

Accepted Manuscript



Regular paper

Absorptive frequency selective surface with switchable passband

Qihui Zhou, Peiguo Liu, Ke Wang, Hanqing Liu, Dingwang Yu

PII: S1434-8411(17)32905-9
DOI: <https://doi.org/10.1016/j.aeue.2018.03.034>
Reference: AEUE 52287

To appear in: *International Journal of Electronics and Communications*

Received Date: 11 December 2017
Accepted Date: 28 March 2018

Please cite this article as: Q. Zhou, P. Liu, K. Wang, H. Liu, D. Yu, Absorptive frequency selective surface with switchable passband, *International Journal of Electronics and Communications* (2018), doi: <https://doi.org/10.1016/j.aeue.2018.03.034>

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

Absorptive frequency selective surface with switchable passband

Qihui Zhou*, Peiguo Liu, Ke Wang, Hanqing Liu and Dingwang Yu

College of Electronic Science,

National University of Defense Technology,

410073 Changsha, China

*E-mail address: zhouqihui10@126.com

Abstract

An active absorptive frequency selective surface (AFSS) is proposed in this paper, which is comprised of a switchable bandpass screen and a periodic resistive surface separated by a foam layer. The switchable bandpass screen embedded with PIN diodes achieves the shift of transmission and reflection in the operating band by controlling the bias voltage. The resistive surface consists of several resonance loops inserted with lumped resistors. At the both sides of the operating band, the entire AFSS performs as an absorber with the switchable bandpass screen playing the role of ground plane. The absorption bands range from 1.3-6 GHz and 9.5-12.5 GHz with a transmission window at 8.2 GHz, which can be removed with little impact on the absorbing properties. A prototype of the structure is fabricated to verify the numerical simulation. Moreover, the simulated results also show that the proposed AFSS exhibits stable performance for different polarized waves due to the symmetric structure.

Keywords: Absorption; frequency selective surface; switchable transmission window.

1. Introduction

Frequency selective surface (FSS) is a periodic array of metallic or dielectric elements with spatial filtering characteristic [1]. It has been applied in a wide variety of fields such as performance enhancement in cavity antennas [2,3], electromagnetic compatibility [4], and stealth technology [5]. Although FSS can reflect signals out of band without affecting the transmission of the operation signal, there are still some difficulties when it is used for RCS

Download English Version:

<https://daneshyari.com/en/article/6879295>

Download Persian Version:

<https://daneshyari.com/article/6879295>

[Daneshyari.com](https://daneshyari.com)