:

In this article, the design and analysis of a compact slot antenna that covers 3G, Bluetooth, and the UWB bands with the standard band-notched function at 3.6 GHz are presented and investigated. A rectangular wide-slot etched off the ground plane is used to control the low operating frequency band and the impedance matching of the proposed antenna. A manipulated rectangular tuning stub is used to enhance and control the operating bandwidth at the high frequency band. The proposed antenna is fabricated and is successfully simulated and measured. The results indicate that the proposed antenna yields an impedance bandwidth of about 7.75 GHz (from 1.9 to 9.65 GHz) defined by $VSWR \leq 2$ for UMTS (1.920–2.170 GHz)/Bluetooth (2.4–2.484 GHz)/3GPP (2.57–2.62 GHz), and UWB (3.1–9.65 GHz) applications with good radiation characteristics. To reduce interference between the UWB system and the WiMAX system (3.3–3.9 GHz), a U-shaped slot is employed in the microstrip feeding line to create notched band of 3.2–4.0 GHz. Furthermore, a mathematical circuit model compatible with time-domain circuit simulators, which is based on a vector fitting technique, is also illustrated to investigate the proposed antenna characteristics.

Keywords:

slot antenna, 3G, UMTS, 3GPP, Bluetooth, UWB, circuit modeling, vector fitting

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(4)

Implementation and Justification of a Triple Frequency-Notched UWB Proximity-Fed Antenna with Shunt Stubs

A. A. R. Saad, M. M. M. Ali, and E. E. M. Khaled

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(5)

An Integrated 3G/Bluetooth and UWB Antenna with a Frequency Band-notched Feature

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(6)

Prediction formulas of a notched frequency response of a printed ultra-wideband antenna loaded with notching resonators

A. A. R. Saad, M. M. M. Ali, and E. E. M. Khaled

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(7)

Design of a Dual-Band Printed Slot Antenna with Utilizing a Band Rejection Element for the 5G Wireless Applications

Mohamed Mamdouh M. Ali, Osama Haraz, and Saleh Alshebeili

Abstract:

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(8)

Broadband Printed Slot Antenna for the Fifth Generation (5G) Mobile and Wireless Communications

Mohamed Mamdouh M. Ali, Osama M. Haraz, Saleh Alshebeili, and Abdel-Razik Sebak

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(9)

A Compact Ultra-Wide Band Microstrip Slotted Antenna with Dual Band Notches

Mohamed Mamdouh, Elsayed Esam M. Khaled

Abstract:

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