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Journal Name:	British Journal of Applied Science & Technology
Manuscript Number:	2013_BJAST_6757
Title of the Manuscript:	Dipole-Loaded Monopole Optimized Using VSO
Type of the Article	Research Paper

General guideline for Peer Review process:

This journal's peer review policy states that **NO** manuscript should be rejected only on the basis of '**lack of Novelty**', provided the manuscript is scientifically robust and technically sound.

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PART 1: Review Comments

	Reviewer's comment	Author's comment (if agreed with reviewer, correct the manuscript and highlight that part in the manuscript. It is mandatory that authors should write his/her feedback here)
Compulsory REVISION comments	This article introduces the VSO algorithm by using it to optimize the dipole-loaded monopole. The result of optimization is given. Meanwhile, the VSO algorithm is compared to other algorithms. First problem to evaluate a algorithm is the correctness. The operational speed comes next. The author does not prove the correctness of VSO' calculated result. The reviewer think that the judge of calculated result' correctness depends on experimental result as well as example of accepted classical analytical solution. However, there does not exist previous contents in this article. Thus, description about merits of algorithm does not make sense. The author must give example of accepted classical analytical solution. Only when the author give example of accepted classical analytical solution can the merit be introduced.	The author thanks the reviewer for his comments and responds as follows: The reviewer's comment apparently is addressed to theVSO-optimized dipole-loaded monopole problem ("DLM") described in this paper, and the author respectfully disagrees with it. The VSO paper solves <i>exactly the same problem</i> posed by Altshuler, nothing more, nothing less. In order to evaluate VSO's effectiveness is it necessary to compare results "head-to-head," which is just what the paper does. Altshuler applies GA to DLM precisely because there is <i>no analytical solution</i>. Indeed, Altshuler states "It will be obvious that these antennas, with their unusual shapes, <i>could not have been designed using an inductive approach</i>." (Altshuler EE, Linden DS. Wire-Antenna Designs Using Genetic Algorithms. IEEE Ant. Prop. Mag. 1997:39(2):33-43; emphasis added, copy attached.) Altshuler further states "A surprising feature of this process is that the type of antenna that resulted is completely counter-intuitive - we can say with some confidence that <i>no human antenna designer would analytically arrive at this configuration</i> to try to achieve hemispherical coverage..." (Altshuler, EE, Linden, DS. Process for the Design of Antennas Using Genetic Algorithms. United States Patent No. 5,719,794,



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		Feb. 17, 1998, col. 26 at line 20; emphasis added, copy attached). There is no analytical solution to the DLM problem and, as a result, it is not possible to include one in the VSO paper. If the reviewer knows of an analytical solution to DLM, then it is incumbent upon him to provide it. As to demonstrating VSO's merit, it clearly has been done by solving exactly the same problem Altshuler posed and solved in his seminal paper published in what is arguably the world's most prestigious journal on antenna theory, IEEE Transactions on Antennas and Propagation, and by doing so with <i>better results</i> than Altshuler's The author hastens to point out as well that the paper does include <i>extensive</i> testing against two analytical benchmark suites and against several other global search and optimization algorithms. Because VSO is completely deterministic, these data provide the reader with precise numerical results than can be reproduced and analyzed for accuracy. The paper includes precise numerical results and the number of calculations required to achieve them, which is a direct measure of "operational speed" and the standard approach for evaluating an algorithm's computational efficiency. Finally, it is significant, too, that the VSO paper follows the same structure as the v-PSO paper (copy attached) whose benchmark suite is used for comparison, viz, applyingb teh algorithm to both benchmark functions and to a "real world" engineering problem for which there is no analytical solution.
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<u>Minor</u> REVISION comments	It lacks the description about designing process of proposed antenna. The size of antenna should be added. The grammar lacks standardization. There exists unclear narration such as “While this value was used for all VSO runs reported here, other fixed values may work better, or perhaps a variable value would.”. What does the author want to explain. The reviewer is not the editor and does not point out other parts. The author should check the article carefully.	The design process <i>is described in detail</i>: VSO is used to optimize a user-specified fitness function using data provided by a stand-alone antenna modeling engine, the Numerical Electromagnetics Code. NEC is the "gold standard" in wire antenna modeling, and it has been developed and tested over nearly five decades and presently is maintained by Lawrence Livermore National Laboratory (USA). The antenna size is provided in detail in the NEC input files, which include the precise geometry (to at least four decimal places) in wavelengths because, following standard procedure, the operating frequency is 299.8 MHz at which the wavelength is exactly 1 meter. The author does not understand what "The grammar lacks standardization" means. If the reviewer sees grammatical errors, then they should be identified. Additional discussion has been added to clarify the passage quoted by the reviewer, and the paper has been carefully read and re-read for clarity and organization with various revisions made to improve the presentation.
<u>Optional/General</u> comments	The tested results of proposed antenna should be added to prove the correctness of optimizing thought and calculated results.	This paper presents a <i>theoretical solution</i> to the DLM problem posed by Altshuler, who also presented a theoretical solution without test results. Accordingly, there is no need to present test data to make a comparison with Altshuler, which is what the paper does. However, NEC's antenna performance predictions have been thoroughly validated over decades of testing, and there is no question as to its accuracy. The NEC



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		reference in the paper contains extensive validation data, and anyone active in antenna design will be well aware of NEC's efficacy.
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