

VERTICAL IMPEDANCE OF 1 SPS MKE KICKER

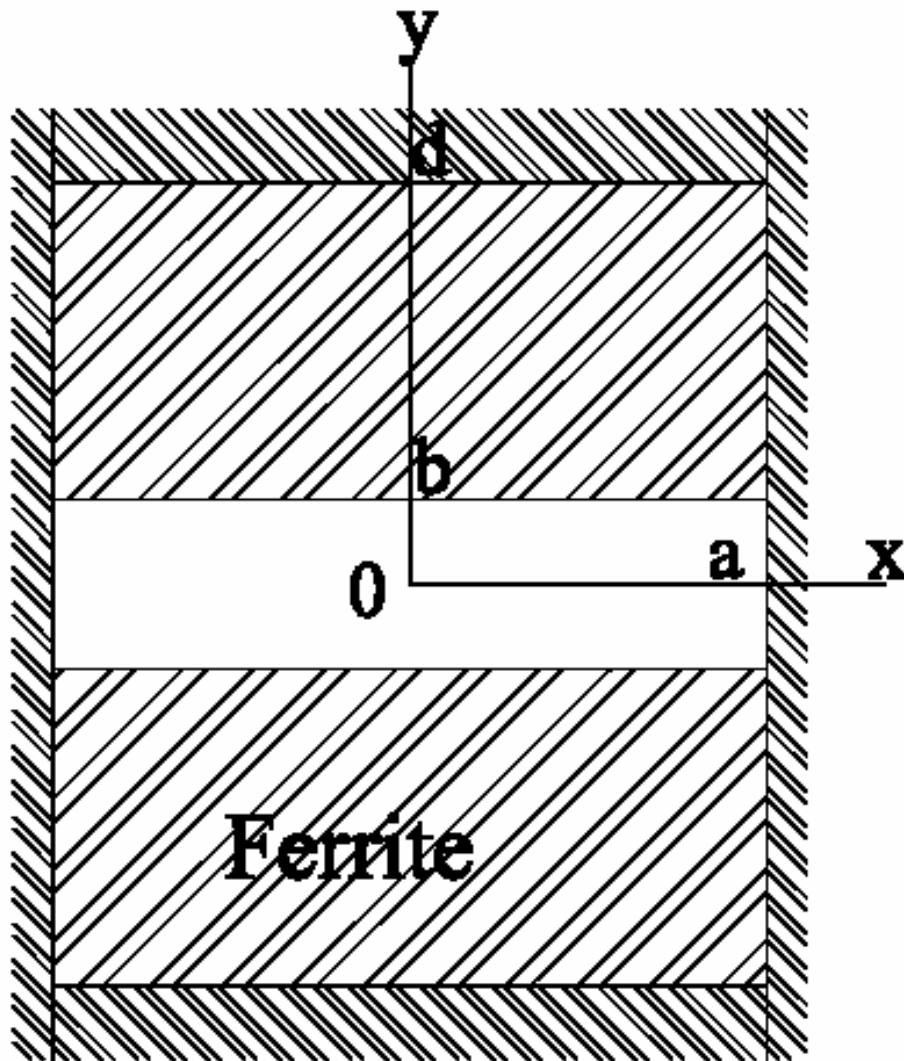
E. Métral

**For ferrite 4A4 (8C11
is used in the SPS)**

- ◆ **Results from H. Tsutsui**
- ◆ **Results from L. Vos**
- ◆ **Results from A. Burov's formalism**
- ◆ **4A4 and 8C11 ferrites**
- ◆ **Measurements by H. Burkhardt et al.**

H. Tsutsui (1/2)

LHC Project Note 234
(2000)



$$a = 67.5 \text{ mm}$$

$$b = 16 \text{ mm}$$

$$d = 76 \text{ mm}$$

$$L = 1.658 \text{ m}$$

Ferrite

H. Tsutsui (2/2)

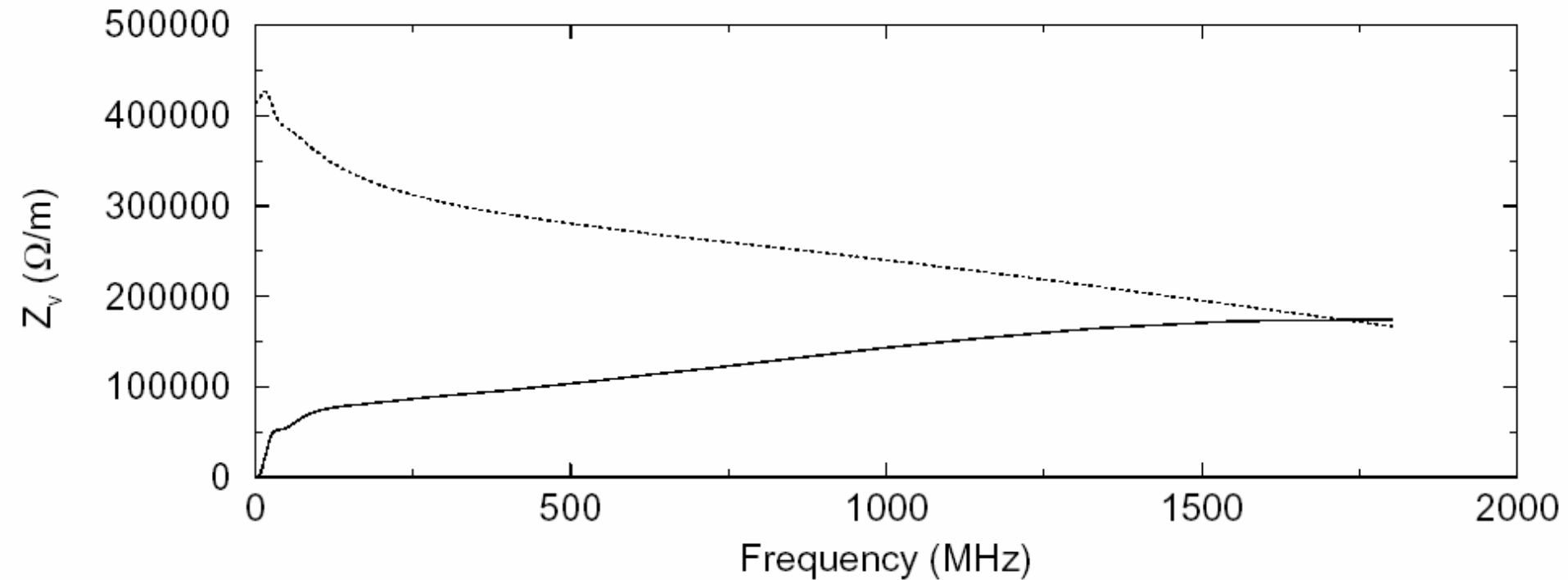


Table 4 : Past and future inductive impedances in the SPS

Date	hardware			measured			comment
	Z/n		Z_T $M\Omega/m$	Z/n		Z_T $M\Omega/m$	
	Ω $n=1$	$n=2$		Ω $n=1$	$n=2$		
1989	11		25			22.6	see Table 1
1999	9.8	3.4	21		2.8	-	
2000	9.6		20.8			16-19.4	see Table 1
2001	5.3	0.75	10		1.2	12.2	see Table 1
2002	4.9		8.7			8.4-10	see Table 1
2003	6.9		15				5 MKE installed
2005	8.5		20				4 MKE installed

$$\Rightarrow \text{Im} [Z_y (0)] = 1.25 \text{ M}\Omega / \text{m}$$

Inductive until ~ 0.6 GHz

A. Burov (1/2)

4A4

!

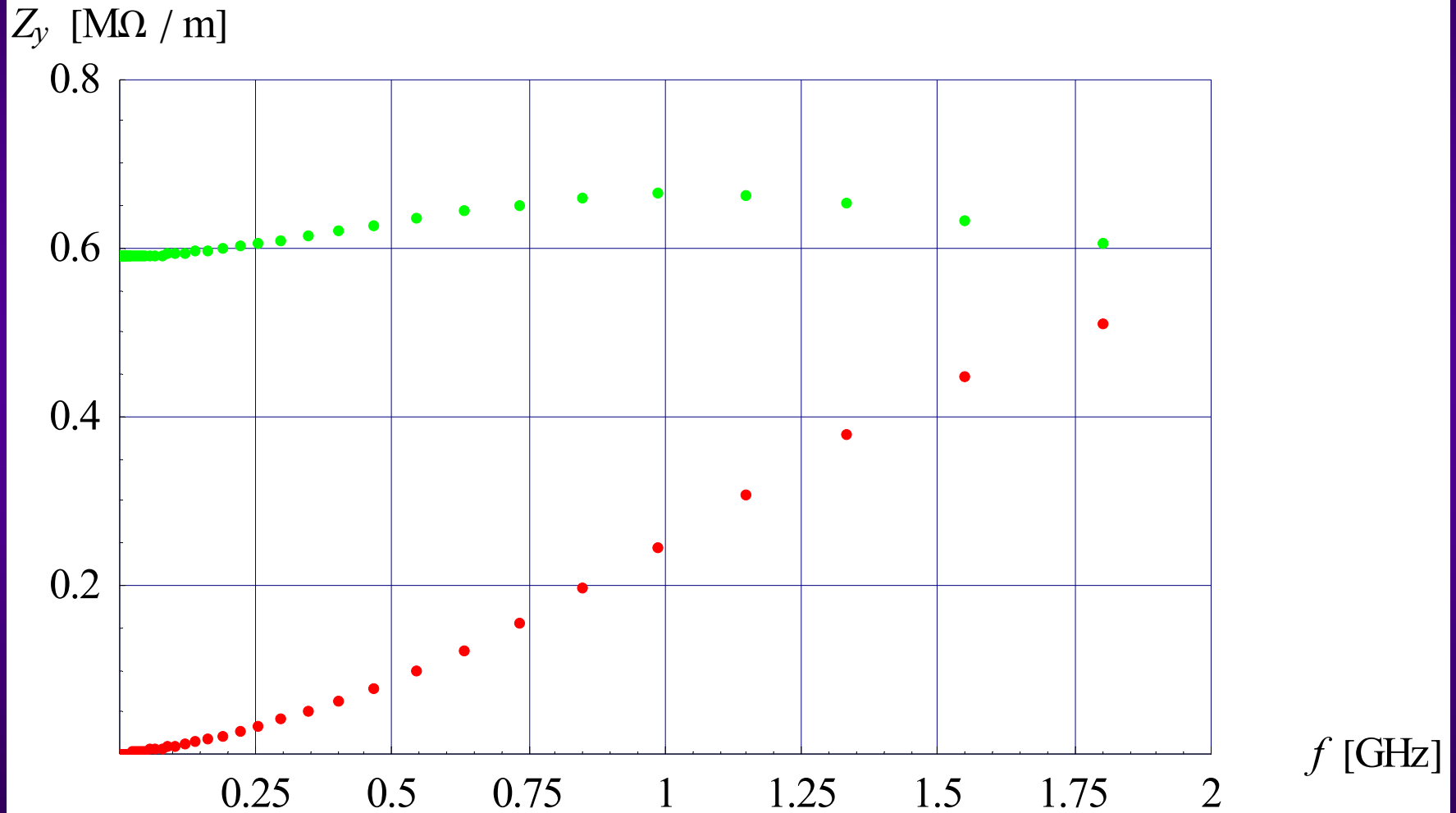
The horizontal width is taken as infinite

Z_y [$M\Omega / m$]

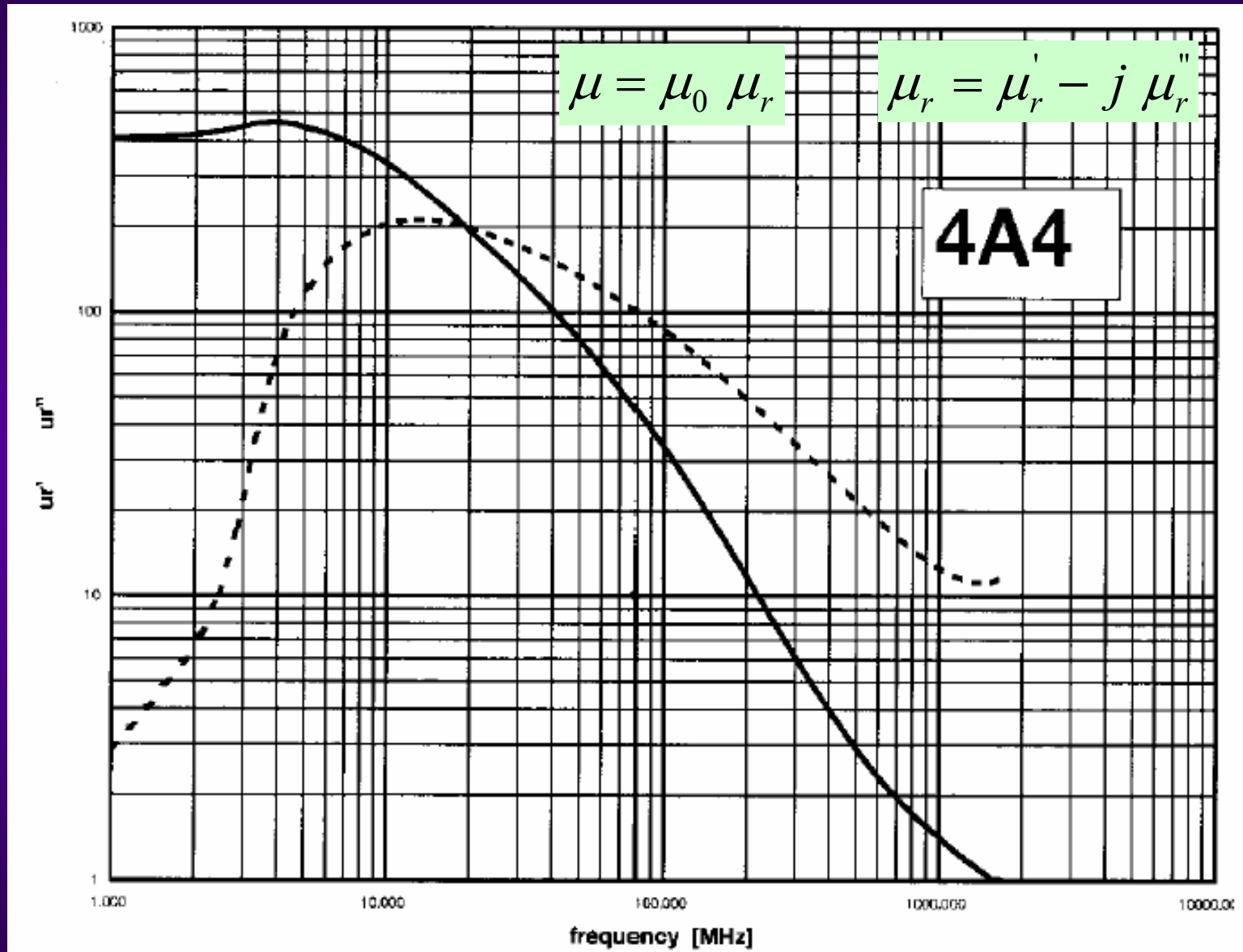


A. Burov (2/2)

8C11



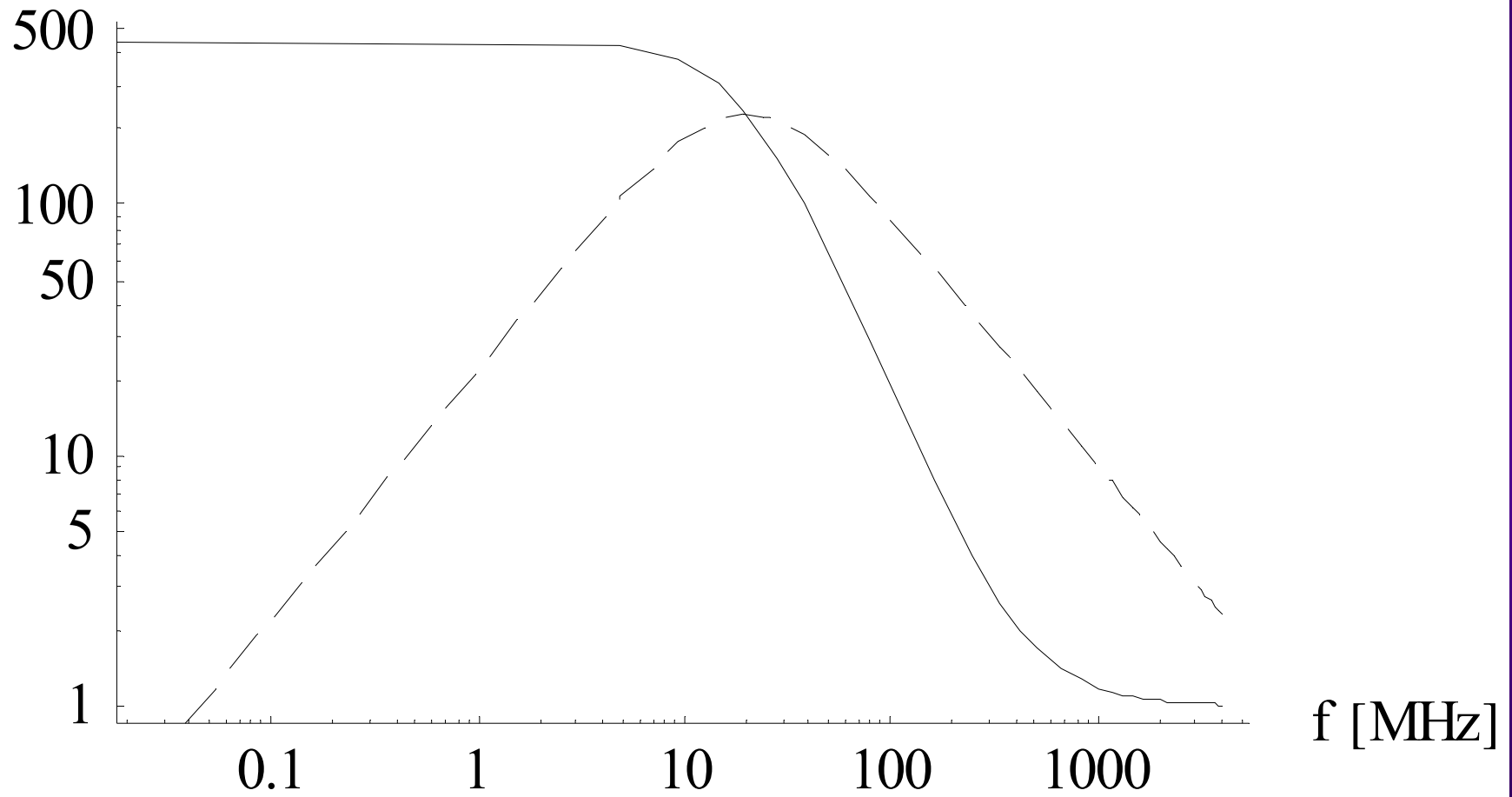
4A4 Ferrite (1/2)



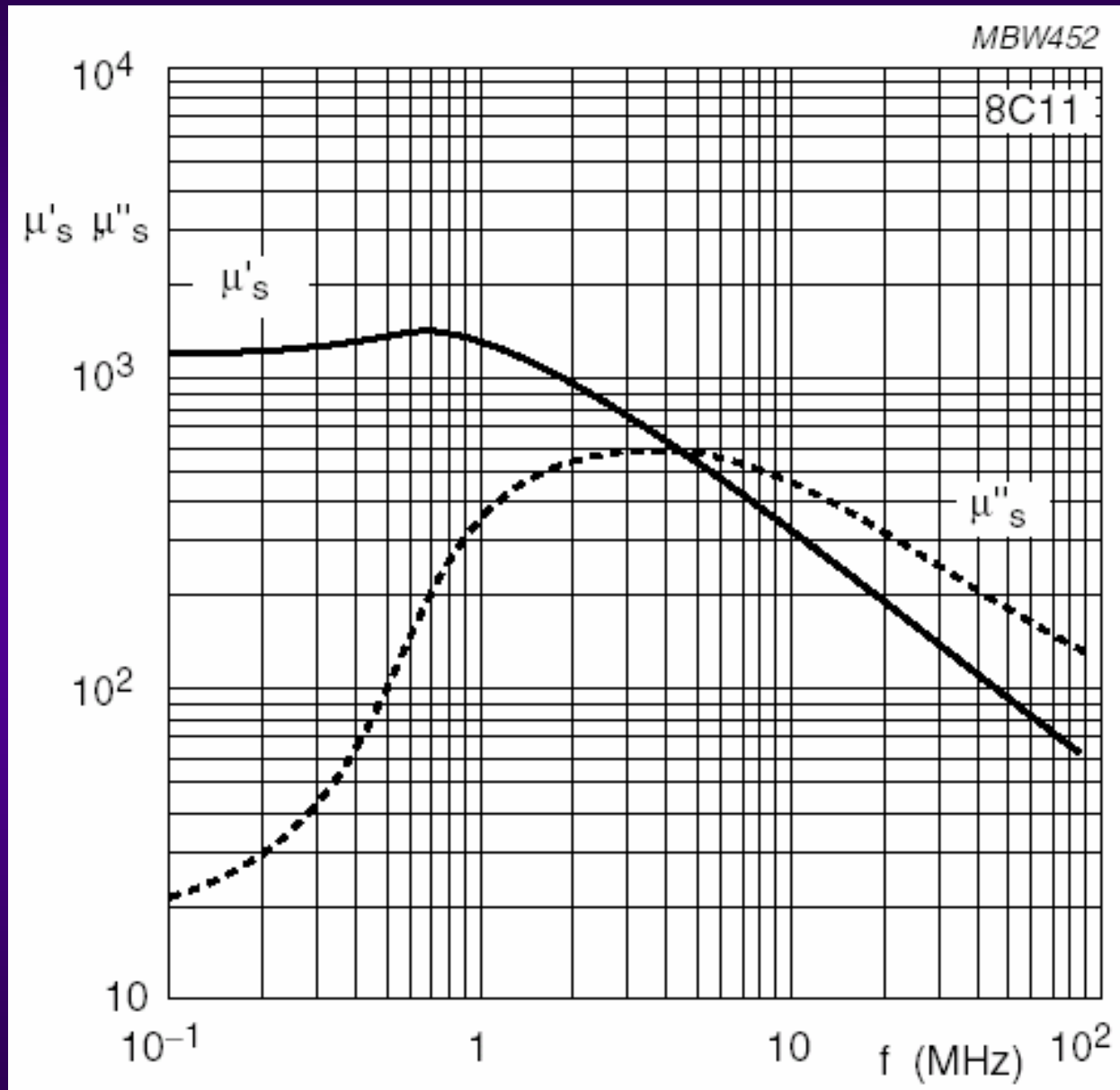
4A4 Ferrite (2/2)

μ_r' and μ_r''

Fit used



8C11 Ferrite



Measurements by H. Burkhardt et al.

26 GeV, $\sigma = 0.5$ ns, $\xi \sim 0$

year	MD	$\Delta Q_v / \Delta N$
	run	10^{-3}
2000		3.7
2001		2.1
2002		1.7 ± 0.1
2003	18.07	1.6 ± 0.2
	15.08	2.6
	10.09	3.0

APC 2003

50% increase in ΔQ_v with intensity in 2003, attributed to installation of 5 MKE kickers