

CKH9765072

C O N F I D E N T I A L

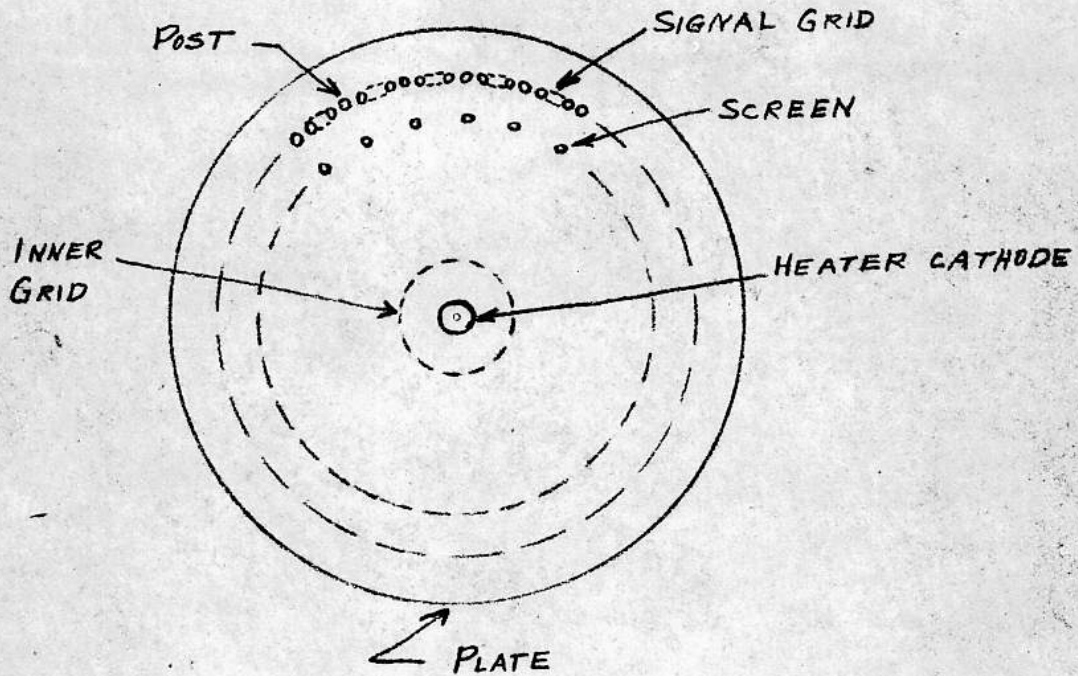


FIGURE 1

C O N F I D E N T I A L

Title ELEMENT ARRANGEMENT TYPE 1 MERB TUBE

GENERAL ELECTRIC COMPANY, SCHENECTADY, N.Y., U.S.A.

DEPARTMENT GENERAL ENGINEERING AND CONSULTING LABORATORY

Date JULY 5, 1950 Prepared by B.R. Shepard

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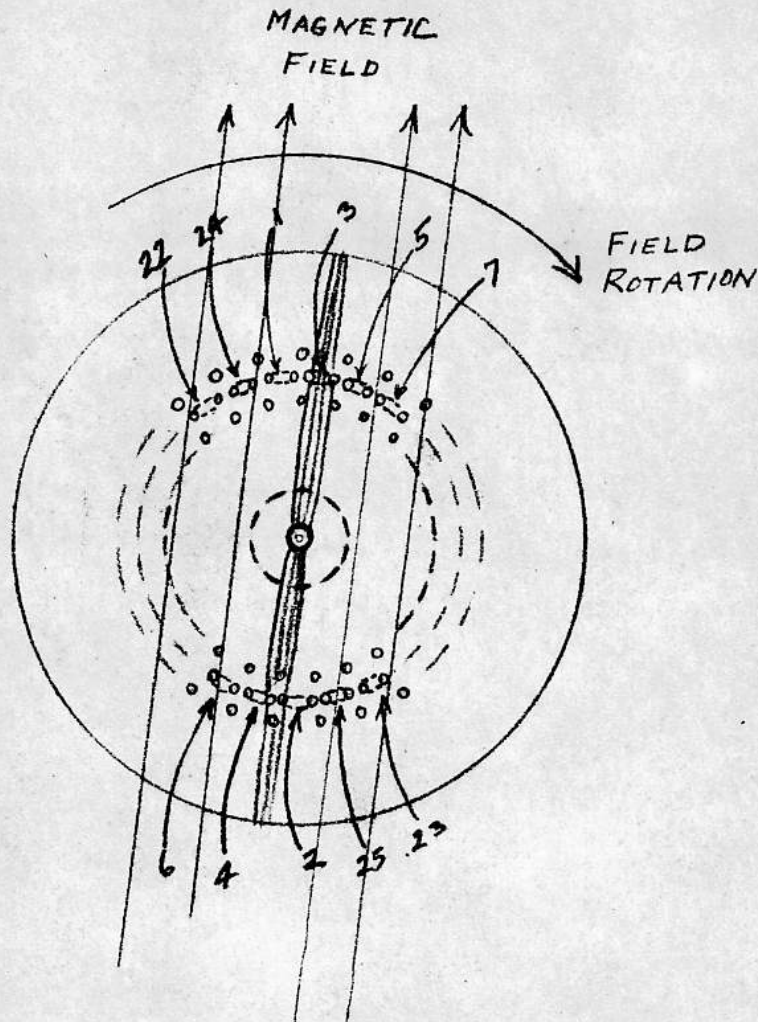


FIGURE 2

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Title MULTIPLE ELEMENT RADIAL BEAM TUBE FOCUSING ACTION

GENERAL ELECTRIC COMPANY, SCHENECTADY, N.Y., U.S.A.

DEPARTMENT GENERAL ENGINEERING AND CONSULTING LABORATORY

Date JULY 5, 1950 Prepared by B.R. Shepard

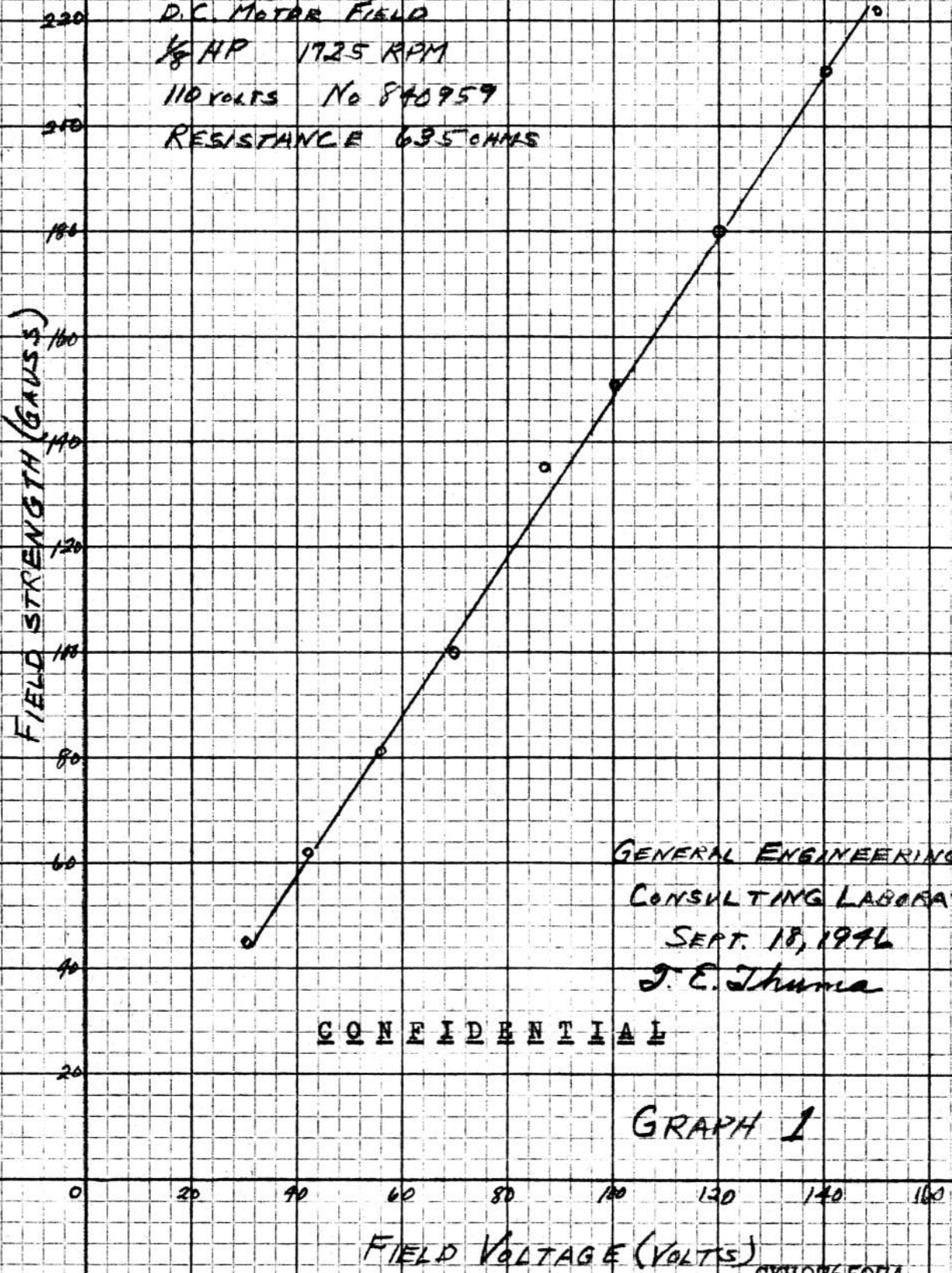
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FIELD INTENSIT AT CENTER OF D.C. MOTOR FIELD

GENERAL ELECTRIC
D.C. MOTOR FIELD
1/2 HP 1725 RPM
110 VOLTS No 840959
RESISTANCE 635 OHMS



GENERAL ENGINEERING AND
CONSULTING LABORATORY
SEPT. 18, 1946
J. E. Thuma

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GRAPH 1

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Merb Tube Static Characteristics

Plate Current versus Angular
Position of Magnetic Field

Signal Grid #5 Biased +2.1 volts

All other signal grids Biased 0 volts

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Plate Current
micro-amperes

60
50
40
30
20
10
0

$V_{posts} = -22^v$
 $V_{rings} = 20^v$
 $V_{screen} = 80^v$
 $V_{inner\ grid} = 1.5^v$
 $V_{plate} = 40^v$

Field
Intensity
Gauss

○ Field - 31 Gauss 45
□ Field - 45 Gauss 57
△ Field - 60 Gauss 89

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T.G. Thuma

Angular Position of Field

Graph #2

← C.C.W.

C.W. →

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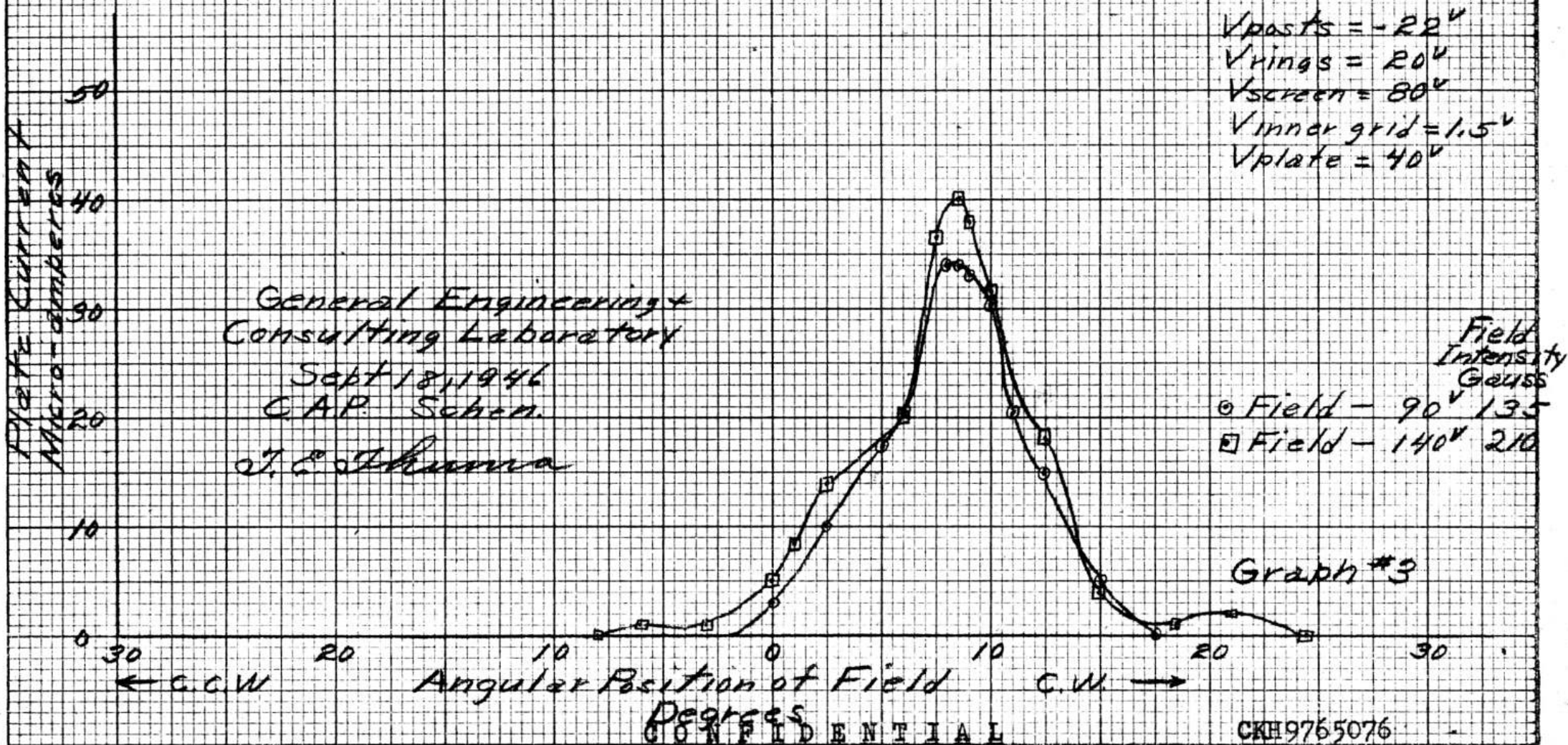
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Merb Tube Static Characteristics

*Plate Current versus Angular
Position of Magnetic Field
Signal Grid #5 Biased +2.1 volts
All other signal grids biased 0 volts*



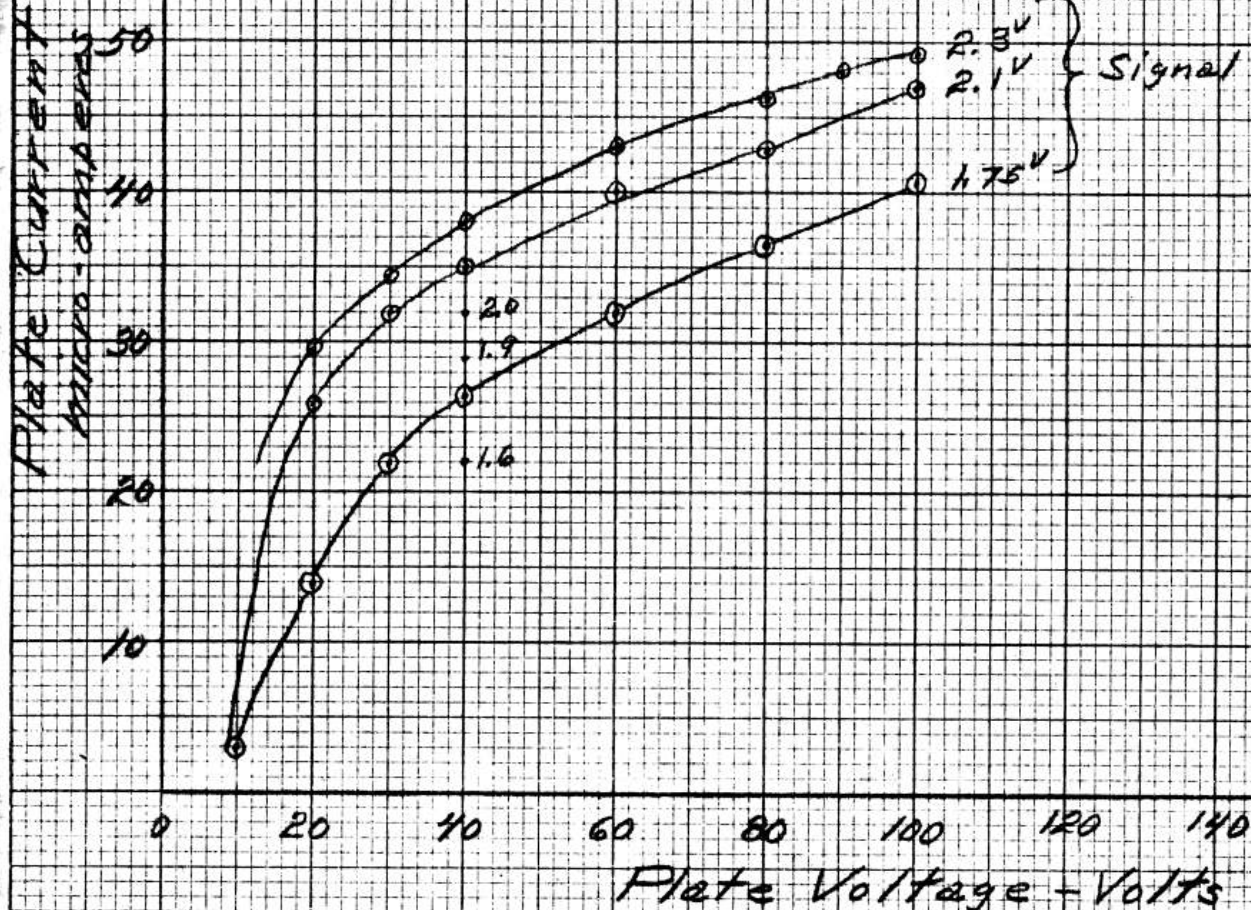
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Merb Tube Static Characteristics

Plate Characteristic



$V_{post} = -22$
 $V_{rings} = 20$
 $V_{screen} = 80$
 $V_{inner\ Grid} = -1.5V$
 $Field\ Voltage = 60V$
 $Intensity = 87\ Gauss$

Signal Grid Bias

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Graph #6

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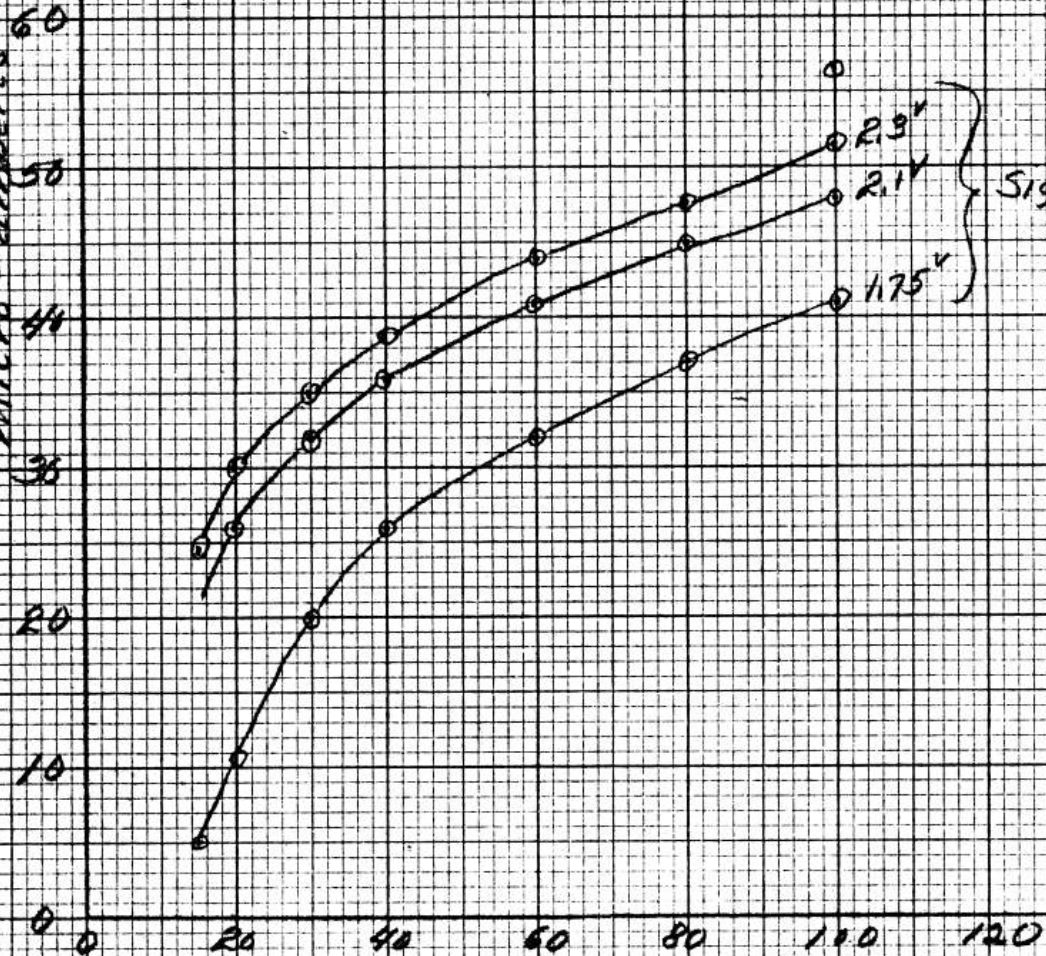
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Merb Tube Static Characteristics

Plate Characteristic

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Plate Current
micro-amperes



Signal Grid Bias

$V_{posts} = -22$
 $V_{rings} = 20$
 $V_{screen} = 50$
 $V_{inner\ grid} = 1.5$
 Field Voltage = 90
 (Intensity - 135 Gauss)

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Graph #7

Plate Voltage - Volts

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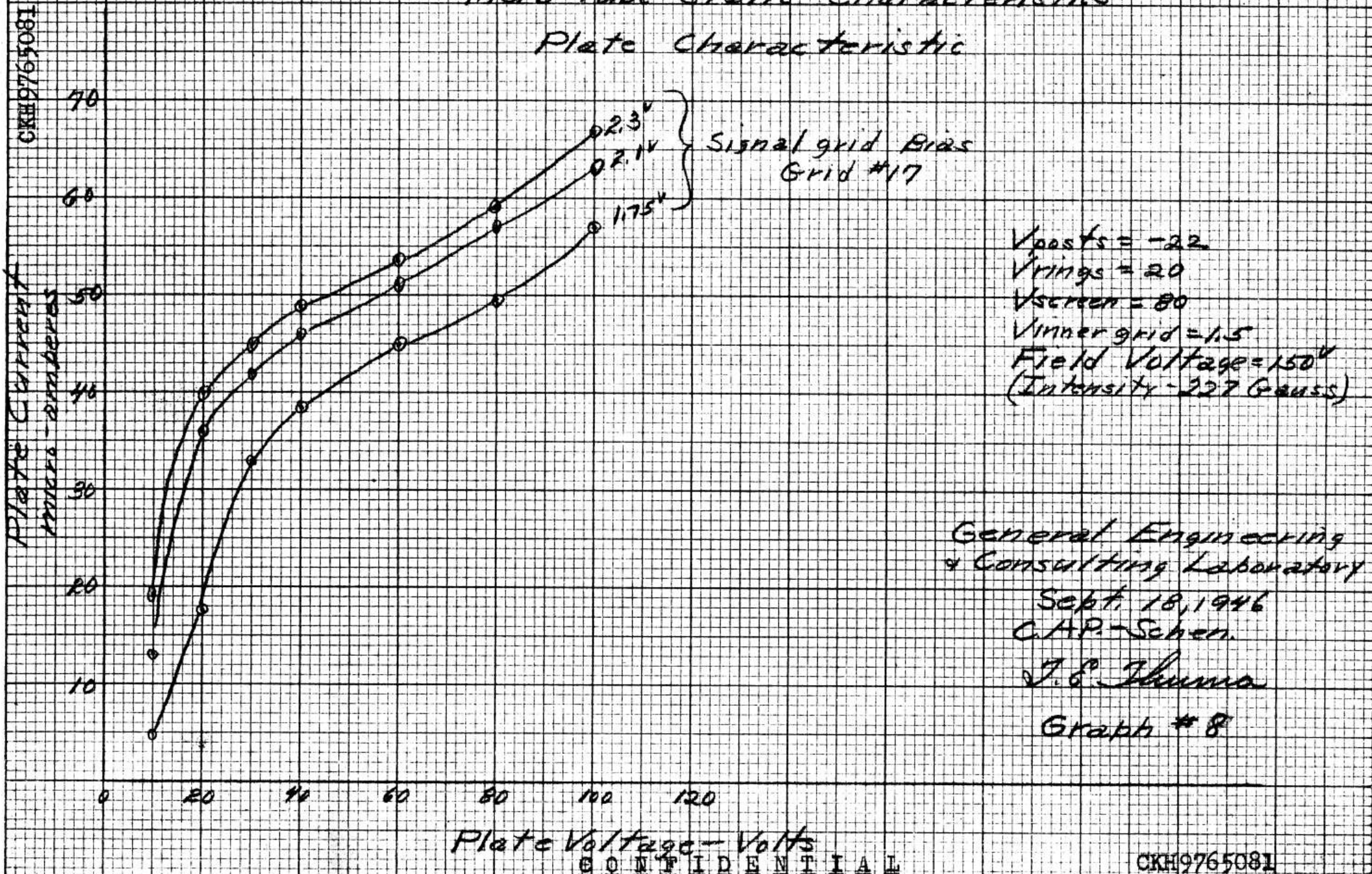
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Merb Tube Static Characteristics

Plate Characteristic



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 Graph # 8

Plate Voltage - Volts

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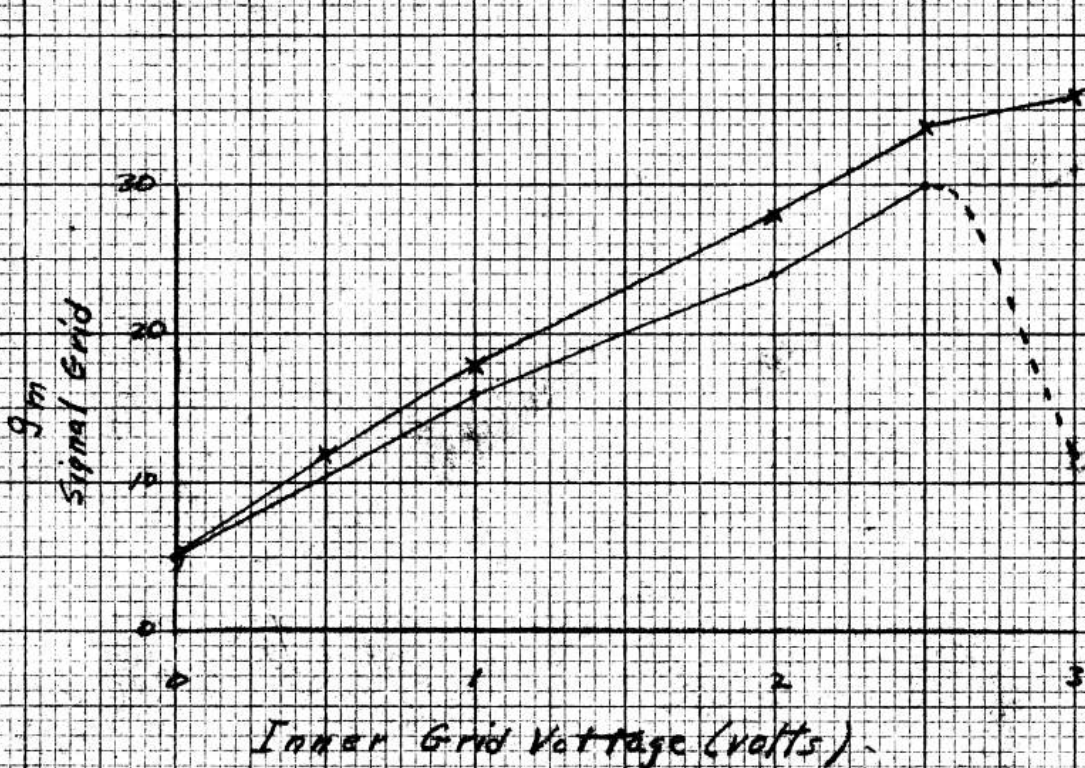
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Merb Tube Static Characteristics

g_m Signal Grid vs Inner Grid Voltage



$V_{rings} = 20V$
 $V_{posts} = -22V$
 $V_{screen} = 80V$
 $\times \Delta I_p = 2.25 - 2.0 mA$
 $\circ \Delta I_p = 2.00 - 1.75 mA$
 $I_p = k = 40 mA$

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Graph # 9

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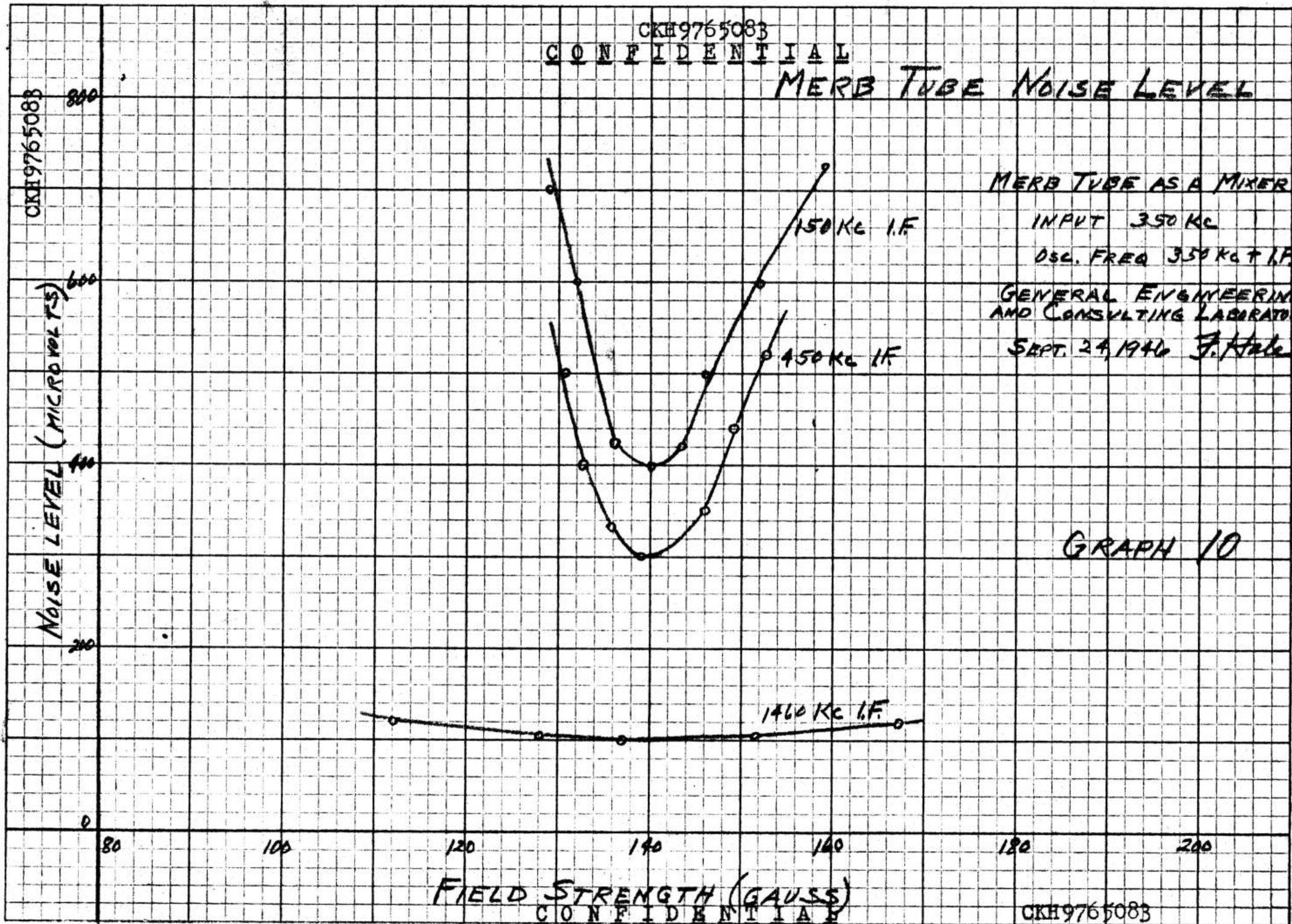
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C O N F I D E N T I A L
M E R B T U B E N O I S E L E V E L

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Noise Level (MICROVOLTS)

MERB TUBE AS A MIXER
 INPUT 350 KC
 OSC. FREQ 350 KC + I.F.
 GENERAL ENGINEERING
 AND CONSULTING LABORATORY
 SEPT. 24, 1946 J. H. H. L.

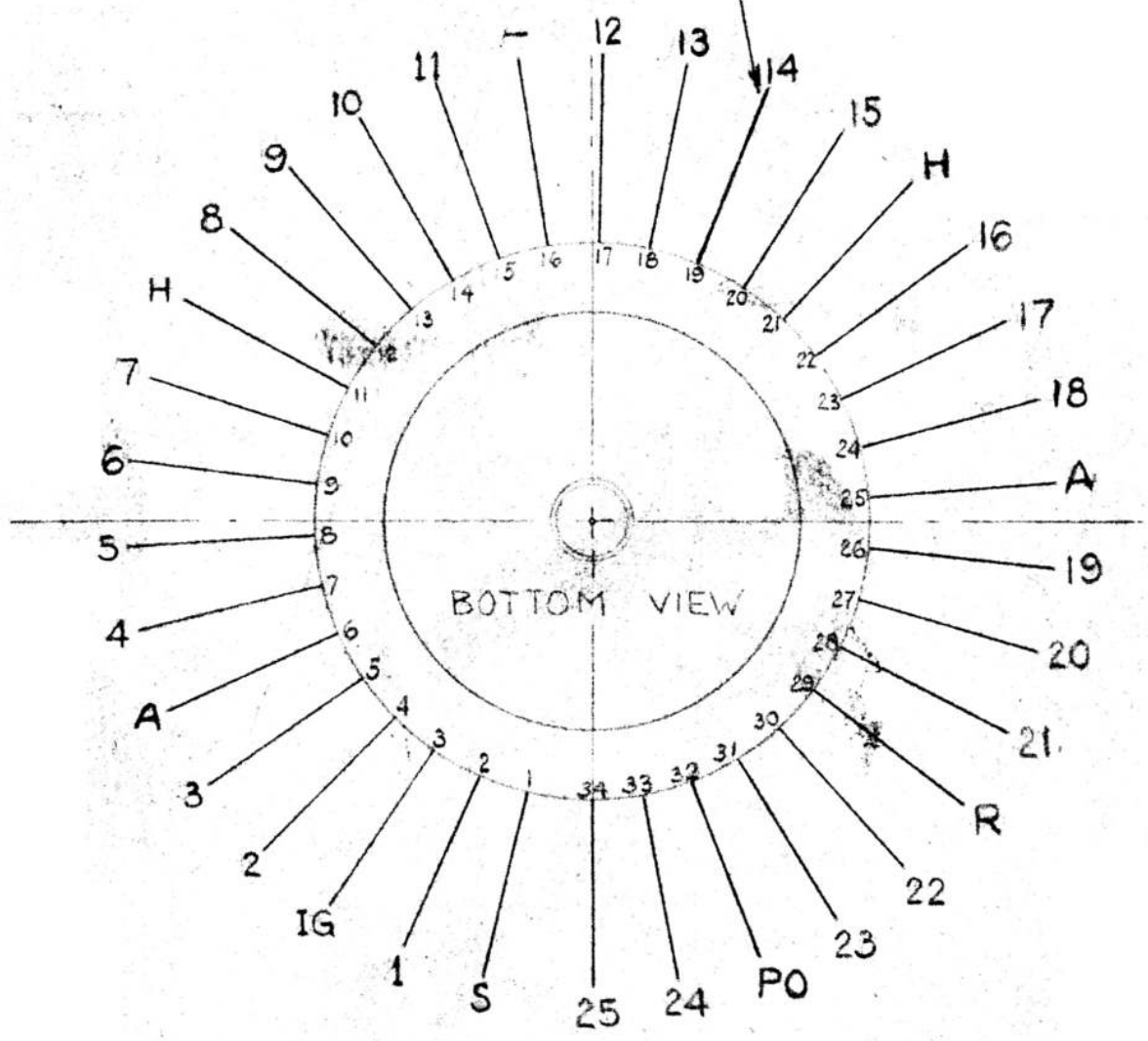
GRAPH 10



FIELD STRENGTH (GAUSS)
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34 LEADS EQUISPACED
LEADS .025" DIA



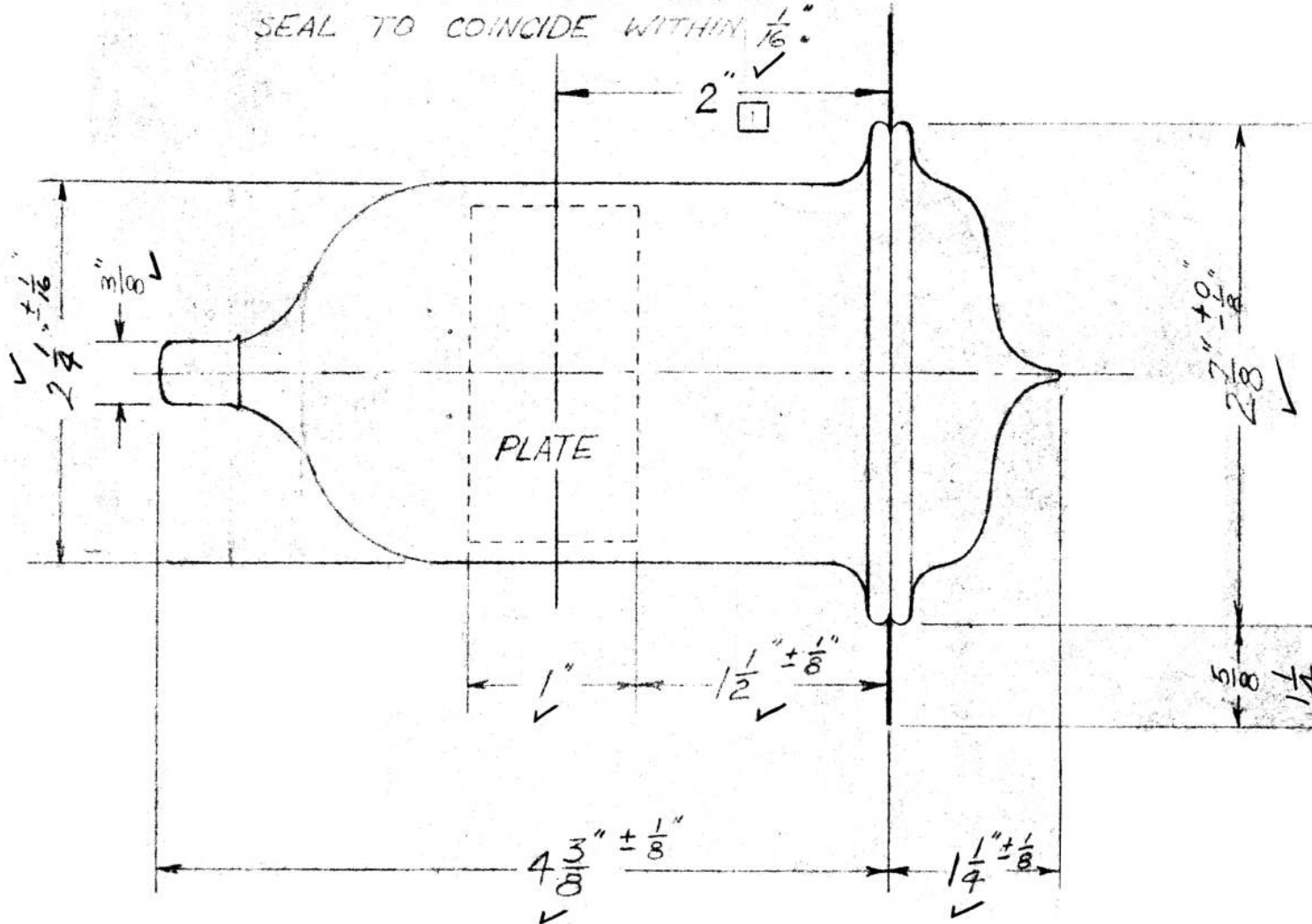
- 1. ~~Rings~~ SCREEN
- 2. Supp. Grid #1
- 3. Control Grid
- 4. Supp. Grid 2
- 5. Supp. Grid 3
- 6. Anode
- 7. Supp. Grid 4
- 8. Supp. Grid 5
- 9. Supp. Grid 6
- 10. Supp. Grid 7
- 11. Heater
- 12. Supp. Grid 8
- 13. Supp. Grid 9
- 14. Supp. Grid 10
- 15. Supp. Grid 11
- 16. ~~Cathode~~ DUMMY LEAD
- 17. Supp. Grid 12
- 18. Supp. Grid 13
- 19. Supp. Grid 14

- 20. Supp. Grid 15
- 21. Heater
- 22. Supp. Grid 16
- 23. Supp. Grid 17
- 24. Supp. Grid 18
- 25. Anode
- 26. Supp. Grid 19
- 27. Supp. Grid 20
- 28. Supp. Grid 21
- 29. ~~Screen~~ RINGS
- 30. Supp. Grid 22
- 31. Supp. Grid 23
- 32. Posts
- 33. Supp. Grid 24
- 34. Supp. Grid 25

CAP CATHODE

AXIS OF FIELD COIL

NOTE: AXIS OF BULB AND AXIS OF SEAL TO COINCIDE WITHIN $\frac{1}{16}$ "



- OUTLINE -

MULTI-ELEMENT RADIAL BEAM TUBE
(NATIONAL UNION RB 2070-25 TYPE 5)

FIRST MADE FOR U.O.L. MARK III & IV SCANNERS

DESIGNED BY R.B. Crandall April 7/45	TRACED BY
FINISHED BY R.B. Crandall April 7/45	INSPECTED

700-23, 1945

GENERAL ELECTRIC
SCIENTIFIC WORKS

M-9660621