

JAMES MILLEN

MANUFACTURING COMPANY, INC.

Engineers and Manufacturers  150 Exchange St. Malden 48, Mass.

MALDEN 4-4108

April 13, 1956

Mr. Grote Rever
University of Tasmania
Hobart, Tasmania
Australia

Dear Mr. Rever:

Mr. C. H. Schauer of Research Corp. called us this morning to tell us of your need to measure the impedance of low impedance co-axial cable at 500 kc.

We advised Mr. Schauer to call Technical Equipment, our export agents, and have them ship to you by air express

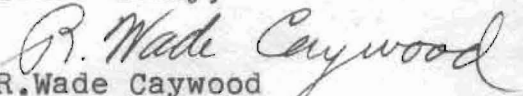
- 1 - #90672 Antenna Bridge
- 1 - #46704 Low Frequency Inductor

The #46704 coil is needed to tune your 90651 Grid Dip Meter to 500 kc. Mr. Schauer said we had better send the coil rather than take the time to inquire whether you already have a coil for 500 kc.

Should you find insufficient sensitivity at 500 kc, replace the Bridge coupling coil with a larger coil which is self resonant at a lower frequency than the coil supplied with the Bridge. Possibly, you may resort to a high impedance source of r-f energy directly coupled to the Bridge coil jack.

You may remember the writer as the nephew of Leonard Caywood who visited you in Wheaton, Illinois in the early thirties.

Yours truly,


R. Wade Caywood
Chief Engineer

RWC/emp
cc: Mr. Augusto Magnani
Technical Equipment Co.
Main & Milton Streets
Rahway, New Jersey

26/9/56

Antenna Terminal open

Antenna Bridge Input Capacities

Ohms Dial	Capacities pf.	
5	25	of coil has 14 pf Co then at center scale the circuit capacities will be 100 pf.
50	86	
500	160	

at 500 KC required inductance is

$$L = \frac{1}{(6.28 \cdot 5 \cdot 10^5)^2} \cdot 100 \cdot 10^{-12} = \frac{1}{1000} = 1 \text{mh.}$$

Antenna Termined in 50Ω

Ohms Dial	Capacities pf	Q Measures at 2.2 mc
5	166 pf	20
50	165 pf	30
500	164 pf	20

$$\frac{(550)^2}{(450)^2} \times 165 = 247$$

$$\text{variation} = \frac{247 - 165}{165} = 82 \text{ pf}$$

= 1.5:1 inductance or capacity ratio required.

Looking at coil socket end; the right terminal is ground.

Net adjusting range 4.0 to 7.9 divisions on grid dips meter dial

23/7/56

11/12/56

Low Frequency Antenna meter Coil
Capacitor 165 pf fixed.

Frequency range 140-200KC.

Inductance at max frequency

$$L = \frac{1}{\omega^2 C} = \frac{1}{(6.28 \cdot 2 \cdot 10^5)^2 \cdot 165 \cdot 10^{-12}} = \frac{1}{280}$$

= 3.84 mh with core out

= 7.68 mh " core in

13/12/56

Tuning range 3.6-7.8mh at 1000 cycles.

solid wire coil of 6Pi

17/12/56

Coil heavy duty

2 1/4" long, 1 5/8" I.D., 2 1/8" O.D. & lid

10. 500 ohm variable unit 0.55 x 40000

Freq	Q	C	C ₀ = $\frac{300 - 4.70,2}{3} = \frac{300 - 280,8}{3}$
140	190	308	39.6
170	168	200	33.6
200	145	143	27.6

Connected to antenna meter with soft shunt
 Grid dip meter dial 4.1 (approx 165KC) in p
 " " " 4.2 on meter

When grid dip meter tuned thru resonance the
 antenna meter shows peaks of 7.0 & 8.5 when
 going from high to low & low to high.

2/5/57

Apparently no data on either final coil used
 on antenna meter. These should be measured up.

G.R.

HOBART, TASMANIA

(Proprietors: Australian National Hotels Ltd.)

West Point Riviera Hotel



TELEPHONE: 9516 (4 LINES) TELEGRAMS: "WEST POINT," HOBART

17/12/56

Coil 3" dia & 5 1/2" long, approx 330 turns enamelled wire .016

Freq	Q	C	$C_0 = \frac{200 - 4 \cdot 46.1}{3 \cdot 800} = \frac{200 - 184.4}{2400} = 0.00646$
140	161	325	
170	187	211	$= \frac{15.6}{3} = 5.2 \text{ pf}$
200	197	152	

Connected to antenna meter with 20 pf shunt.
 Grid dip meter 6.5 dial (approx 170 KC)
 " " " 3.4 on meter

as grid dip meter tuned thru resonance the antenna meter shows peaks of 6.0 + 8.0 uA when going from high to low and low to high respectively. Coupling quite loose.

$$L_0 = \frac{1}{(6.28 \cdot 14 \cdot 10^6)^2 \cdot 330 \cdot 10^{-12}} = \frac{1}{254} = 3.92 \text{ mH}$$



MINAMART TABSON
 (Lai Hoi Hotel building, telephone)

Hotel Royal Kienwa Hotel

17/12/56

Coil of 6 Pa solid wire
slug core. 166pf short capacitors

Freq Q
329 KC 11
199 12
160 10

Core
out
middle
in

$$C_0 = \frac{386 - 4.96}{3} = \frac{386 - 384}{3}$$

$$\frac{2}{3} = .66 \text{ with core out}$$

(too low) poor
readings due to low Q

Connected to grid dip meter with core part way in

Grid dip meter dial 5A (approx 170 KC)
" " " 3.1 on meter coupled to antenna meter
" " " 3.6 " " summary of freq

Tuning these resonance gives peaks of 2.3 either
way with no pulling. Very tight coupling
Coil has so much loss it looks like a resistance