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PERFORMANCE CURVES

FROM

TYPE TEST DATA

VHF RECEIVER R-112, BAND 100-125 MC

Ser. Nos. B-1, 3, 4, 5, 6, & 7

Aircraft Radio Corp.
Boonton, N. J.

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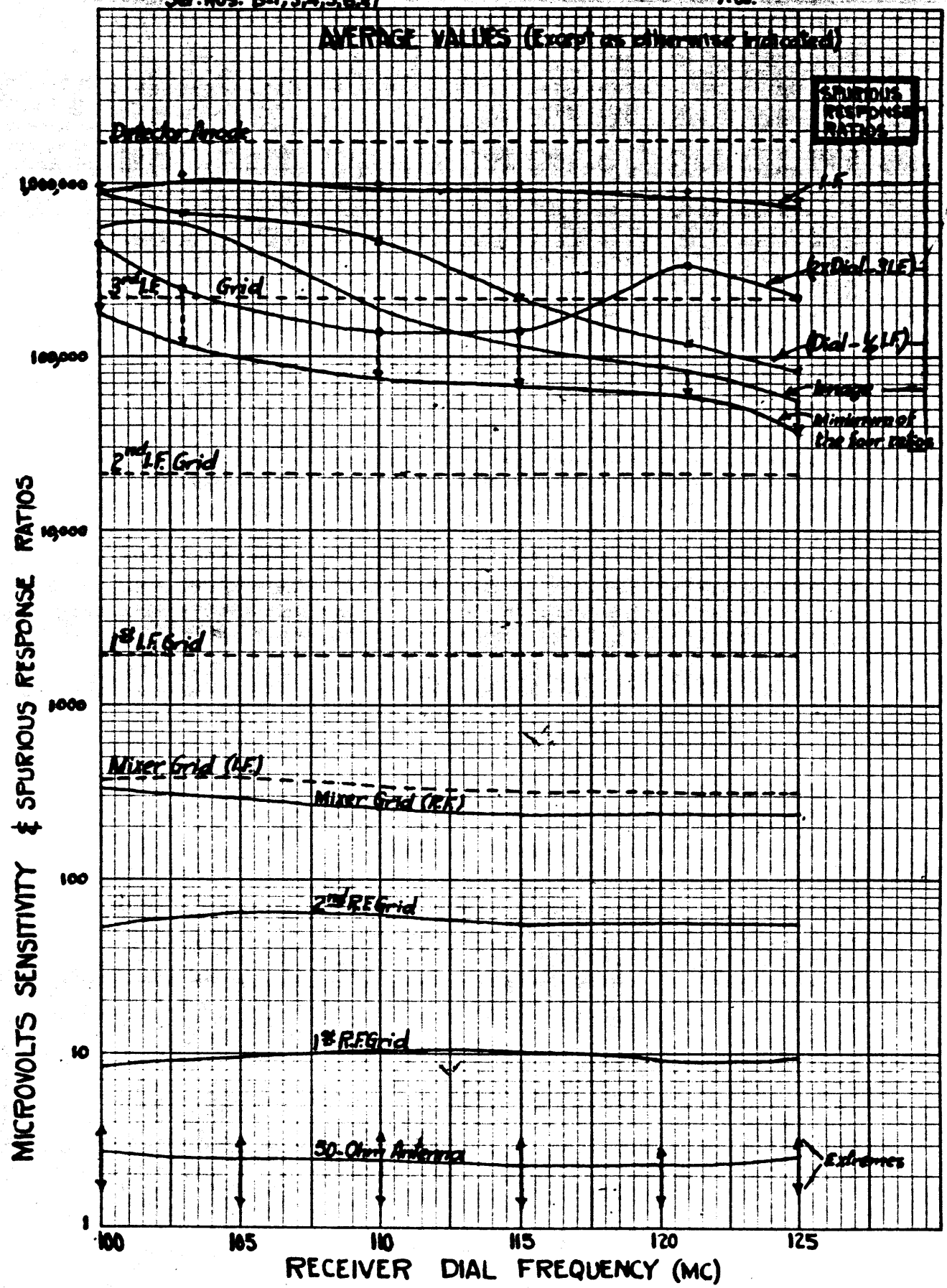
Fig. 1

Aircraft Radio Corp.
Boonton, N.J.

SENSITIVITY
SPURIOUS RESPONSE RATIOS

MODEL R-112 /ARC-5
Ser. Nos. B-1, 3, 4, 5, & 7

DATE Oct. 21, 1944



KEUFFEL & ESSER CO., N.Y. NO. 358-98
Semi-Logarithmic, 7 Cycles X 10 to the Inch.
MADE IN U.S.A.

RESTRICTED

Aircraft Radio Corp.
Boonton, N.J.

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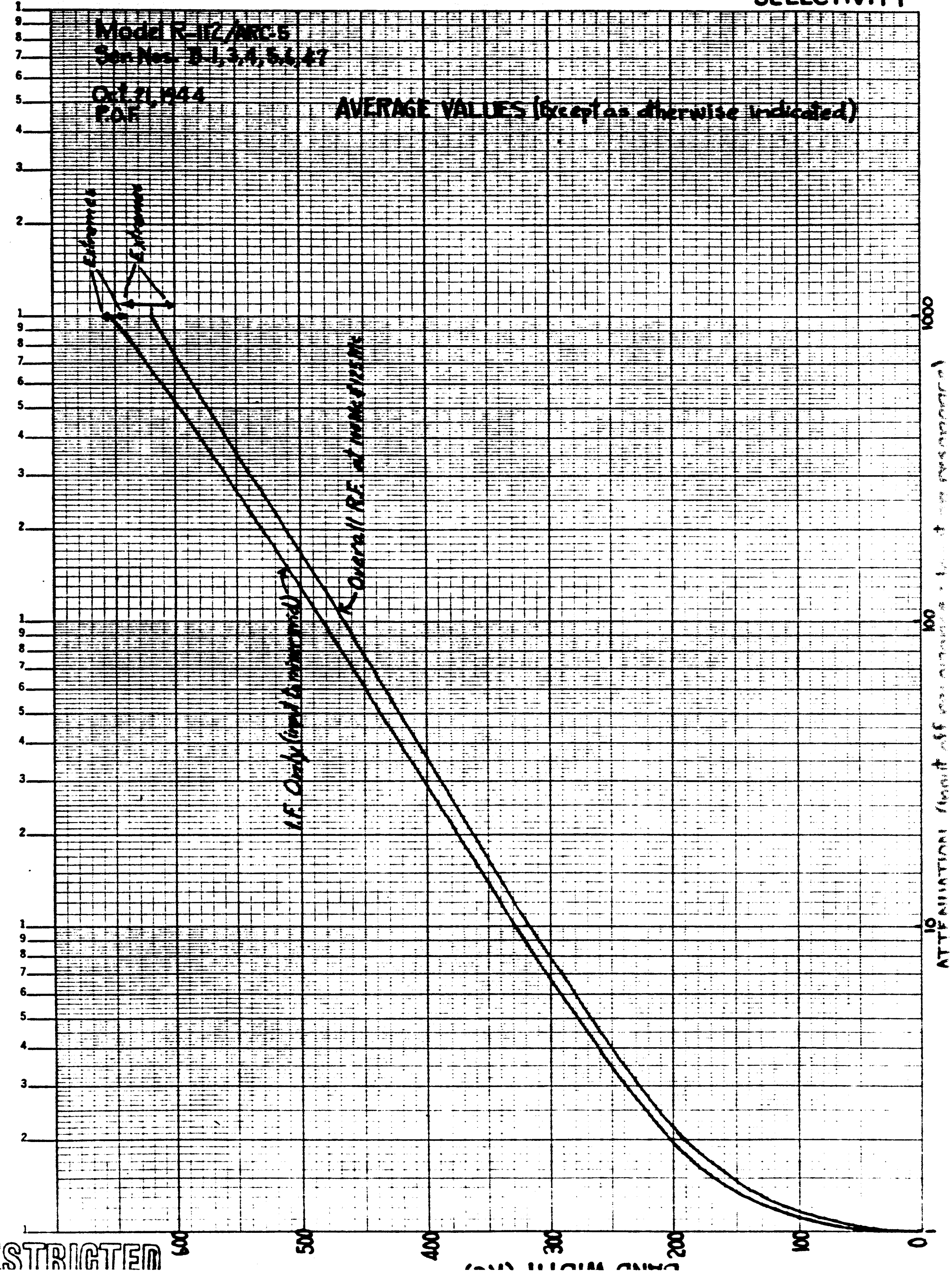
Fig. 2

SELECTIVITY



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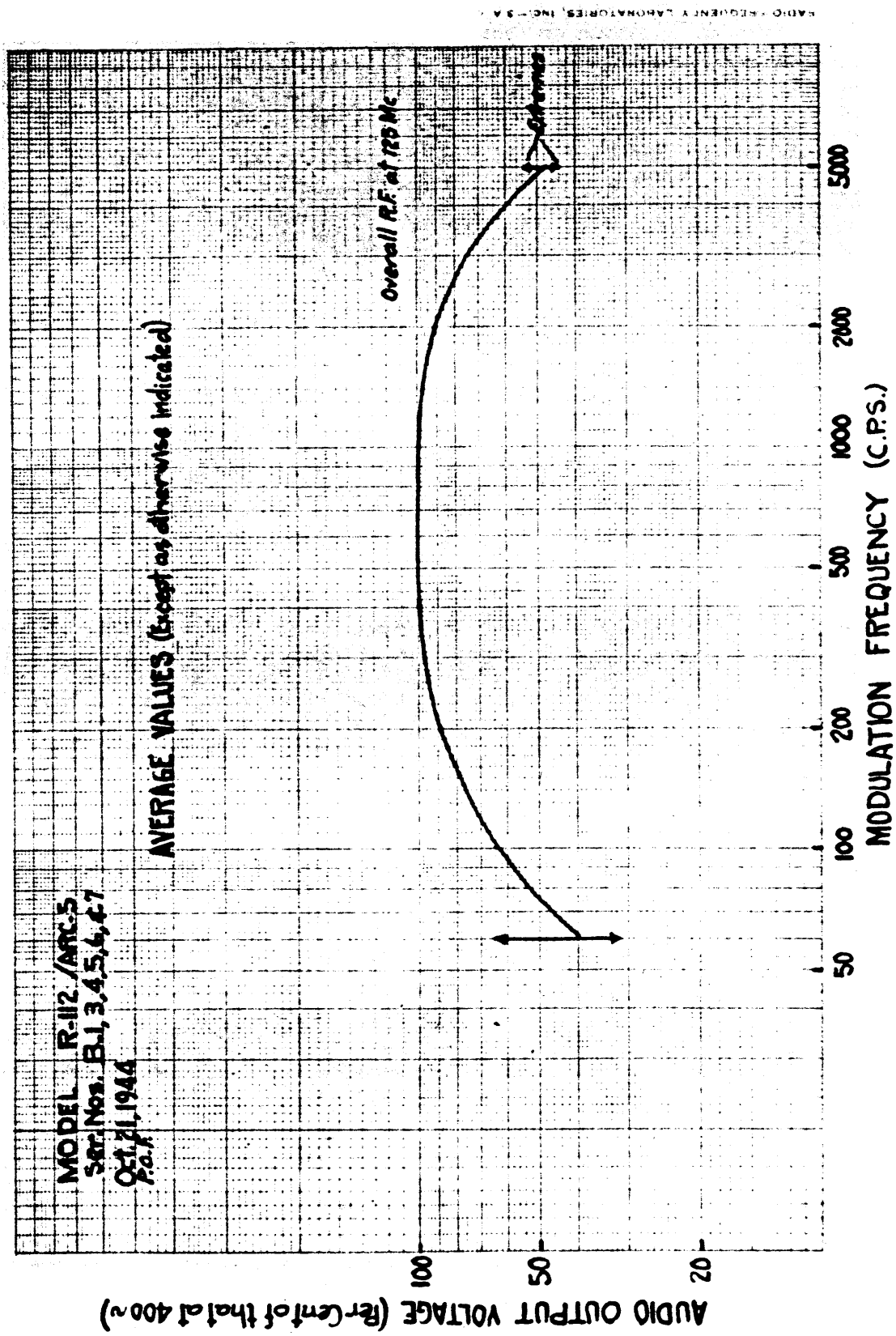
FIDELITY



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Model R-112/ARC-5
Ser. Nos. B-1, 3, 4, 5, 6, 47
Oct. 24, 1944
P.O.F.
AVERAGE VALUES (Except where otherwise indicated)
Aircraft Radio Corp.
Boonton, N.J.
RESTRICTED
AUTOMATIC VOLUME CONTROL
OFF
Extremes
100 Mc
125 Mc
Knee (at 1 m.w.)
AUDIO OUTPUT MILLIWATTS
ANTENNA MICROVOLTS

Fig. 4

FREQUENCY–TEMPERATURE CHARACTERISTICS.

DATE: Oct. 13, 1944 NRC POF

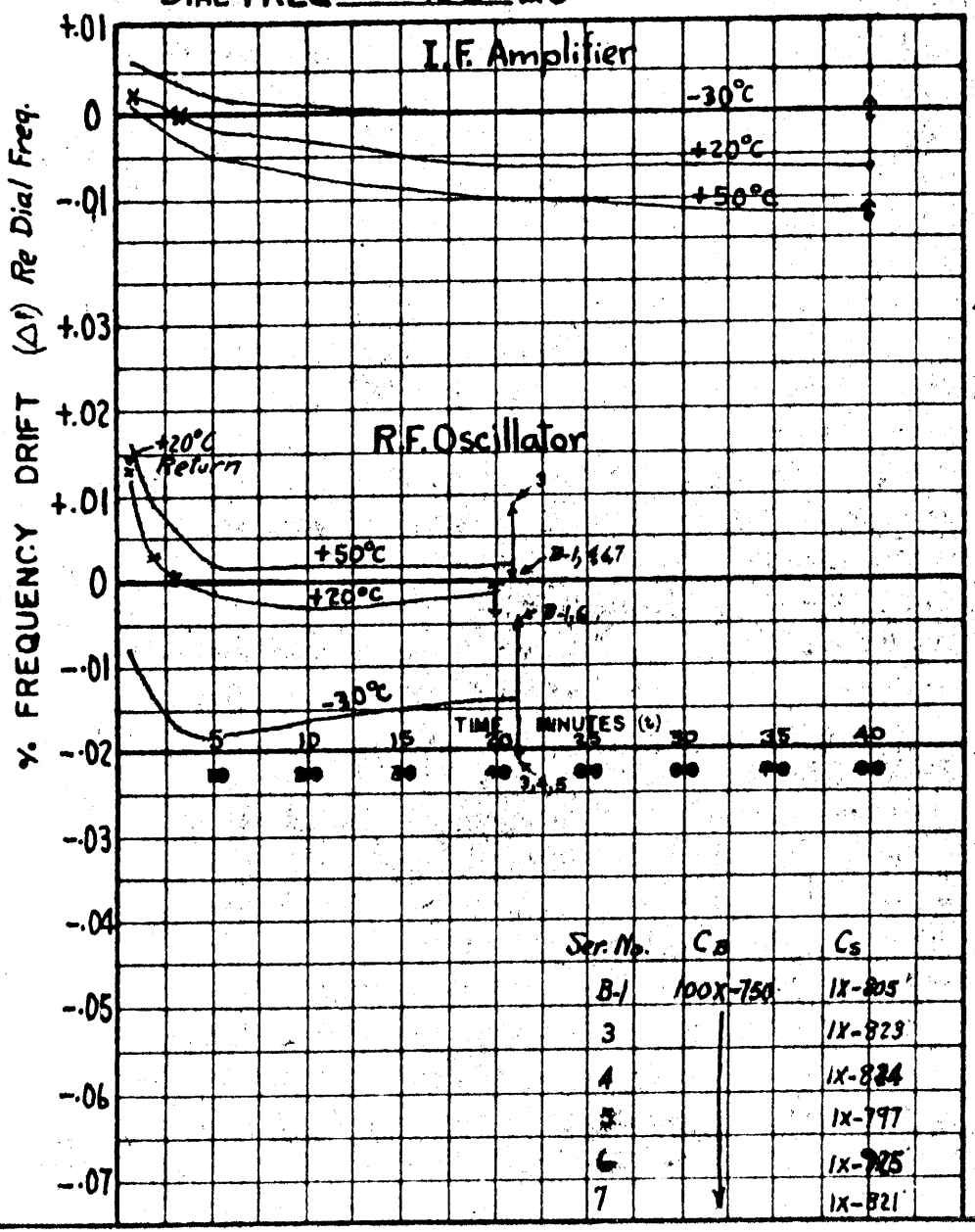
R-112 RECEIVER; BAND 100-125 MC SER No. * B-1, 3, 4, 5, 6, 7 {avg. & extreme

I.F. is avg. of above 6 receivers

RECEIVER TURNED ON AT t=0

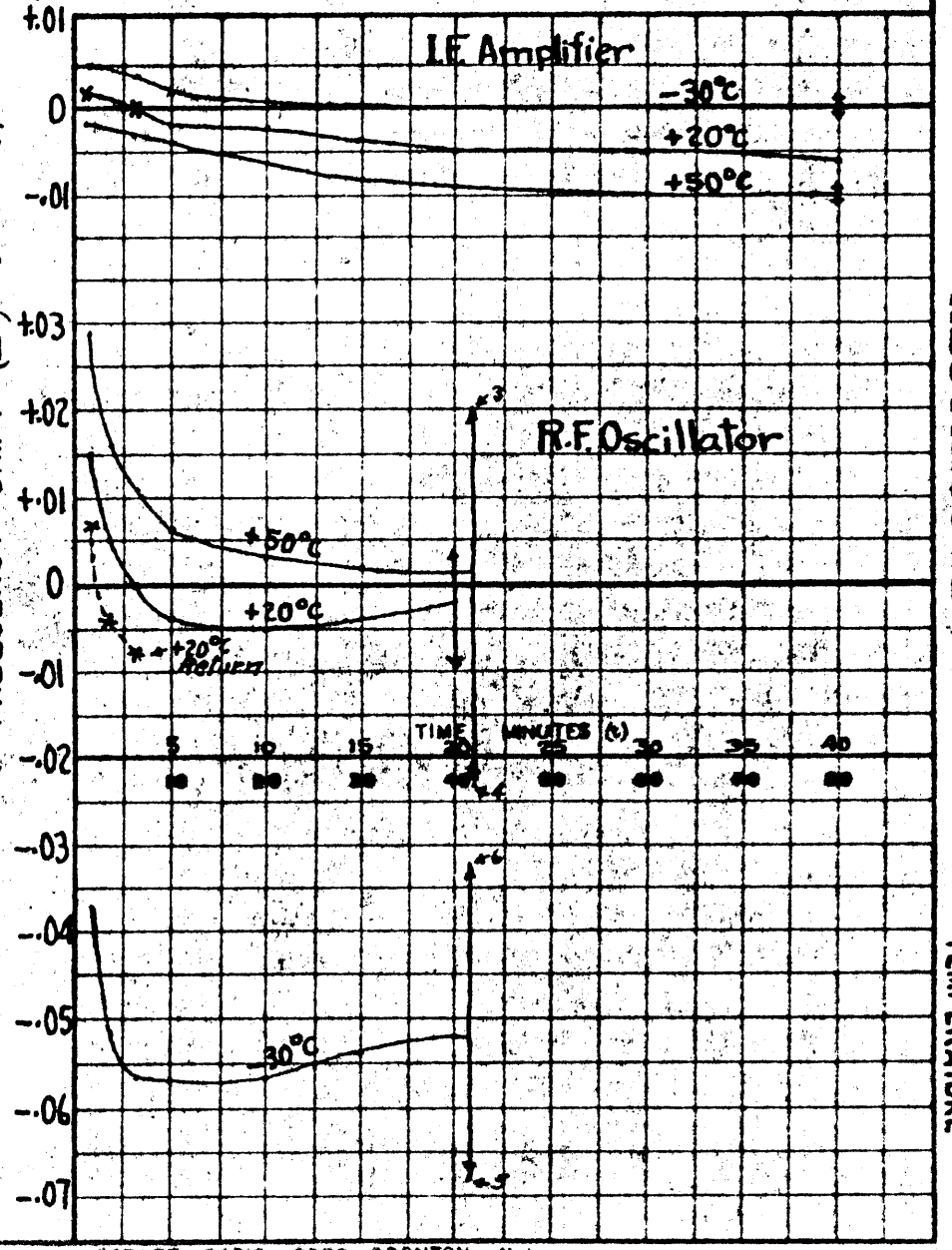
Δf 0 AT t=3 (+20°C)

DIAL FREQ: 103 MC



Ser. No.	C_B	C_S
B-1	100X-750	1X-805
3		1X-823
4		1X-824
5		1X-797
6		1X-825
7		1X-821

DIAL FREQ: 121 MC



AIRCRAFT RADIO CORP BOONTON N.J.

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Fig. 8 FREQUENCY vs. TEMPERATURE

FREQUENCY–TEMPERATURE CHARACTERISTICS.

DATE Mar. 15, 1945 NRL (Data) POF R-112 RECEIVER; BAND 100-165 MC SER No. B-2, B-3, 22, 23, 24, 25 (Avg. & Extremes 16 Receivers)

RECEIVER TURNED ON AT t=0
Δf 0 AT t=3 (+20°C)

DIAL FREQ: 103 MC

Ser. No.	C_B	C_S
B-2	120x-750	1x-344 (1.25 μμf)
B-3		1x-472 (1.35 μμf)
22		1x-427 (1.15 μμf)
23		1x-370 (1.18 μμf)
24		1x-368 (1.9 μμf)
25		1x-355 (1.59 μμf)

R.F. Oscillator

% FREQUENCY DRIFT (Δf) Re Dial Freq.

+.03 +.02 +.01 0 -.01 -.02 -.03 -.04 -.05

TIME MINUTES (t)

5 10 15 20 25 30 35 40

+20°C Return
-30°C
+20°C
+50°C
#23
B-2
#25 Rec. to 40 min.
#24 #25

DIAL FREQ: 121 MC

R.F. Oscillator

% FREQUENCY DRIFT (Δf) Re Dial Freq.

+.03 +.02 +.01 0 -.01 -.02 -.03 -.04 -.05

TIME MINUTES (t)

5 10 15 20 25 30 35 40

+20°C Return
+20°C
-30°C
+50°C
#22 #23
B-2 B-3 #25
#24
#25 Rec. to 40 min.

AIRCRAFT RADIO CORP BOONTON N.J.

FREQUENCY VS. TEMPERATURE Fig. 8A

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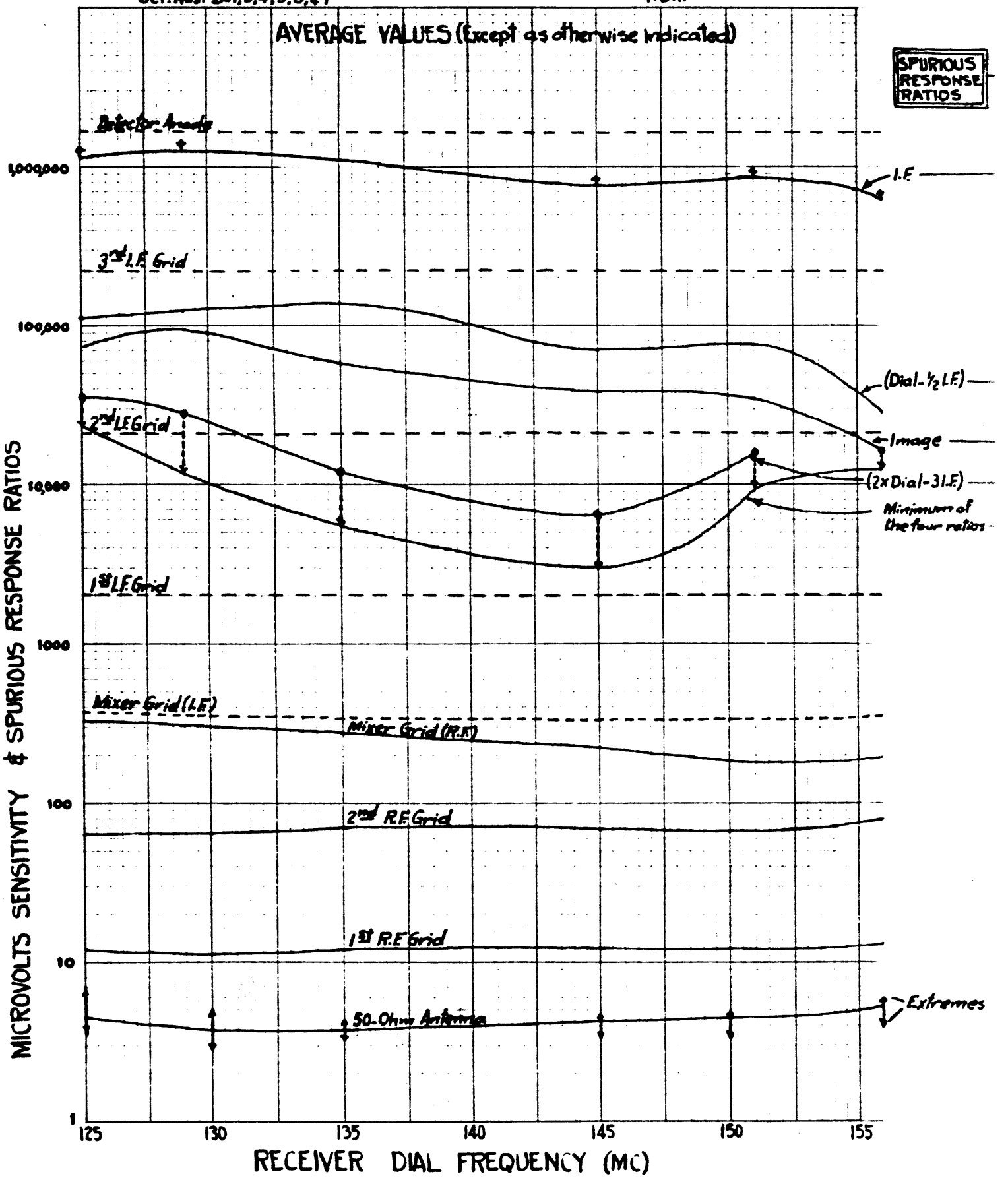
Aircraft Radio Corp.
Boonton, N.J.

SENSITIVITY
SPURIOUS RESPONSE RATIO

MODEL R-113/ARC-5
Ser. Nos. B-1, 3, 4, 5, 6, & 7

DATE Oct. 25, 1944
P.O.F.



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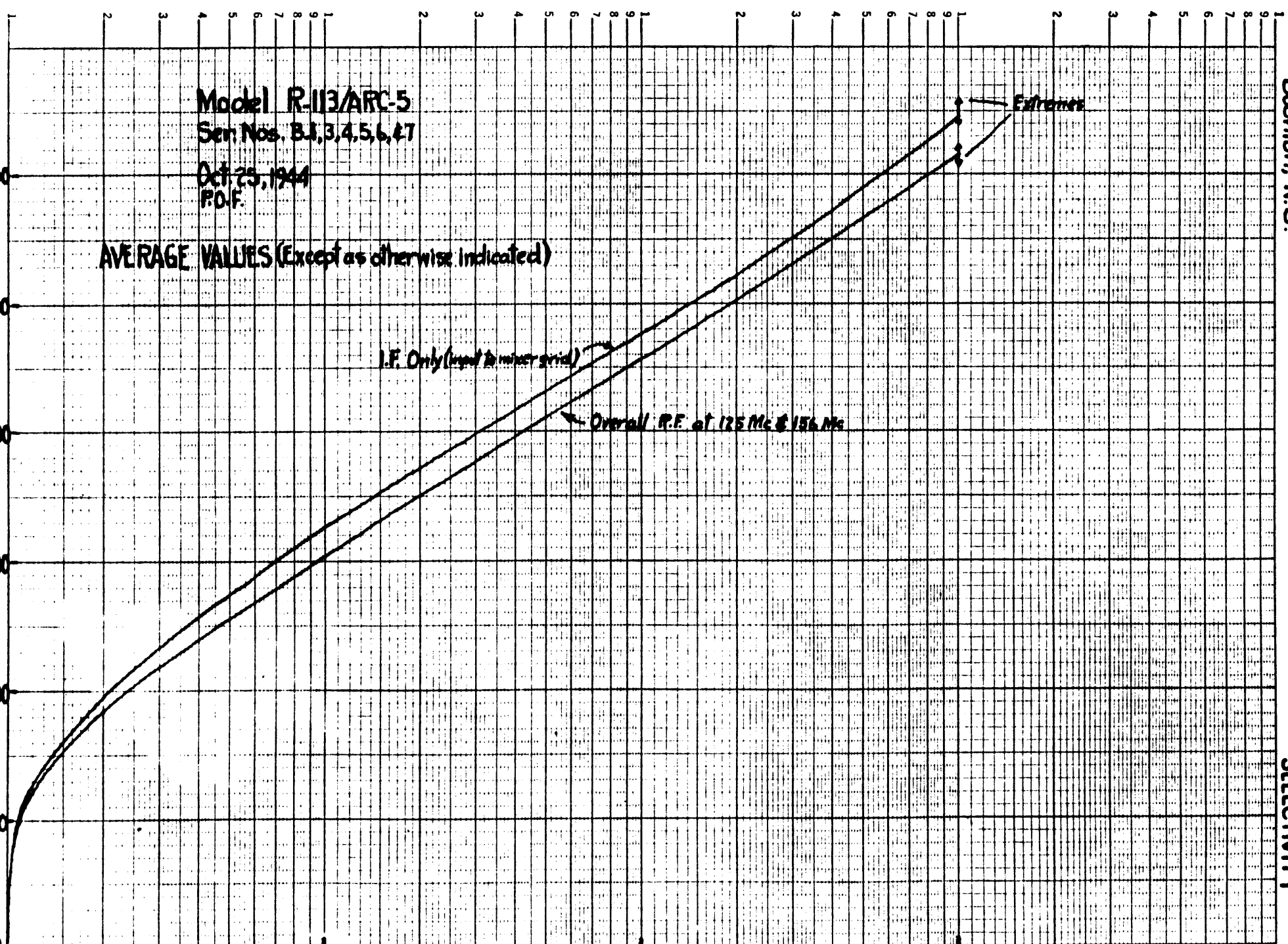
KEUFFEL & ESSER CO., N. Y. NO. 358-81
Semi-Logarithmic, 4 Cycles x 10 to the inch.
MADE IN U. S. A.



Aircraft Radio Corp.
Boonton, N.J.

SELECTIVITY

Fig. 2

Aircraft Radio Corp.
Boonton, N. J.

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FIDELITY

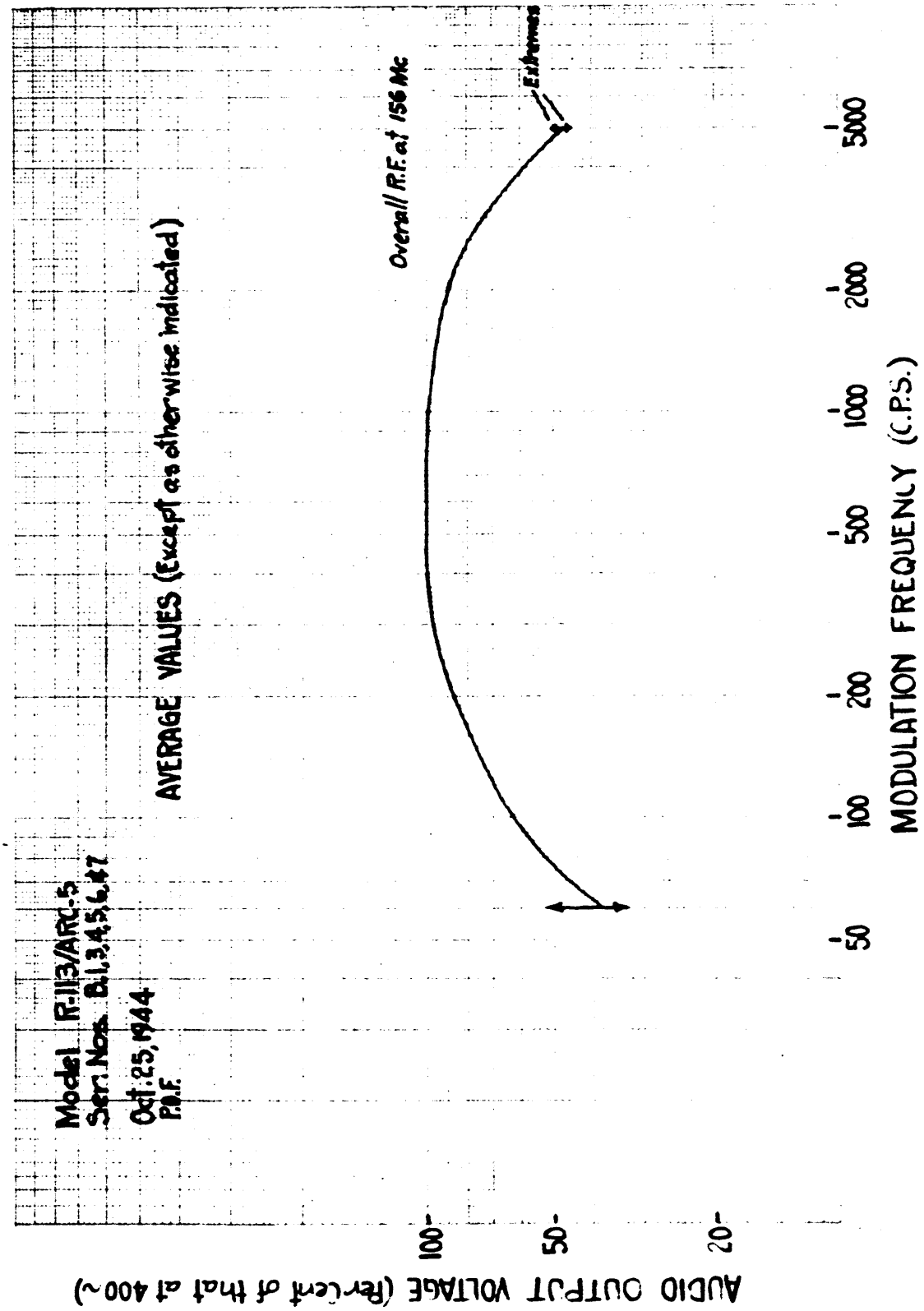

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Fig. 4

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Boonton, N.J.

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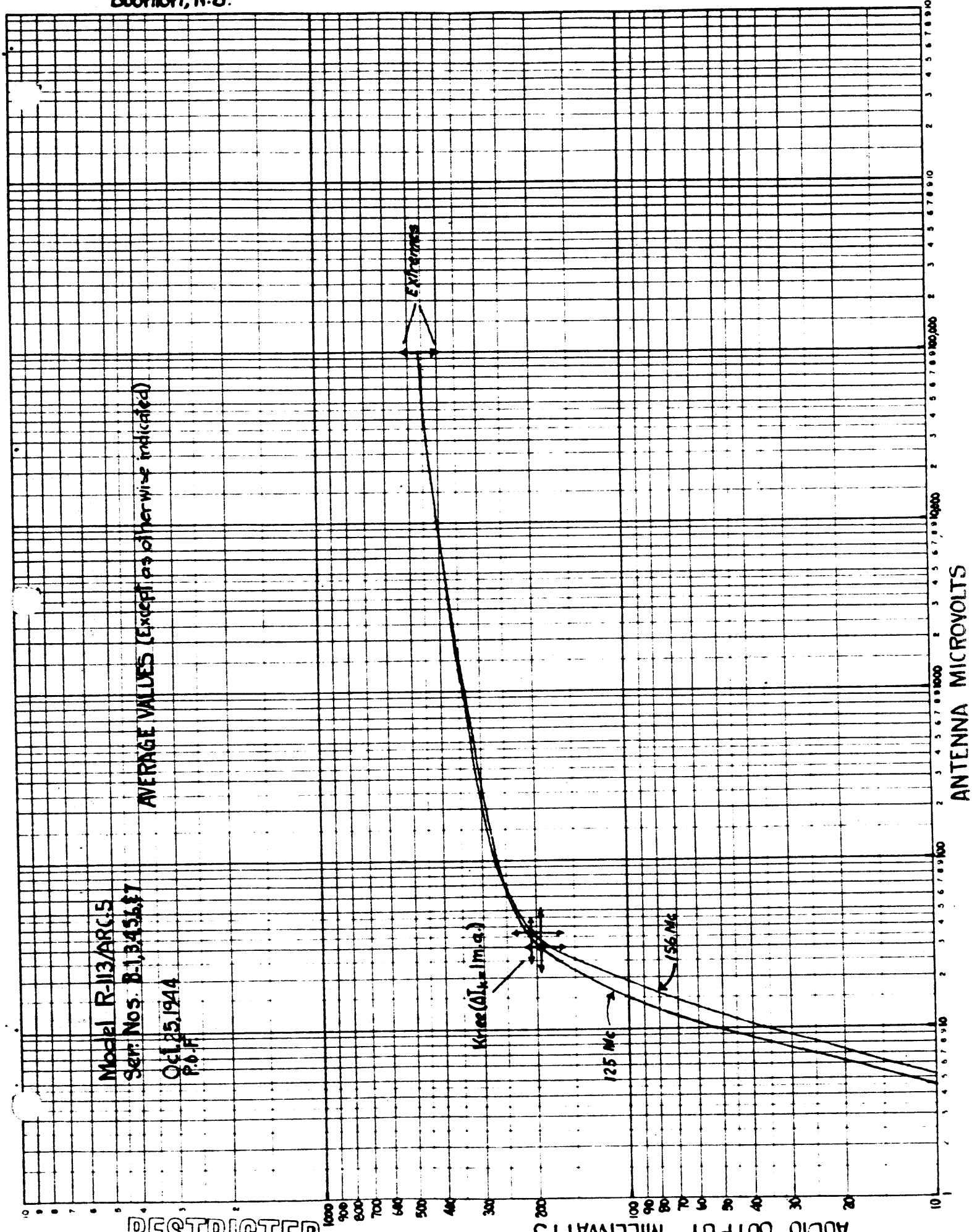
AUTOMATIC VOLUME CONTROL

FORM 1270



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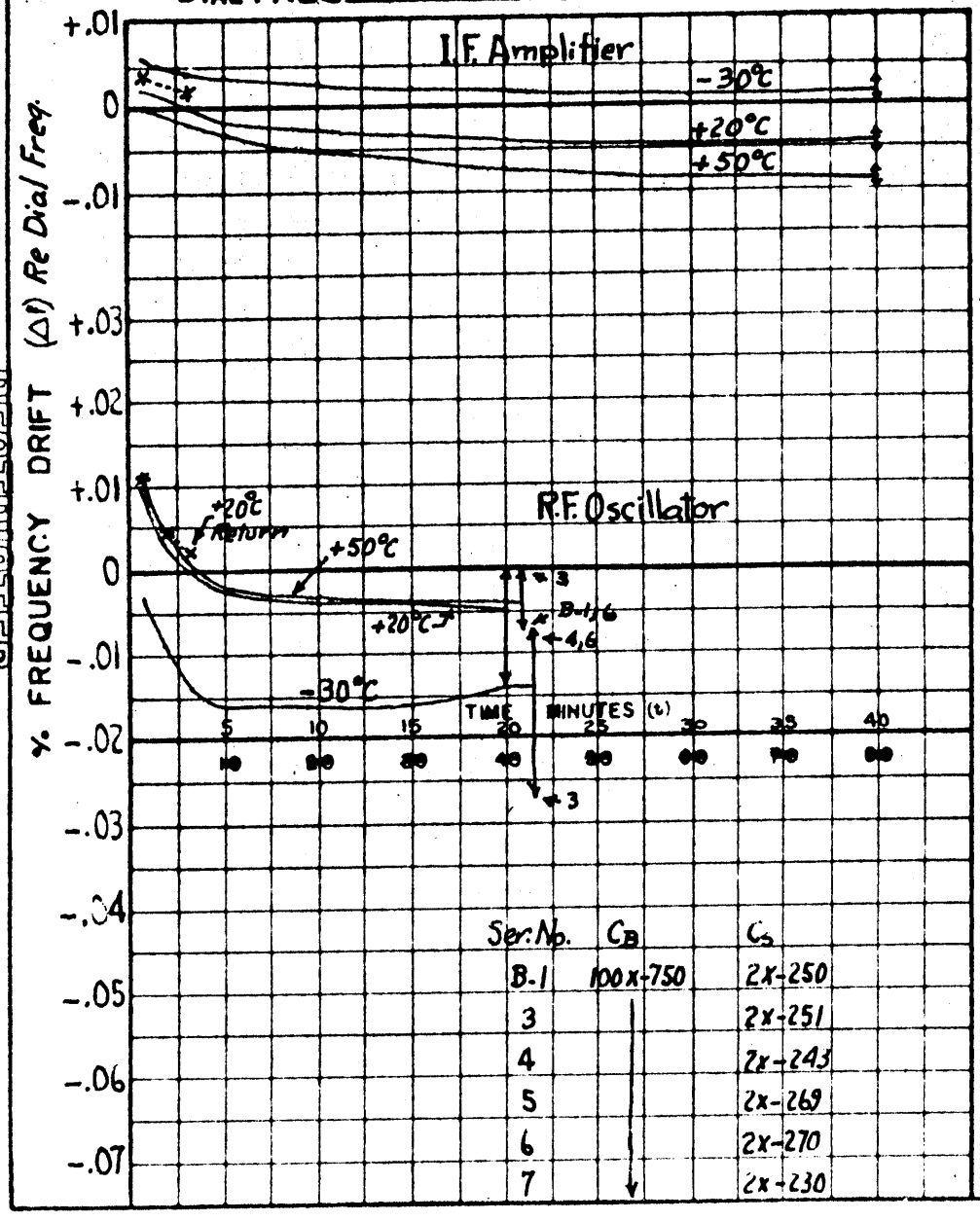
FREQUENCY–TEMPERATURE CHARACTERISTICS.

DATE Oct. 13, 1944 NRC POF ____ RH13 RECEIVER; BAND 125-156 MC SER No. *B-1,3,4,5,6,7 {avg. & extreme
I.F. is avg. of above 6 receivers

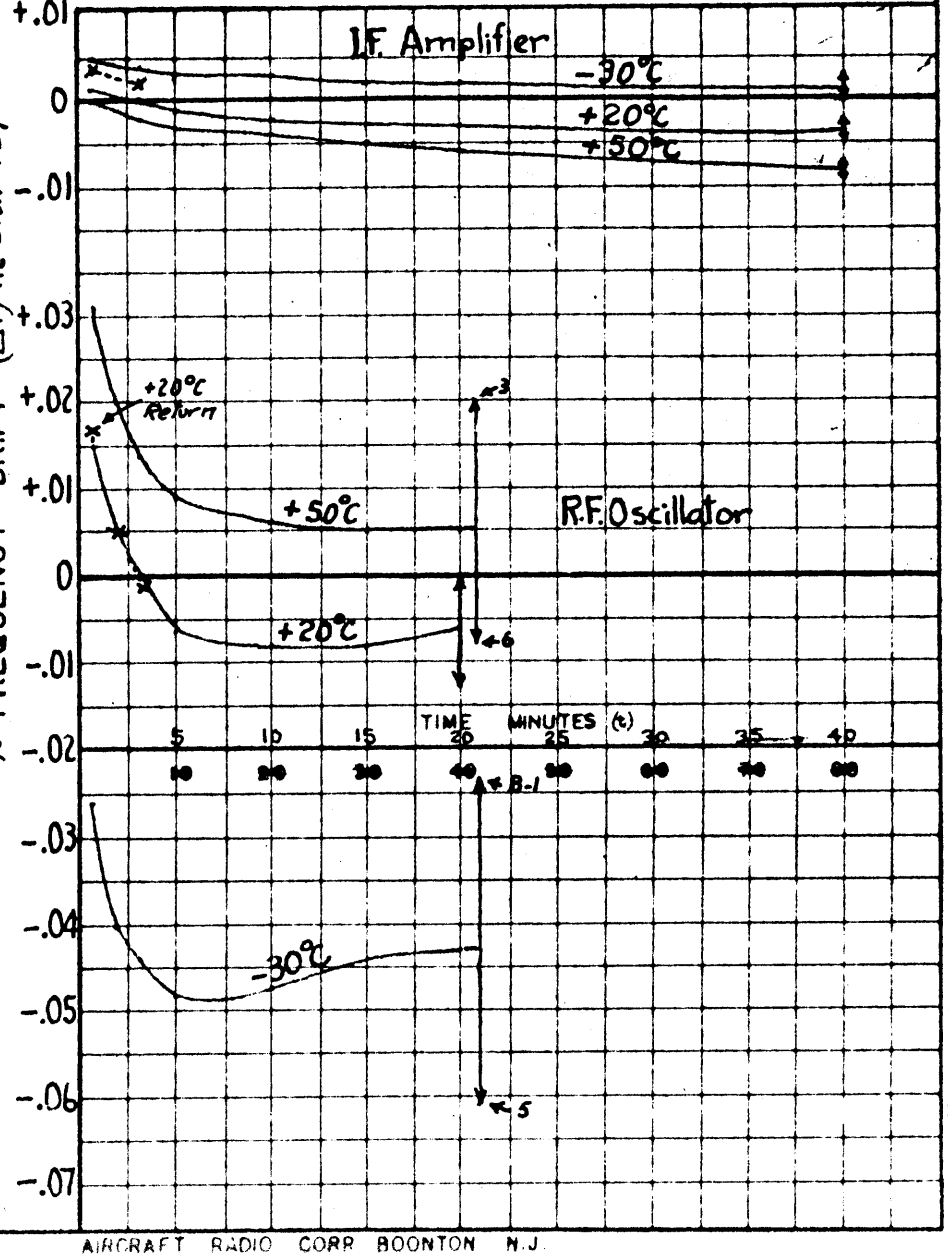
RECEIVER TURNED ON AT t=0
Δf 0 AT t=3 (+20°C)

DIAL FREQ: 129 MC



Ser. No.	C_B	C_S
B-1	100x+750	2x-250
3		2x-251
4		2x-243
5		2x-269
6		2x-270
7		2x-230

DIAL FREQ: 151 MC



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FREQUENCY VS. TEMPERATURE

Fig. 8

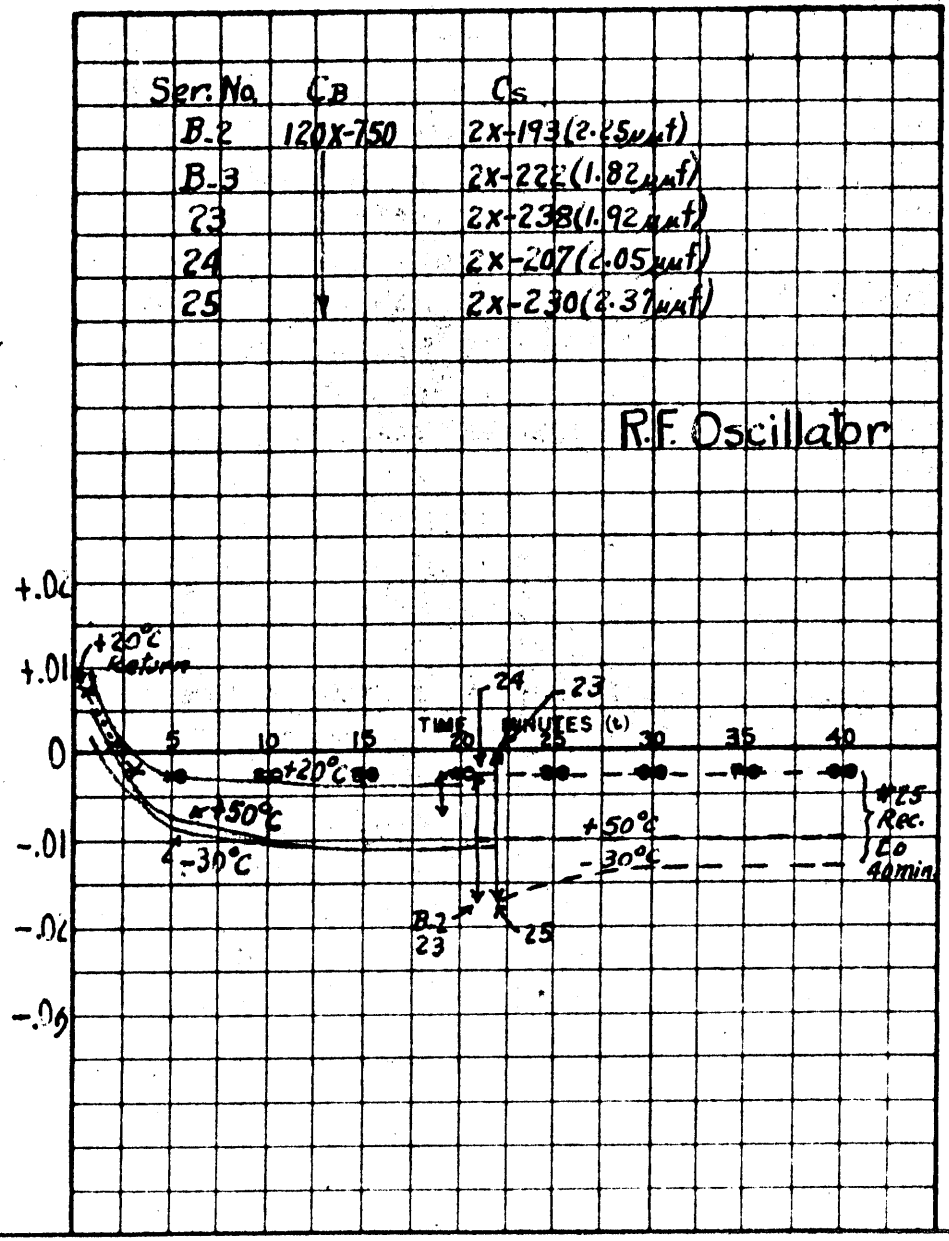
FREQUENCY–TEMPERATURE CHARACTERISTICS.

DATE: Mar. 15, 1945 NRC (Data) POF — R-113 RECEIVER; BAND 125-156 MC — SER No. B-2, B-3, 23, 24, 25 Avg. & Extremes [5 Receivers]

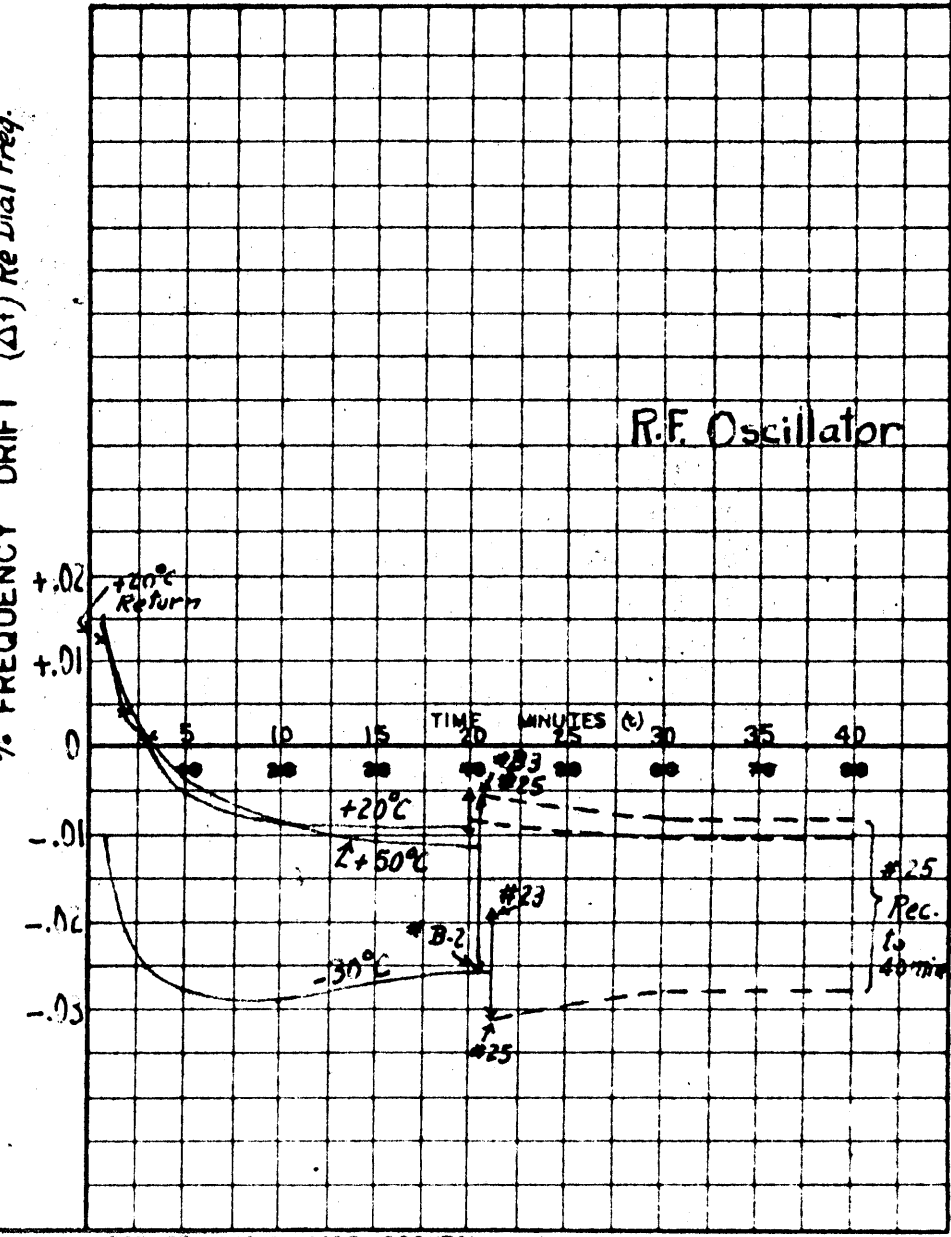
RECEIVER TURNED ON AT t=0
Δf 0 AT t=3 (+20°C)

DIAL FREQ: 129 MC

Ser. No.	C_B	C_S
B-2	120X-750	2x-193 (2.25 μμf)
B-3		2x-222 (1.82 μμf)
23		2x-238 (1.92 μμf)
24		2x-207 (2.05 μμf)
25		2x-230 (2.37 μμf)



DIAL FREQ: 151 MC



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FREQUENCY VS. TEMPERATURE Fig. 8A

AIRCRAFT RADIO CORP BOONTON N.J.

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1. TEST LIMITS PASSED BY T-89 and T-90 TRANSMITTERS, SERIAL NUMBERS 3 TO 7 INCLUSIVE

1-a Max. frequency shift during complete detuning of power amplifier tank circuit:-

Less than .005%

1-b Freq. shift due to change of supply voltage from 28 volts to 22 volts:-

Less than .005%

1-c (Power output at 22 volts ÷ power output at 28 volts) × 100% Average Values:-

T-89	72%
T-90	71%

2. MEASUREMENTS ON TRANSMITTERS SERIAL NO. B-1

2-a Harmonic distortion (1000~modulation):-

T-89	100% neg. m.	30% m.
100 mc	3%	----
112 mc	3.8%	1.5%
125 mc	3.5%	----
T-90		
125 mc	5%	----
135 mc	6.5%	1.7%

2-b Harmonic distortion as a function of P.A. tank circuit detuning to one half max. antenna current (1000~modulation):-

		Per Cent Distortion		
	% m.	Tank Resonated	Detuned, High C	Detuned, Low C
T-89 at 112 mc	100% neg.	3.5%	4.1%	4.6%
T-90 at 135 mc	100% neg.	5.8%	4%	3.5%

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FORM 1139

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2-c Harmonic distortion as a function of tripler tank circuit detuning sufficient to reduce test voltage E_3 to 0.1 volt (1000~ modulation):-

		Per cent Distortion		
	% m.	Tripler Resonated	Detuned, High C	Detuned, Low C
T-89 at 112 mc	100% neg.	3.5%	12%	8%
	30%	1.5%	4.6%	1.7%
T-90 at 135 mc	100%	5.6%	16.5%	9.5%
	30%	1.7%	6.5%	2.5%

2-d Carrier noise level (below 100% neg. m. at 1000~)

T-89	100 mc	-60 db
	112	-59
	125	-56
T-90	125	-58
	135	-56

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AIRCRAFT RADIO CORP.
BOONTON, N. J.

Fig. 1 10-30-4

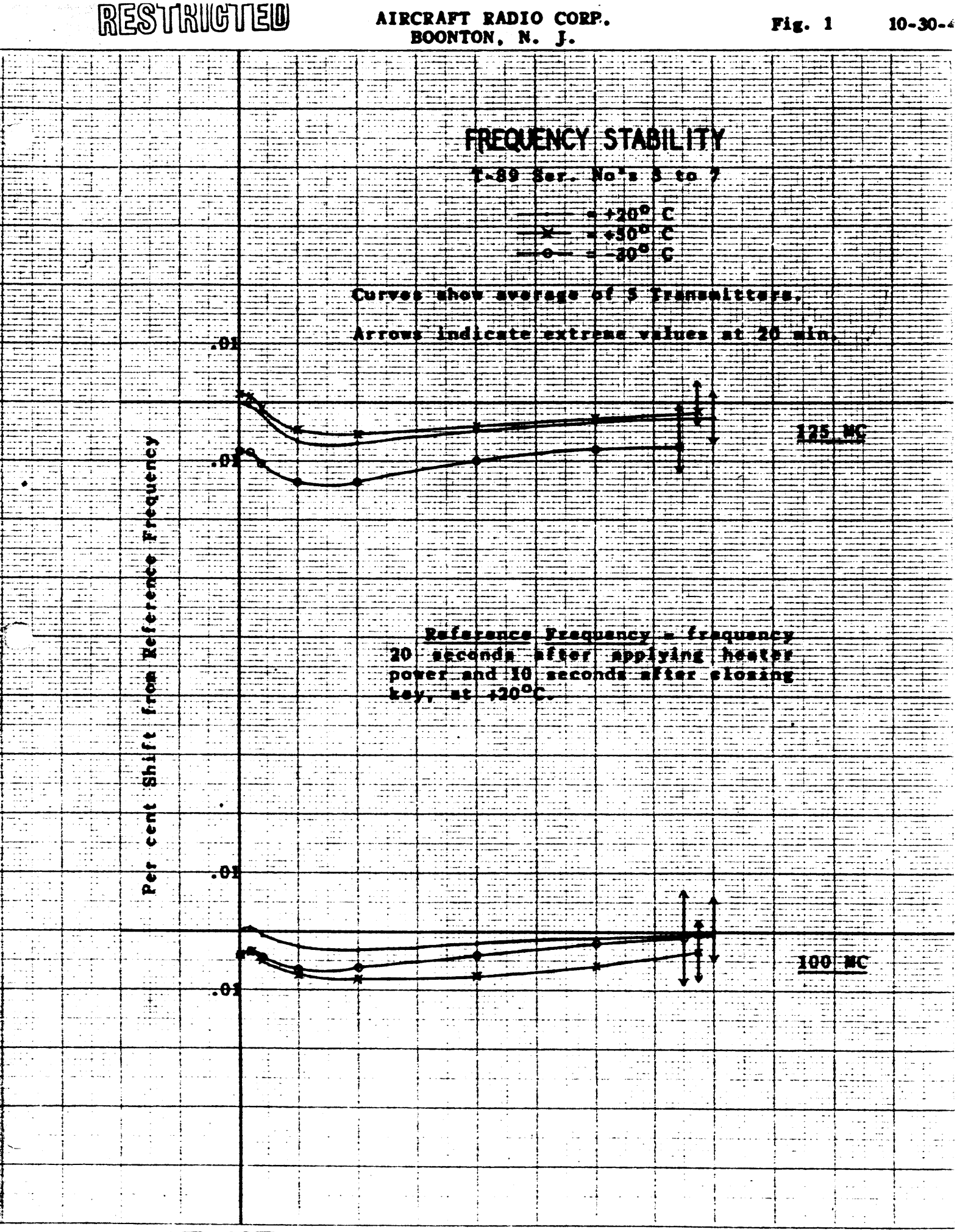
FREQUENCY STABILITY

T-89 Ser. No's 3 to 7

——— = +20° C
—×— = +50° C
—o— = -30° C

Curves show average of 5 transmitters.

Arrows indicate extreme values at 20 min.



Reference Frequency = frequency 20 seconds after applying heater power and 10 seconds after closing key, at +20°C.

T-89 POWER OUTPUT

WITH

ANT. COUPLER BC-16

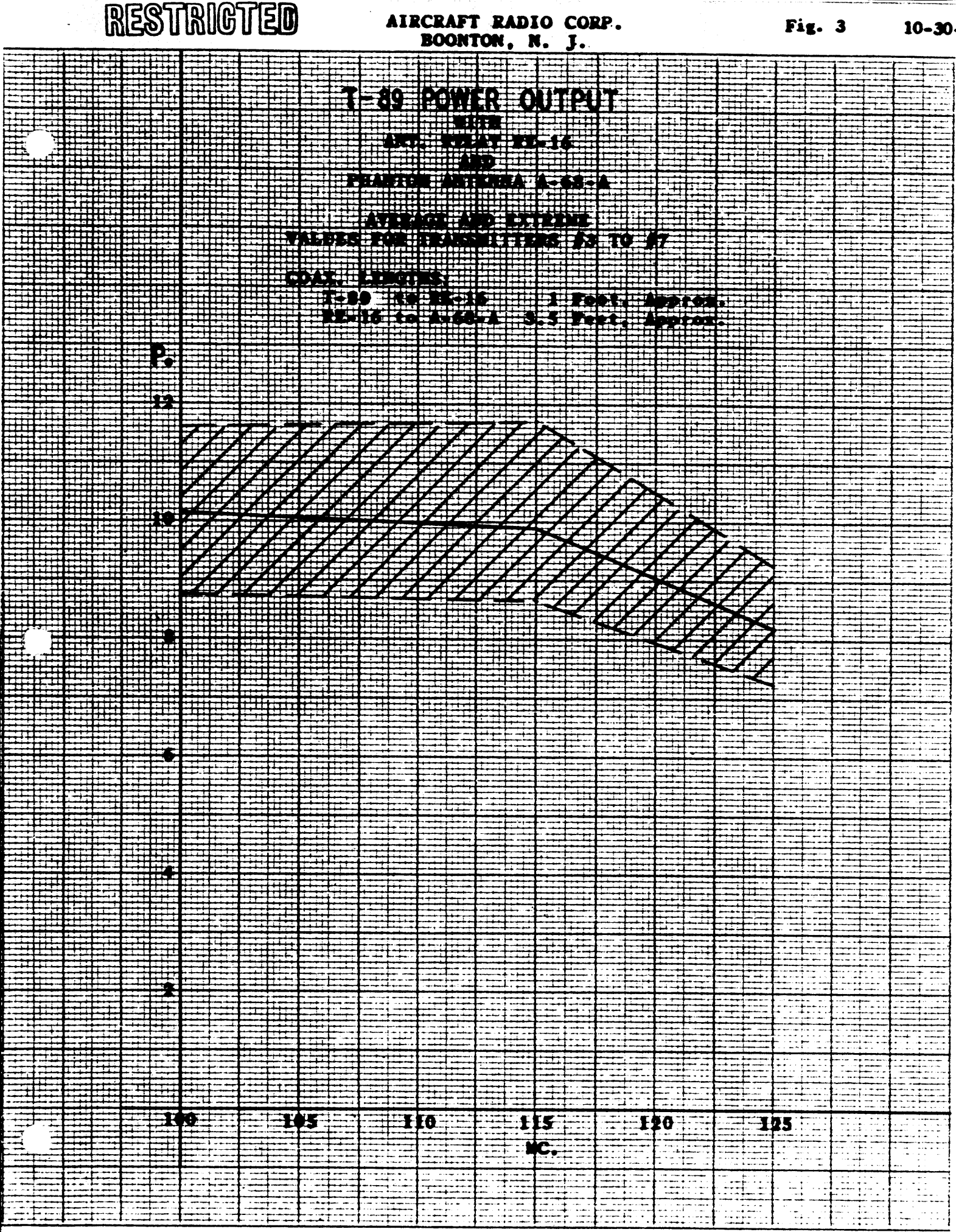
AND

FLEXIBLE ANTENNA A-68-A

AVERAGE AND EXTREME
VALUES FOR TRANSMITTERS #3 TO #7

COAX. LENGTHS:

T-89 to BC-16 1 Foot, Approx.
BC-16 to A-68-A 3.5 Feet, Approx.



AIRCRAFT RADIO CORP.
BOONTON, N. J.

Fig. 4 10-30-44

T-90 POWER OUTPUT

WITH

ART. RELAY RE-16

AND

PHANTOM ANTENNA A-68-A

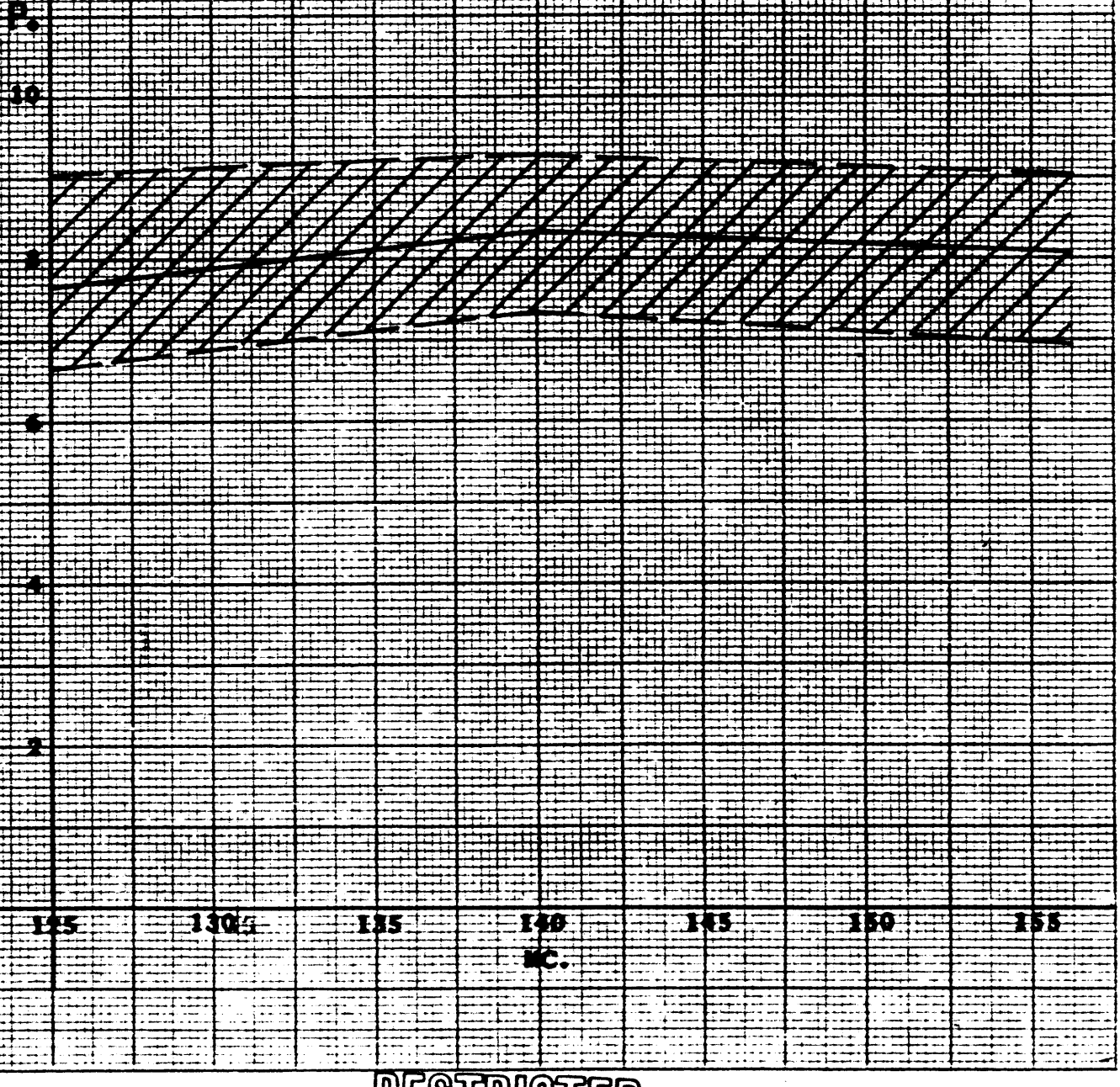
AVERAGE AND EXTREME

VALUES FOR TRANSMITTERS #1 TO #7

COAX. LENGTHS:

T-90 to RE-16 1 Foot, Approx.

RE-16 to A-68-A 3.5 Feet, Approx.

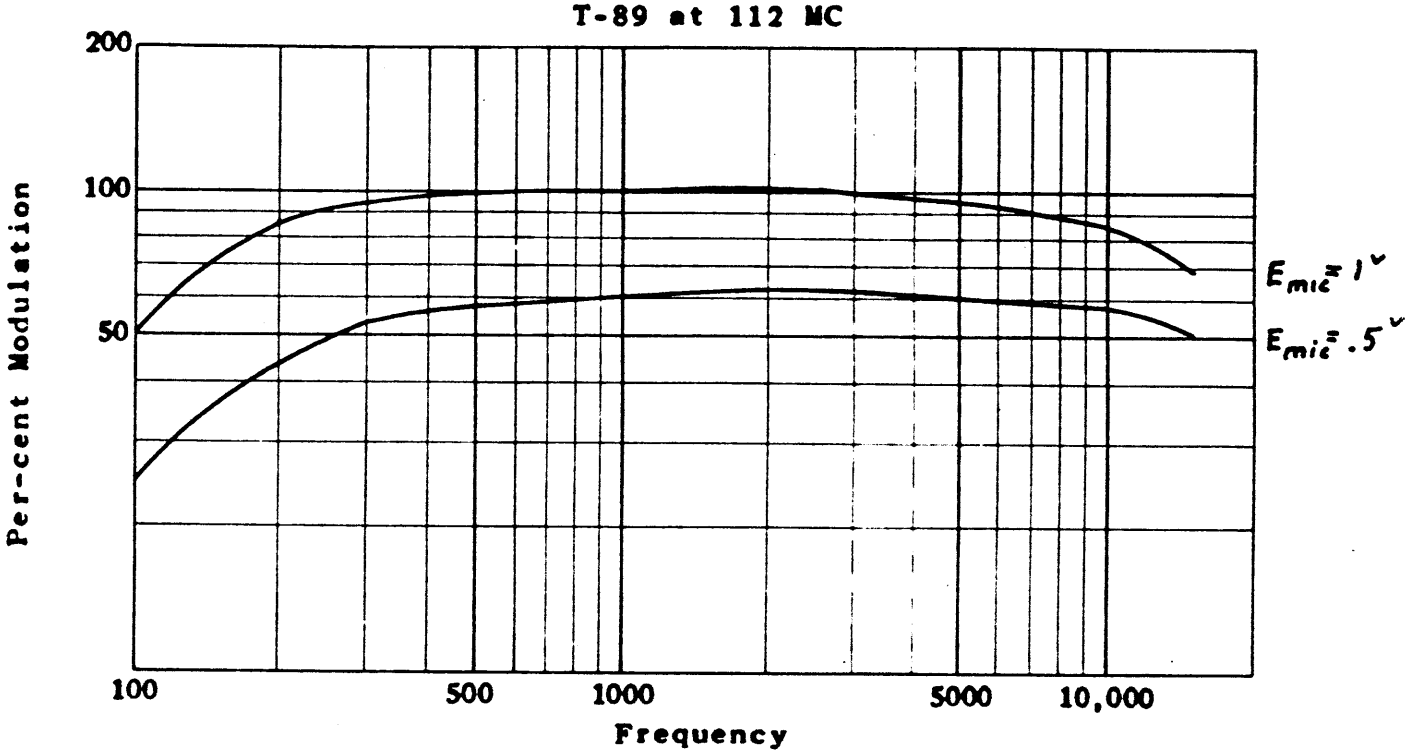


MODULATION FIDELITY

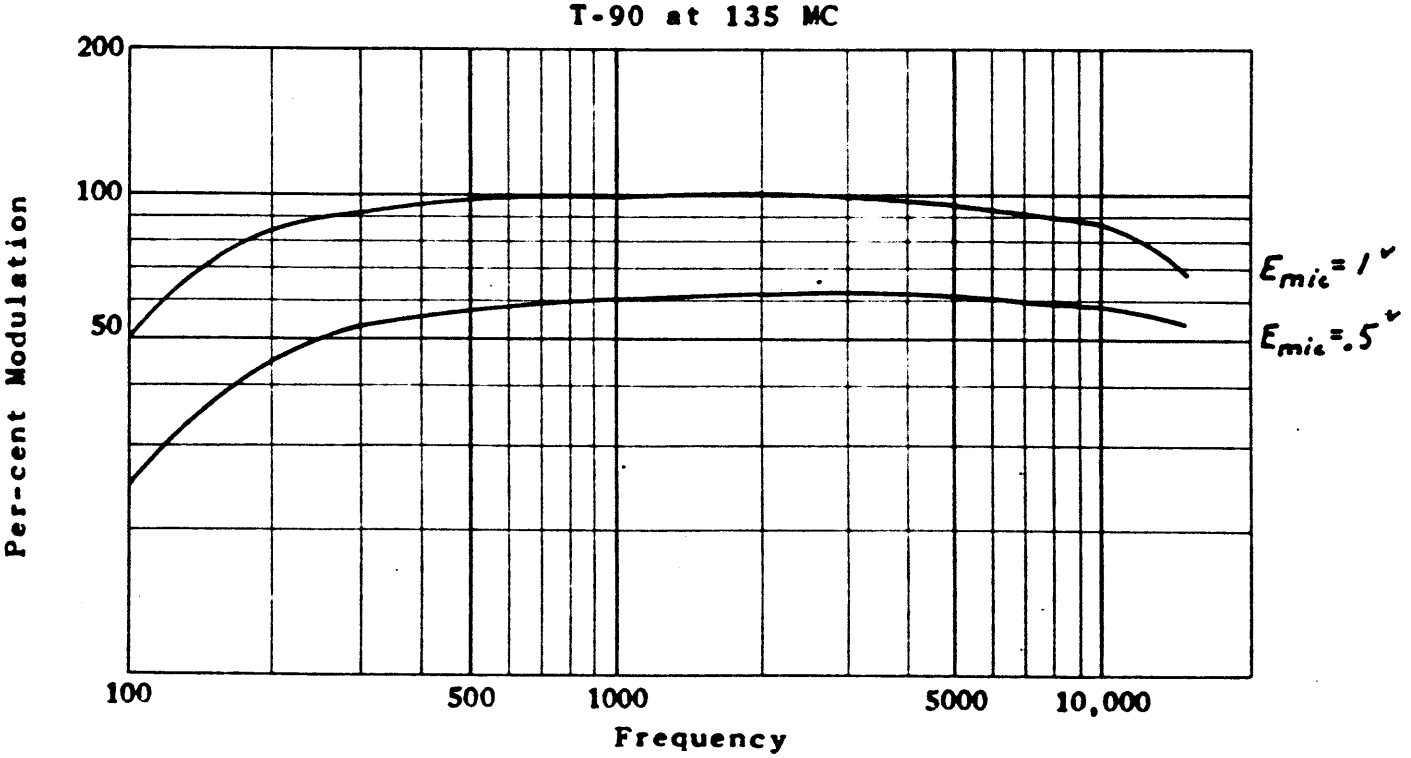
Measurements made on B-1 Transmitters.

Results at other carrier frequencies are substantially the same.

T-89 at 112 MC



T-90 at 135 MC



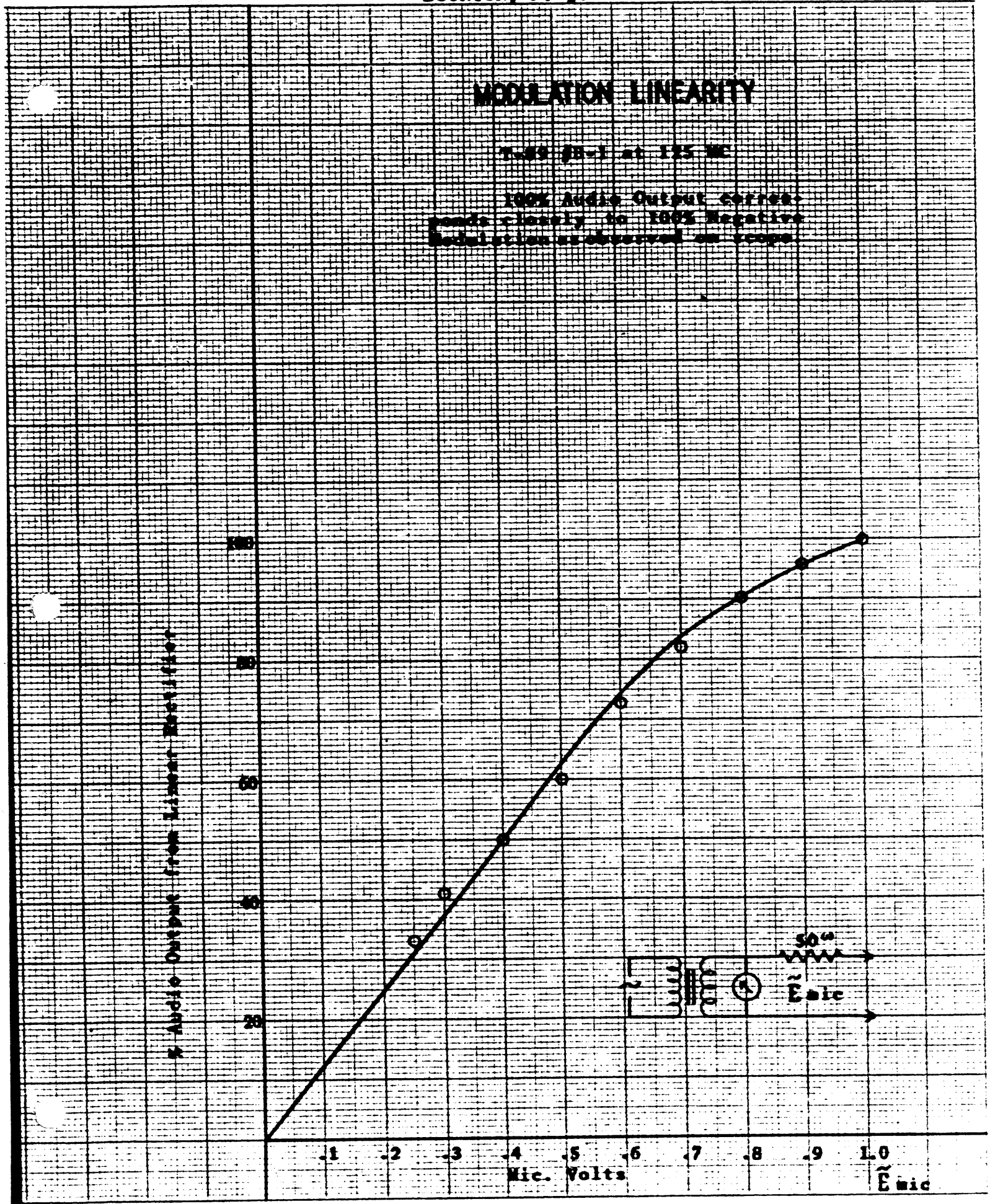
AIRCRAFT RADIO CORP.
BOONTON, N. J.

Fig. 6 10-30-44

MODULATION LINEARITY

T-69 μB-1 at 125 MC

100% Audio Output corresponds closely to 100% Negative Modulation as observed on scope.



AIRCRAFT RADIO CORP.
BOONTON, N. J.

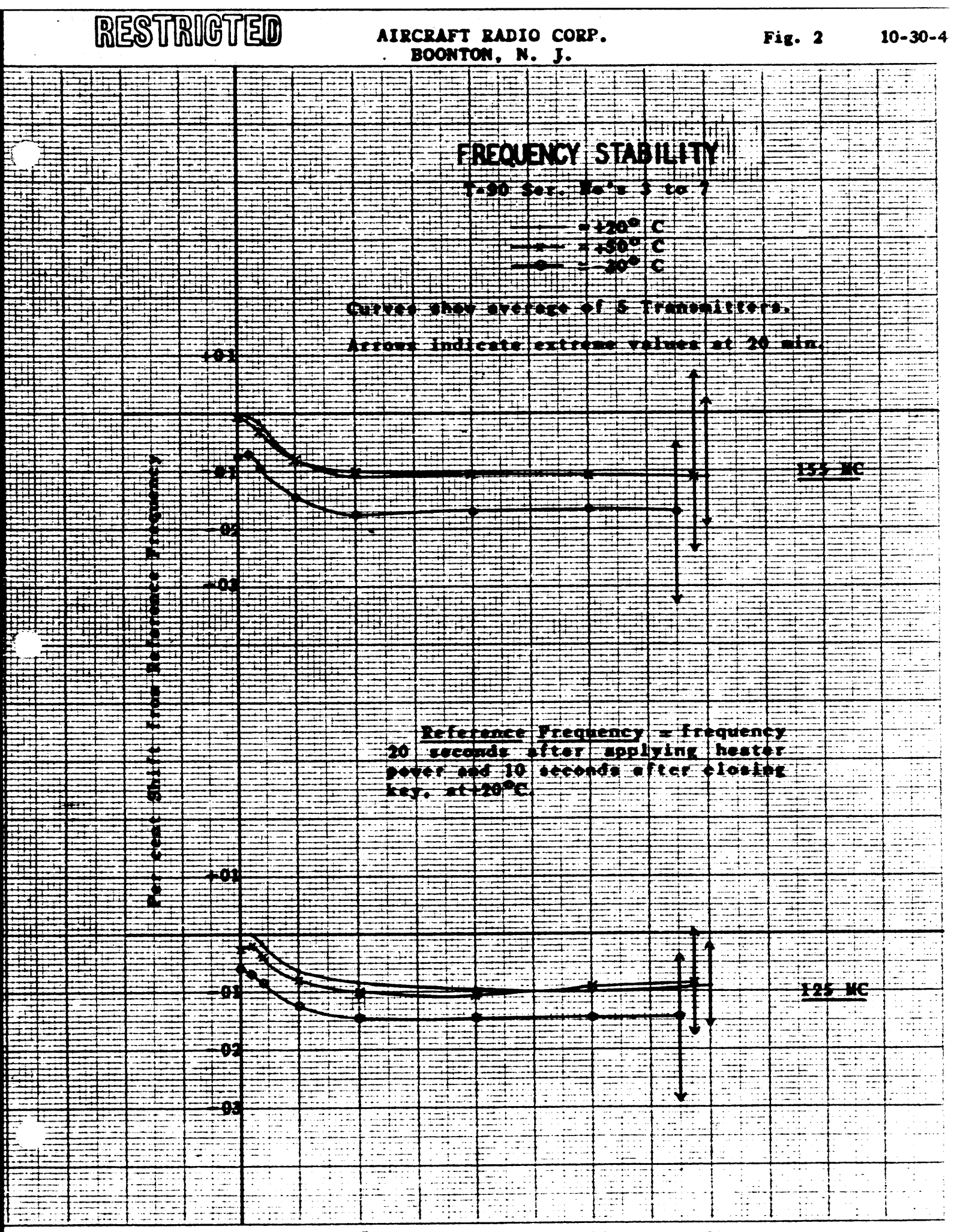
FREQUENCY STABILITY

T-90 Ser. Nos 3 to 7

—— = +20° C
—x— = +50° C
—o— = -20° C

Curves show average of 5 transmitters.

Arrows indicate extreme values at 20 min.



Reference Frequency = frequency 20 seconds after applying heater power and 10 seconds after closing key, at +20°C.