Letters

Comment on "Single-Post Inductive Obstacle in Rectangular Waveguide"

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Leviatan *et al.* have made, in the above paper,[1] an important contribution to the theory of posts in rectangular waveguide, but unfortunately failed to reference the key paper by Abele [1]. Abele's technique was found to yield excellent results when used to design inductive posts for rectangular waveguide bandpass filters [2], and should be brought to the attention of readers of the TRANSACTIONS.

REFERENCES

[1] T. A. Abele, "Inductive post arrays in rectangular waveguide," *Bell Syst. Tech. J.*, vol. 57, pp. 577–594, Mar. 1978.
[2] P. Toerien and J. H. Cloete, "Inductive post arrays in rectangular waveguide," Council for Scientific and Industrial Research, Pretoria, South Africa, Internal Report NIAST 81/77, June 1981.

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[1] Y. Leviatan, P. G. Li, A. T. Adams, and J. Perini, *IEEE Trans. Microwave Theory Tech.*, vol. MTT-31, pp. 806–812, Oct. 1983.

Comments on "A New Method for Calculating TE and TM Cutoff Frequencies of Uniform Waveguides with Lunar or Eccentric Annular Cross Section"

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The purpose of the present Letter is twofold: first, to congratulate the author for his excellent paper,[1] and, second, to discuss briefly the accuracy of some of his results in light of some numerical experiments performed by the authors [1].

Table I presents a comparison of results between fundamental eigenvalues determined by Kuttler[1] and those from [1] obtained by a) a finite-element code and b) two polynomial coordinate functions and the Ritz method [1] in the case of the eccentric annular cross section (TM modes).

Kuttler's results are in excellent agreement with those obtained by means of the finite-element method. The eigenvalues calculated using polynomial coordinate functions are 4 percent higher in the first situation and 1.5 percent for the second case. It is interesting to point out that, for $d = 0.4$ and 0.5, the eigenvalues obtained using polynomial coordinate functions are more accurate than those determined by means of the finite-elements code (unfortunately, Kuttler did not consider these two cases).

Kuttler's results must undoubtedly be considered as the most accurate values existing in the open literature for the geometries under study. As a concluding remark, the authors would like to point out that his methodology for obtaining upper and lower bounds for complicated domains is considerably more convenient than the one developed in [2], where conformal mapping was also used and very close upper–lower bounds were obtained.

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[1] J. R. Kuttler, *IEEE Trans. Microwave Theory Tech.*, vol. MTT-32, pp. 348–354, April 1984.

TABLE I
COMPARISON OF FUNDAMENTAL EIGENVALUES

d	KUTTLER[1]	LAURA *et al.* [1] Finite Element	LAURA *et al.* [1] Ritz Polynomials
0.2	$4.8095 \leqslant k_1 \leqslant 4.8119$	4.836	5.087
0.3	$4.3042 \leqslant k_1 \leqslant 4.3118$	4.328	4.381
0.4	$- \leqslant k_1 \leqslant -$	3.933	3.898
0.5	$- \leqslant k_1 \leqslant -$	3.632	3.575

TM cutoff frequency k_1 for eccentric annular guides ($r = 0.5$).

REFERENCES

[1] P. A. A. Laura, G. Sánchez Sarmiento, and R. H. Gutierrez, "Approximate solution of the Helmholtz equation in a type of doubly connected region using polynomial approximations," *Proc. Inst. Elec. Eng.*, vol. 128, no. 3, pp. 171–172, June 1981.
[2] M. Chi and P. A. A. Laura "Approximate method of determining the cutoff frequencies of waveguides of arbitrary cross section," *IEEE Trans. Microwave Theory Tech.*, vol. 12, pp. 248–249, Mar. 1964.

Correction to "*E*-Plane Integrated Circuit Filters with Improved Stopband Attenuation"

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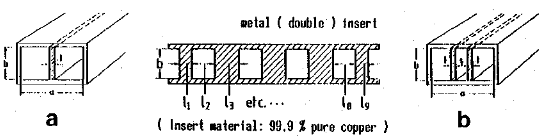
In the above paper,[1] in rows 1 and 2 of Table I on p. 1392, the optimized design data should read as given below. These data relate to the filter performances shown in Figs. 3 and 4 (midband frequency $f_0 = 38.66$ GHz). The data originally reported[1] pertain to filters not presented in the figures, with a midband frequency of $f_0 = 39.5$ GHz.



Frequency-band for the filter design / waveguide housing	Number of resonators	Design type	Insert thickness t (mm) spacing s (mm)	$l_1 = l_9$ (mm)	$l_2 = l_8$ (mm)	$l_3 = l_7$ (mm)	$l_4 = l_6$ (mm)	l_5 (mm)	Midband-frequency (GHz)	3 dB-band-width (GHz)	Calculated min. passband insertion-loss (dB)
Ka – band; a = 7.112 mm, b = 3.556 mm, WR 28	3	a single insert	t = 2.0	0.751	4.172	3.359	4.178		38.66	0.17	0.001 / 2 mech. tolerances included
Ka – band; a = 5.689 mm, b = 3.556 mm	4	a single insert	t = 0.2	1.056	4.092	3.518	4.108	3.867	38.66	0.38	0.003
Ka – band; a = 7.112 mm, b = 3.556 mm, WR 28	4	b double insert	t = 0.15, s = 1.8	0.403	3.637	2.448	3.689	3.646	39.5	0.2	0.43
				l_1 = 0.420, l_9 = 0.400	l_2 = 3.660, l_8 = 3.665	l_3 = 2.420, l_7 = 2.420	l_4 = 3.735, l_6 = 3.710	l_5 = 3.590	39.04	0.2	1.8 mech. tolerances included
				l_1 = 0.400, l_9 = 0.400	l_2 = 3.630, l_8 = 3.640	l_3 = 2.430, l_7 = 2.425	l_4 = 3.695, l_6 = 3.700	l_5 = 3.625			

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[1] ______, *IEEE Trans. Microwave Theory Tech.*, vol. MTT-32, pp. 1391–1394, Oct. 1984.