1619

TRANSMITTING BEAM POWER AMPLIFIER

Filament	Coated	
Voltage	2.5	a-c or d-c volts
Current	2.0	amp.
Transconductance for plate current of 50 ma.	4500 approx.	μmhos
Direct Interelectrode Capacitances: ⊙		
Grid to Plate	0.35	μμf
Input	10.5	μμf
Output	12.5	μμf
Maximum Overall Length		4-5/16"
Maximum Diameter		1-5/8"
Bulb		Metal Shell, MT-10
Base		Small Wafer Octal 7-Pin

MAXIMUM RATINGS and TYPICAL OPERATING CONDITIONS

SINGLE-TUBE AMPLIFIER - Class A_1

D-C Plate Voltage	400 max.	volts
D-C Screen Voltage (Grid #2)	300 max.	volts
Screen Input	3.5 max.	watts
Plate Dissipation	15 max.	watts
Typical Operation (fixed bias):		
D-C Plate Voltage	300	volts
D-C Screen Voltage	250	volts
D-C Grid Voltage (Grid #1) ## ⊙	-10	volts
Peak A-F Grid Voltage	10	volts
Beam-Forming Plate Voltage **	0	volts
Zero-Sig. D-C Plate Current	44	ma.
Max.-Sig. D-C Plate Current	46	ma.
Zero-Sig. D-C Screen Current	4	ma.
Max.-Sig. D-C Screen Current	6	ma.
Load Resistance	8800	ohms
Tc] Harmonic Distortion	7	%
Max.-Sig. Power Output	3 approx.	watts

The total effective grid-circuit resistance should not exceed 50000 ohms.

PUSH-PULL AMPLIFIER - Class AB_1

D-C Plate Voltage	400 max.	volts
D-C Screen Voltage (Grid #2)	300 max.	volts
Screen Input *	3.5 max.	watts
Plate Dissipation *	15 max.	watts
Typical Operation (fixed bias):		
Unless otherwise specified, values are for 2 tubes		
D-C Plate Voltage	400	volts
D-C Screen Voltage	300	volts
D-C Grid Voltage (Grid #1) † ⊙	-20	volts
Peak A-F Grid-to-Grid Voltage	40	volts
Beam-Forming Plate Voltage **	0	volts
Zero-Sig. D-C Plate Current	52	ma.
Max.-Sig. D-C Plate Current	80	ma.
Zero-Sig. D-C Screen Current	3.5	ma.

⊙, *, **, †, ⊙: See end of tabulation.

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TRANSMITTING BEAM POWER AMPLIFIER

(continued from preceding page)

Max.-Sig. D-C Screen Current	10	ma.
Load Resistance (per tube)	3500	ohms
Effective Load Res. (plate to plate)	14000	ohms
Total Harmonic Distortion	3	%
Max.-Sig. Power Output	17.5 approx.	watts

PUSH-PULL AMPLIFIER - Class AB_2

D-C Plate Voltage	400 max.	volts
D-C Screen Voltage (Grid #2)	300 max.	volts
Max.-Sig. D-C Plate Current *	75 max.	ma.
Max.-Sig. Plate Input *	30 max.	watts
Screen Input *	3.5 max.	watts
Plate Dissipation *	15 max.	watts
Typical Operation (fixed bias):		
Unless otherwise specified, values are for 2 tubes		
D-C Plate Voltage	400	volts
D-C Screen Voltage	300	volts
D-C Grid Voltage (Grid #1) □ ○	-16.5	volts
Peak A-F Grid-to-Grid Voltage	77	volts
Beam-Forming Plate Voltage **	0	volts
Zero-Sig. D-C Plate Current	75	ma.
Max.-Sig. D-C Plate Current	150	ma.
Zero-Sig. D-C Screen Current	6.5	ma.
Max.-Sig. D-C Screen Current	11.5	ma.
Load Resistance (per tube)	1500	ohms
Effective Load Res. (plate to plate)	6000	ohms
Peak Grid Input Power ∞	0.4	watt
Total Harmonic Distortion	2.5	%
Max.-Sig. Power Output ◊	36 approx.	watts

◊ With zero-impedance driver and perfect regulation, plate-circuit distortion does not exceed 2%. In practice, plate-voltage regulation, screen voltage regulation and grid-bias regulation should not be greater than 5%, 5%, and 3%, respectively.

□ The driver stage should be capable of supplying the grids of the class AB_2 stage with the specified peak grid voltage at low distortion. The effective resistance per grid circuit should not exceed 500 ohms and the effective impedance at the highest desired response frequency should not exceed 700 ohms.

GRID-MODULATED R-F POWER AMPLIFIER - Class C Telephony

Carrier conditions per tube for use with a max. modulation fact. of 1.0		
D-C Plate Voltage	400 max.	volts
D-C Screen Voltage (Grid #2)	300 max.	volts
D-C Grid Voltage (Grid #1)	-125 max.	volts
D-C Plate Current	37.5 max.	ma.
Plate Input	15 max.	watts
Screen Input	2.5 max.	watts
Plate Dissipation	15 max.	watts
Typical Operation:		
D-C Plate Voltage	400	volts
D-C Screen Voltage	250	volts
D-C Grid Voltage †	-50	volts
	1500	ohms
Peak R-F Grid Voltage	58	volts

*, **, □, ○, ∞, †: See end of tabulation.

TRANSMITTING BEAM POWER AMPLIFIER

(continued from preceding page)

Peak A-F Grid Voltage	30	volts
Beam-Forming Plate Voltage **	0	volts
D-C Plate Current	31	ma.
D-C Screen Current	1.5	ma.
D-C Grid Current	1.2 approx.	ma.
Driving Power ∞	0.25 approx.	watt
Power Output	3.8 approx.	watts

PLATE-MODULATED R-F POWER AMPLIFIER – Class C Telephony

Carrier conditions per tube for use with a max. modulation fact. of 1.0

D-C Plate Voltage	325 max.	volts
D-C Screen Voltage (Grid #2)	300 max.	volts
D-C Grid Voltage (Grid #1)	-125 max.	volts
D-C Plate Current	62 max.	ma.
D-C Grid Current	5 max.	ma.
Plate Input	20 max.	watts
Screen Input	2.5 max.	watts
Plate Dissipation	10 max.	watts
Typical Operation:		
D-C Plate Voltage	325	volts
D-C Screen Voltage ♦	285	volts
	5000	ohms
D-C Grid Voltage † □	-50	volts
	18000	ohms
Peak R-F Grid Voltage	70	volts
Beam-Forming Plate Voltage **	0	volts
D-C Plate Current	62	ma.
D-C Screen Current	7.5	ma.
D-C Grid Current	2.8 approx.	ma.
Driving Power	0.18 approx.	watt
Power Output	13 approx.	watts

♦ Obtained from modulated fixed supply or modulated plate-voltage supply through series resistor.
□ Obtained by grid-leak resistor or by partial self-bias methods.

R-F POWER AMPLIFIER & OSCILLATOR – Class C Telegraphy

Key-down conditions per tube without modulation ■

D-C Plate Voltage	400 max.	volts
D-C Screen Voltage (Grid #2)	300 max.	volts
D-C Grid Voltage (Grid #1)	-125 max.	volts
D-C Plate Current	75 max.	ma.
D-C Grid Current	5 max.	ma.
Plate Input	30 max.	watts
Screen Input	3.5 max.	watts
Plate Dissipation	15 max.	watts
Typical Operation:		
D-C Plate Voltage	400	volts
D-C Screen Voltage §	300	volts
	9500	ohms
D-C Grid Voltage † *	-55	volts
	11000	ohms
Peak R-F Grid Voltage	80	volts

**, ∞, †, §, *; See end of tabulation.

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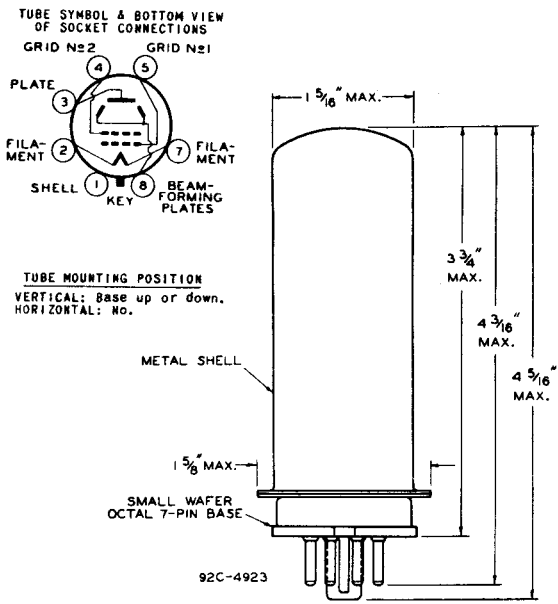
TRANSMITTING BEAM POWER AMPLIFIER

(continued from preceding page)

Beam-Forming Plate Voltage **	0	volts
D-C Plate Current	75	ma.
D-C Screen Current	10.5	ma.
D-C Grid Current	5	approx.ma.
Driving Power	0.36	approx.watt
Power Output	19.5	approx.watts

□ Modulation essentially negative may be used if the positive peak of the audio-frequency envelope does not exceed 115% of the carrier conditions.
o For a-c filament supply. If d.c. is used, the stated voltages should be decreased by 1.75 volts.
† The total effective grid-circuit resistance should not exceed 25000 ohms.
* Averaged over any audio-frequency cycle of sine-wave form.
** Beam-forming plates should be connected to the mid-point of filament operated on a.c., or to negative end of filament when d-c filament supply is used.
∞ At crest of a-f cycle with a modulation factor of 1.0.
§ Obtained from fixed supply or plate-voltage supply through resistor.
# Obtained by grid-leak resistor or other self- or fixed-bias method.
ⓢ With shell connected to cathode.

For use of the 1619 at the higher frequencies, refer to sheet TRANS. TUBE RATINGS vs FREQUENCY.



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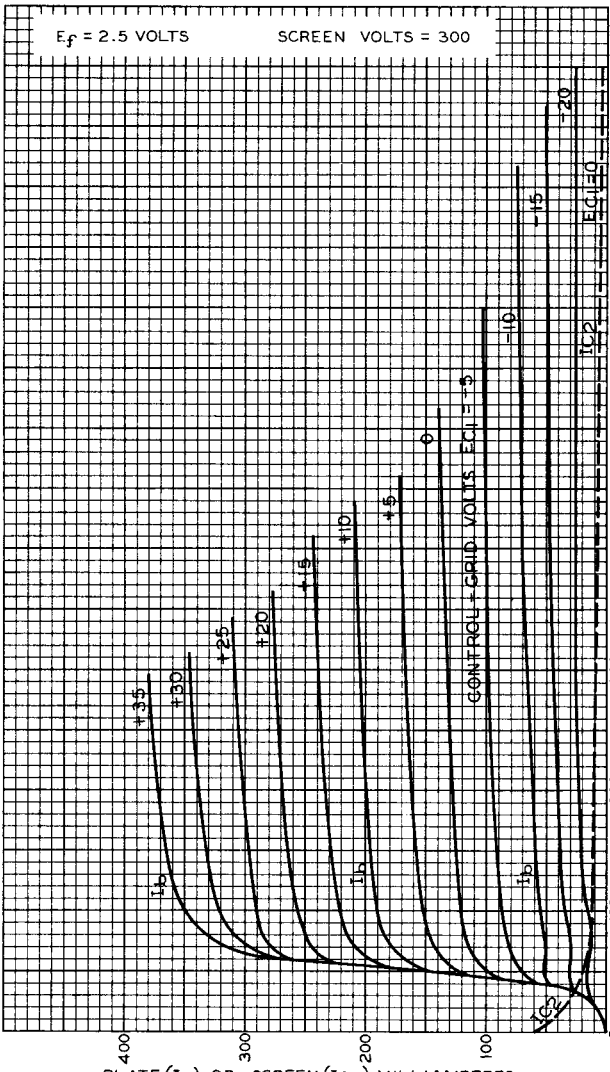
AVERAGE PLATE CHARACTERISTICS



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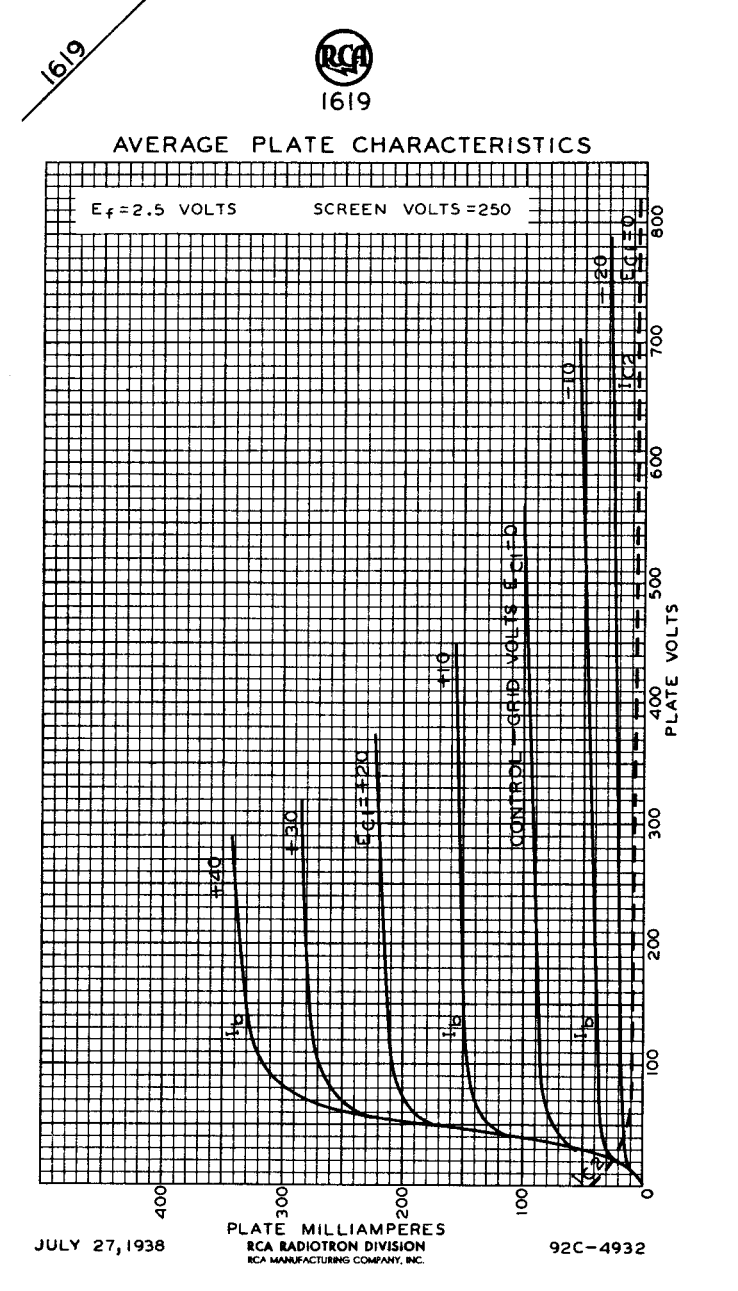

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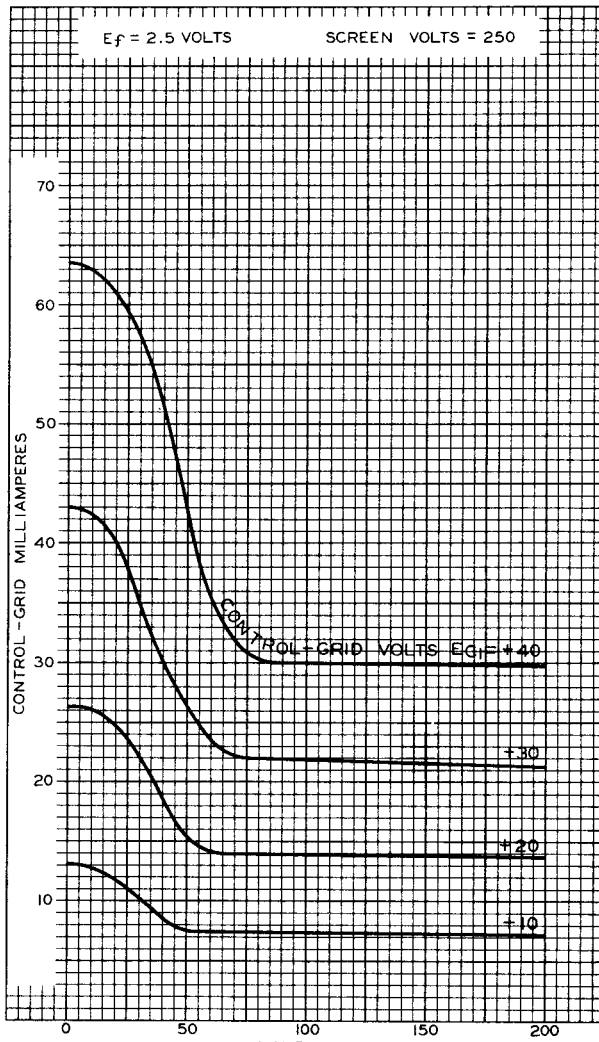
TYPICAL CHARACTERISTICS



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TYPICAL CHARACTERISTICS