inaccuracies. We would like to emphasize that some groups have already realized these basic limitations of the pulse-basis functions and particularly their inappropriateness in satisfying the boundary conditions between cells. It is these limitations that lead these research groups to utilize more sophisticated basis functions such as the roof-top function [14] and the linear basis functions [13]. We believe that these functions allow better description of the fields within each cell and help to satisfy the boundary conditions between cells. This, together with better modeling of the geometry of the object (e.g., by replacing the cubical cells by polyhedral cells, as we recommended in [1]), should significantly improve the SAR *distributions* calculated by the method of moments.

In summary, we believe that the data presented in [1] indicate that there are serious questions about the convergence of solutions obtained from the use of pulse-basis functions in the moment-method solution of the electric-field integral equation for the internal field distribution. The reasons for these deficiencies have not been rigorously proven, but we have proposed some explanations based on our understanding and experience. We believe that it is generally accepted by those working in numerical electromagnetics that the use of pulse-basis functions can give satisfactory results for the average SAR, but not for the internal field distribution. Whether or not satisfactory results for internal field distribution can be obtained by using pulse functions and a very large number of cubical cells remains to be demonstrated, but in most numerical calculations, there is a point at which the accuracy begins to decrease as the size of the cells is made smaller.

Each of the various numerical electromagnetic techniques in common use has its advantages and disadvantages, and must be used with care for any given application to ensure that it provides useful results. The use of pulse-basis functions in cubical cells in the moment-method solution is no exception, and it may turn out that when the results are compared in terms of matrix size, the use of more complicated basis functions, such as linear basis functions, may provide better accuracy in calculating internal field distributions. However, it does turn out, it seems clear, that reasonably accurate calculation of internal field distributions by the moment method will be expensive because either the use of a large number of cells or the use of more complex basis functions than pulse functions will be required, both of which entail very large matrices.

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Correction to "Interaction of the Near-Zone Fields of a Slot on a Conducting Sphere with a Spherical Model of Man"

SHI-GUO ZHU AND K M. CHEN

In the above paper,[1] we have assumed that on the surface of the conducting sphere, the electric field exists only on the slot aperture and zero field elsewhere. This assumption is unrealistic. For a realistic conducting sphere, the slot field can excite a normal component of the electric field on the spherical surface, implying the existence of induced surface charge. With this modified assumption, (6) of the above paper should be modified as follows:

$$\begin{aligned}\vec{E}'^{(0)}(a,\theta,\phi) &= \sum_{n=0}^{\infty}\sum_{m=-n}^{n}\left[A'^{(0)}_{mn}\vec{M}^{h}_{mn}(a,\theta,\phi) + B'^{(0)}_{mn}\vec{N}^{h}_{mn}(a,\theta,\phi)\right] \\ &= \hat{\theta}\frac{1}{a}\delta(\theta-\theta_0)f(\phi) + \hat{r}\sum_{n=0}^{\infty}\sum_{m=-n}^{n}B'^{(0)}_{mn}\left[\vec{N}^{h}_{mn}(a,\theta,\phi)\right]_r \quad (6)\end{aligned}$$

where

$$f(\phi) = \begin{cases}\cos(\pi\phi/2\alpha), & \text{for } -\alpha \leqslant \phi \leqslant \alpha \\ 0, & \text{elsewhere.}\end{cases}$$

As a result, the coefficients $A^{r(0)}_{mn}$ and $B^{r(0)}_{mn}$ of (7) and (8) are

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TABLE I

THE LOCAL SAR AT A REPRESENTATIVE POINT ($r' = b$, $\theta' = 175°$, $\phi' = 0°$) ON THE SURFACE OF THE DIELECTRIC SPHERE AS A FUNCTION OF THE SEPARATION BETWEEN THE SPHERES, COMPUTED FOR THE CASE OF WITH (P) AND WITHOUT (P_1) TAKING INTO ACCOUNT THE BODY–SOURCE COUPLING EFFECT

r_0 (cm)	local SAR with body-source coupling $P = \frac{\sigma}{2}[\sum_{\ell=1}^{L} \vec{E}^{\,t(\ell)}]^2$	local SAR without body-source coupling $P_1 = \frac{\sigma}{2}[\vec{E}^{\,t(1)}]^2$	percentage error $\lvert P - P_1 \rvert / P$
45	0.64447 E-02	0.28990 E-02	55%
46	0.16250 E-02	0.10706 E-02	34
47	0.51297 E-03	0.40990 E-03	20
48	0.18170 E-03	0.15946 E-03	12
49	0.70320 E-04	0.67196 E-04	4
50	0.17606 E-04	0.27787 E-04	58
52	0.22385 E-04	0.15820 E-04	29
56	0.23736 E-04	0.25068 E-04	6
60	0.23513 E-04	0.24245 E-04	3

(Unit for P and P_1: mW/kg).

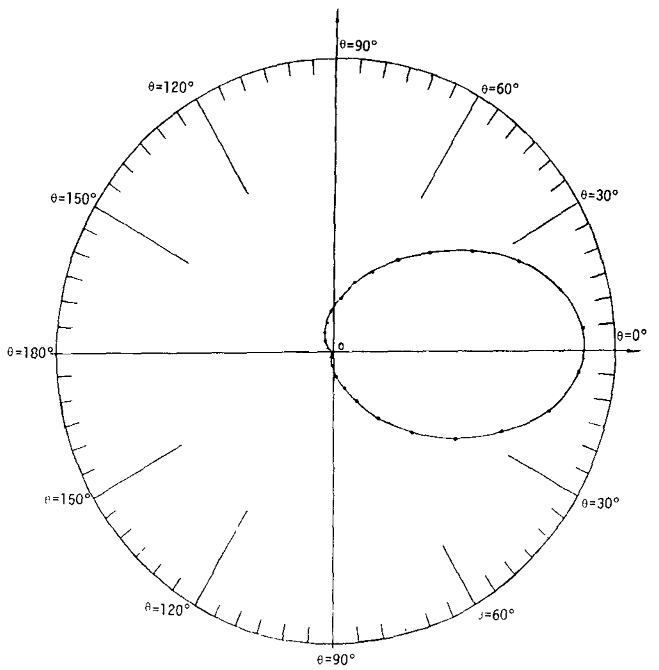

Fig. 1. E-plane radiation pattern maintained by a radiating slot on a conducting sphere of 20-cm radius at 2.45 GHz. Slot location: $\theta = 10°$, $-30° \leq \phi \leq 30°$, and $r = 20$ cm

modified to be

$$A'^{(0)}_{mn} = -j \frac{m\alpha \cos m\alpha}{a(\pi^2 - 4m^2\alpha^2)} \frac{2n+1}{n(n+1)} \frac{(n-m)!}{(n+m)!} \frac{P_n^m(\cos\theta_0)}{h_n^{(2)}(k_0 a)} \tag{7}$$

$$B'^{(0)}_{mn} = \frac{\alpha k_0 \cos m\alpha}{\pi^2 - 4m^2\alpha^2} \frac{2n+1}{n(n+1)} \frac{(n-m)!}{(n+m)!} \frac{[P_n^m(\cos\theta_0)]'}{[a h_n^{(2)}(k_0 a)]'} \sin\theta_0. \tag{8}$$

The rest of the analysis is still valid.

This change will not alter the main finding of the paper that a significant error in the SAR estimation can occur if the body–source coupling is ignored. However, some numerical results are affected by this change. For example, the new results on the local SAR at a representative point on the dielectric sphere as a function of the separation between the conducting and dielectric spheres for the cases of with and without taking into account the body–source coupling are given in Table I, and the new radiation pattern from the slot on the conducting sphere is given in Fig. 1.

Correction to "Technology Summaries for Microwave Theory and Techniques—1983"

JOHN B. HORTON, SENIOR MEMBER, IEEE

In the October 1984 IEEE TRANSACTIONS ON MICROWAVE THEORY AND TECHNIQUES, the above paper,[1] a technology summary edited by B. E. Spielman, was published. This paper included inputs from the Technical Committees MTT-6, MTT-7, MTT-15, and MTT-16. A correction should be made to the "Microwave Systems—1983" section of the paper, pp. 1377–1378.

The title and contributors of the inputs from Committee MTT-16 should read as follows:

MICROWAVE SYSTEMS—1983

J. B. HORTON, TRW
G. L. HEITER, BELL LABORATORIES
R. D. KAUL, LITTON SYSTEMS
G. SCHAFFNER, TELEDYNE RYAN ELECTRONICS

COMMITTEE MTT-16

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[1] B E Spielman, *IEEE Trans. Microwave Theory Tech*, vol. MTT-32, pp. 1372–1378, Oct. 1984.