

Filament voltage	8.3 volts
Filament current	32.5 amps
Amplification factor	
(G_m/G_{m0})	8.5
Transconductance (Ib=2 amps)	19,000 micromhos
Direct Interelectrode Capacitances	
Grid No. 1 to Plate (max.)	0.35 μmf
Input	23.5 μmf
Output	8.4 μmf
Peak cathode current ¹ (max.)	7 amps

Max. overall dimensions	
Length	6-5/16 inches
Length with water jacket	9 1/4 inches
Diameter	2 3/4 inches
Mounting position	Vertical, anode down
Control Grid Connection	See note ¹

Plate dissipation (kilowatts)	Inlet water temperature ^a (° C)	Min. Water Flow (gal. per min.)	Inlet Pressure (lbs./sq. inch)
1	20	0.65	1.1
1	50	0.8	1.5
2	20	0.65	1.1
2	50	1.25	3.7
3	20	0.8	1.5
3	50	1.8	8

Air Cooling	See note ⁴
Max. Bulb Temperature	250° C
Max. Seal Temperature ¹	180° C

Water Jacket	Amperex #S-3737
Grid Connector	Amperex #S-3706
Filament Connector	Amperex #S-3707
Net Weight—Tube (approx.)	14 oz.
Net Weight—Water Jacket (approx.)	1 lb., 5 oz.

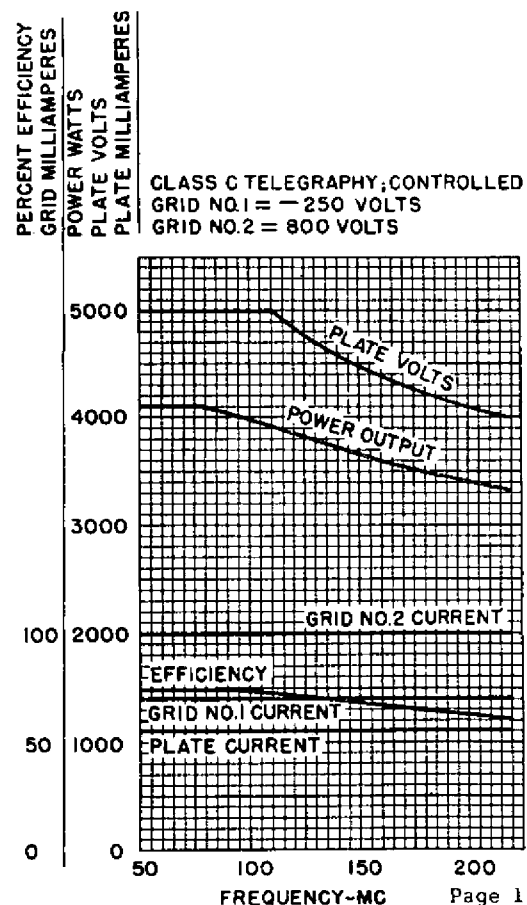
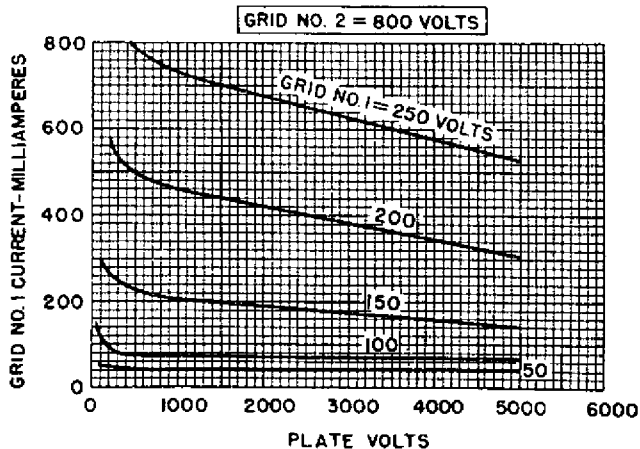
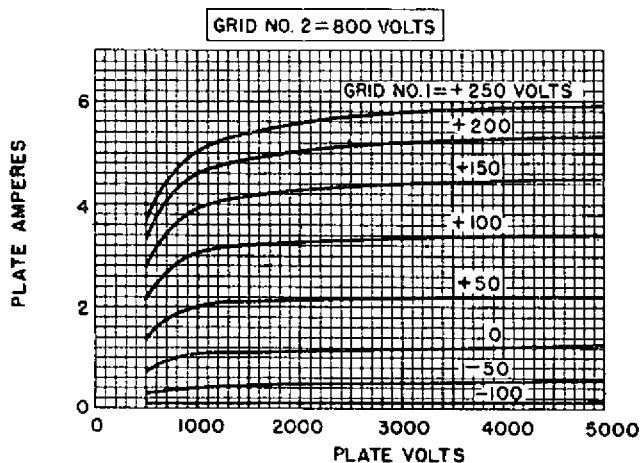


Plate and Screen Grid Modulated, R.F. Power Amplifier—Class C Telephony

Carrier conditions per tube for use with a maximum modulation factor of 1.0.

Maximum Ratings, Absolute Values

(Frequencies up to 110 mc.)

	CCS
D.C. Plate Voltage	4000 max. volts
D.C. Grid No. 2 Voltage	800 max. volts
D.C. Grid No. 1 Voltage	—500 max. volts
D.C. Plate Current	0.9 max. amp
Plate Input	3.7 max. kilowatts
Plate Dissipation	2 max. kilowatts
Grid No. 2 Dissipation	100 max. watts ^a
Grid No. 1 Dissipation	30 max. watts

Typical Operation

(Screen grid supply via a choke of 60 henrys)

	CCS
D.C. Plate Voltage	4000 volts
D.C. Grid No. 2 Voltage	800 volts
D.C. Grid No. 1 Voltage	—375 volts
Peak R.F. Grid No. 1 Voltage	625 volts
D.C. Plate Current	0.9 amp
D.C. Grid No. 2 Current	120 ma
D.C. Grid No. 1 Current	85 ma
Driving Power	48 watts
Power Output	2.7 kilowatts

Push-Pull R.F. Power Amplifier Class C Telephony

Key-down conditions per tube without amplitude modulation^a

Maximum Ratings, Absolute Values

(Frequencies up to 110 mc.)

	CCS
D.C. Plate Voltage	5000 max. volts ^a
D.C. Grid No. 2 Voltage	800 max. volts
D.C. Grid No. 1 Voltage	—500 max. volts
D.C. Plate Current	1.1 max. amps
Plate Input	5.5 max. kilowatts
Plate Dissipation	3 max. kilowatts
Grid No. 2 Dissipation	100 max. watts
Grid No. 1 Dissipation	30 max. watts

Typical Operation

	CCS	CCS	CCS	CCS
Frequency	75	110	75	110 Mc
D.C. Plate Voltage	4000	4000	5000	5000 volts
D.C. Grid No. 2 Voltage	800	800	800	800 volts
D.C. Grid No. 1 Voltage	—250	—250	—250	—250 volts
D.C. Plate Current	1.1	1.1	1.1	1.1 amps
D.C. Grid No. 2 Current	120	120	100	100 ma
D.C. Grid No. 1 Current	80	80	70	70 ma
Peak R.F. Grid No. 1 Voltage	500	500	480	480 volts
Driving Power	36	36	30	30 watts
Power Output	3.15	2.9	4.1	3.9 kilowatts

Grid Modulated R.F. Power Amplifier Class C Television Service

Negative Modulation, Positive Synchronization

Maximum Ratings, Absolute Values

(Frequencies up to 220 mc.)

	CCS
D.C. Plate Voltage	4000 max. volts
D.C. Grid No. 2 Voltage	800 max. volts
D.C. Grid No. 1 Voltage	—500 max. volts
D.C. Plate Current (sync.)	1.5 max. amps
Plate Input (sync.)	6 max. kilowatts
Plate Dissipation (sync.)	3 max. kilowatts
Grid No. 2 Dissipation (sync.)	100 max. watts
Grid No. 1 Dissipation (sync.)	30 max. watts

Typical Operation

Television Service at 170-220 Mc^a

	CCS ^{b, c}	CCS ^{d, e}
D.C. Plate Voltage	4000	4000 volts
D.C. Grid No. 2 Voltage	800	800 volts
D.C. Grid No. 1 Voltage	—150	—150 volts
Synchronization level	—230	—230 volts
Pedestal level	—450	—450 volts
White level	—450	—450 volts
R.F. Grid No. 1 Voltage, peak to peak	850	850 volts ^a
D.C. Plate Current	2.75	2.75 amps
Synchronization level	2.1	1.7 amps
Pedestal level	2.1	1.7 amps
D.C. Grid No. 2 Current	110	250 ma
Synchronization level	50	80 ma
Pedestal level	50	80 ma
D.C. Grid No. 1 Current	100	80 ma
Synchronization level	50	25 ma
Pedestal level	50	25 ma
Driving Power at Synchronization level ^f	300-400	200-300 watts ^g
Power Output		
Synchronization level	5	5.9 kilowatts
Pedestal level	2.8	4.0 kilowatts

R.F. Power Amplifier Class B Television Service

Negative Modulation, Positive Synchronization

Maximum Ratings, Absolute Values

(Frequencies up to 220 mc.)

	CCS
D.C. Plate Voltage	4000 max. volts
D.C. Grid No. 2 Voltage	800 max. volts
D.C. Plate Current (sync.)	1.5 max. amps
Plate Input (sync.)	6 max. kilowatts
Plate Dissipation (sync.)	3 max. kilowatts
Grid No. 2 Dissipation (sync.)	100 max. watts
Grid No. 1 Dissipation (sync.)	30 max. watts

Typical Operation

Television Service at 170-220 Mc^a

	CCS ^b
D.C. Plate Voltage	4000 volts
D.C. Grid No. 2 Voltage	800 volts
D.C. Grid No. 1 Voltage	—150 volts
R.F. Grid No. 1 Voltage, peak to peak	
Synchronization level ^c	850 volts
Pedestal level ^d	700 volts
D.C. Plate Current	
Synchronization level	2.75 amps
Pedestal level	2.1 amps
D.C. Grid No. 2 Current	
Synchronization level	110 ma
Pedestal level	50 ma
D.C. Grid No. 1 Current	
Synchronization level	100 ma
Pedestal level	50 ma
Driving Power at Synchronization level ^e	300-400 watts
Power Output	
Synchronization level	5 kilowatts
Pedestal level	2.8 kilowatts

^aRepresents maximum usable cathode current for any condition of operation.

^bBoth pins must be used to make connection to the control grid.

^cThe maximum permissible value of the inlet temperature is 50° C.

^dTo keep the temperature of the seals below the values as shown above, it may be necessary to direct an air flow of sufficient velocity to the seals. At frequencies below 75 mc. and a plate voltage below 4 kv, this air cooling will, in general, not be necessary (in the case of R.F., Class C plate and screen grid modulation, below 3.2 kv). At a plate voltage of 5 kv, air cooling at all frequencies is necessary.

^eFor all other modulation methods the grid No. 2 dissipation is max. 85 watts.

^fModulation essentially negative may be used if the positive peak of the envelope does not exceed 115 per cent of the carrier conditions.

^gAt 220 Mc the D.C. Plate Voltage 4000 volts max. For other frequencies, see derating curve.

^hValues for two tubes in push-pull.

ⁱMeasured by increasing fixed bias until no grid current flows.

^jWide band: 6.5 Mc bandwidth at 1.5 db or 12 Mc at —3 db.

^kNarrow band: 7.5 Mc bandwidth at 3 db.

^lThe values of bandwidth are based on measurements on a circuit with a single LC-section.

^mDriving Power is accounted for largely by circuit losses. The indicated driving power is required to take care of losses in damping resistors, circuit losses and tube driving power.

ⁿBandwidth: 6.5 Mc at 1.5 db or 12 Mc at 3 db. The values of bandwidth are based on measurements on a circuit with a single LC-section.

