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MnZn Ç ™ Û – º b0 (ò 63ñ&""á b Ø < X k Ñ ö
Frequency Dependence of the Complex Initial Permeability of MnZn Ferrite

‹.(⅘⁄₈& Satoshi Gotoh >' 5 2& Takashi Kawano >' n C %&& Naoki Soga >'

0[¨ :
MnZn Ç ™ Û – º b0 (ò 63ñ&""á b Ø < X k Ñ ö c>* Maxwell ‰&ì ' b] &0Ž ? } Ó u } €>* ¥ ” b M 2>& •8 „≫¹* š ¬ >*1 7Á"á [ô I € • 0 (ò 63ñ&""á b)† ô º 6 • 8 c ¹; º b Ø < X k Ñ ö c>* G € } †*ƒ Ö M € d ¥ ” Æ b7Á&" ò · ? } _ C G \ @ [A>* Í † | C Ì#' [A • MnZn Ç ™ Û – º b œ>* 1 MHz è W b(V [2s A • ¹; † W S 63ñ&""á b * W c>* ‘ ¶ b+¬!› ¹; x&" h ¹; b + Õ [c1 Â [A ^ 8 7Á&" b] & ^ ò ·0Ž Ò b) Ý>* G € c ¥ ” b Ð ¡ ß ^7Á&" ¼"I ö [ô r • ¶ b ¥ ” M 2 _ P Â K S M' b M 2 ¹; [6 • \0Ž5 [A>*1 7Á"á b Ý @ ± A 8 G \ @ ƒ ? W S

Synopsis :
7 K H K L J K H U W K H U H D O S D U W R I W K H F R P S O H [L Q L W L D O S H U P H
lower is the frequency at which it begins to fall. This phenomenon has been explained by the domain wall resonance of the rotational resonance. The authors analyzed the frequency dependence of the permeability by taking into account of the behavior of the electromagnetic wave derived from the cross section radius, r, the resistivity, r and the
F R P S O H [S H U P L W W L Y L W \ ÆH G7 KÍHL WY\\S L FHDJH TPXHHDQXFU F X U Y H K D V
certain frequency, fr, followed by a rapid fall. On the other hand, the resonant frequencies calculated from the rotational resonance and the domain wall resonance

MnZn フェライトの複素初透磁率の周波数依存性*

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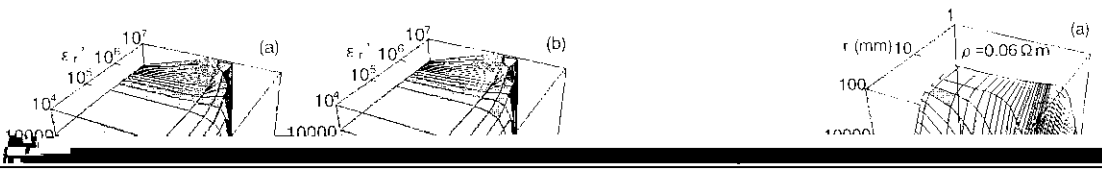
要旨

MnZn フェライトの複素初透磁率の周波数依存性は，Maxwell-

その中を周波数 f（角周波数 $\omega = 2\pi f$）で正弦波的に変化しながら


(a)
(b)
(a)
ε_r'
10^7
10^6
10^5
10^4
10000
r (mm) 10
1
100
ρ =0.06 Ω m


0.5
0.4
R
μ_i/μ_0 : 7500
20000
15000
Calculated
Measured

フェライトでの一般的な値，$M_s = 0.42\,\mathrm{T}$ を用いると，(7) 式は

$$f_r = 7.84 \times 10^3/\mu_r\ (\mathrm{MHz}) \quad \cdots\cdots (8)$$

となる。(8) 式でわかるように自然共鳴周波数は M_s が一定の場合