

AMPEREX TRANSMITTING TUBE 220-R

FORCED-AIR COOLED

R.F. Power Amplifier, Oscillator, A.F. Power Amplifier, or Modulator

MAXIMUM RATINGS AND TYPICAL OPERATING CONDITIONS

The following ratings and typical operating conditions assume a minimum air flow of 600 cu. ft. per minute through radiator.

A.F. Power Amplifier and Modulator—Class A

	Maximum Rating per Tube	Typical Operation One Tube
D.C. Filament Voltage	..	20
D.C. Plate Voltage	12500	10000
D.C. Grid Voltage (Approx.)	..	-150
Peak A.F. Grid Voltage	..	150
D.C. Plate Current (amps)	..	0.3
Plate Dissipation (watts)**	3500	3000
Load Resistance (ohms)	..	17500
Power Output (watts)	..	325
Distortion (% Second Harmonic)	..	5

A.F. Power Amplifier and Modulator—Class B

	Maximum Rating per Tube	Typical Operation One Tube	
A.C. Filament Voltage	..	21	21
D.C. Plate Voltage	12500	6000	10000
D.C. Grid Voltage	..	-75	-225
Load Resistance (per tube) (ohms)	..	1200	2500
Effective Load Resistance (Plate to Plate) (ohms)	..	4800	10000
Zero Signal Plate Current (ma.)	..	300	200
Peak A.F. Grid Voltage	..	1540	1750
Max. Signal D.C. Plate Current (amps)	1.5	2.34	2.2
Max. Signal Plate Input (watts)	20000	14000	12000
Plate Dissipation (watts)**	5000	6000*	7200
Recommended Driving Stage Power (watts)	..	500	400
Max. Signal Plate Power Output (watts)	..	8000	15000

R.F. Power Amplifier—Class B—Telephony

(Carrier conditions for use with modulation factor of 1.0)

	Maximum Rating per Tube	Typical Operation One Tube	
A.C. Filament Voltage	..	21.5	21
D.C. Plate Voltage	12500	7500	10000
D.C. Grid Voltage	..	-200	-300
Plate Load Resistance (ohms)	..	2050	3600
Peak R.F. Grid Voltage	..	700	625
D.C. Plate Current (amps)	1	1	.75
Plate Input (watts)	12000	7500	7500
Plate Dissipation (watts)**	6000	5000	5000
D.C. Grid Current (Approx.) (ma.)	..	-10	-7
Driving Power at Peak Modulation (Approx.) (watts)	..	150	50
Plate Power Output (watts)	..	2500	2500
Frequency Limit for Above Operation (mc.)	10
F.C.C. Broadcast Rating (watts)	2500	2500	2500

GENERAL CHARACTERISTICS

Filament Voltage	21.5
Filament Current (amps)	57.0
Amplification Factor	35
Grid to Plate Transconductance at a plate current of 0.64 ampere	5000 micromhos
Direct Interelectrode Capacitances:	
Grid to Plate	22 $\mu\mu\text{f}$
Grid to Filament	15 $\mu\mu\text{f}$
Plate to Filament	1.6 $\mu\mu\text{f}$

Plate Modulated R.F. Power Amplifier Class C—Telephony

(Carrier conditions for use with modulation factor of 1.0)

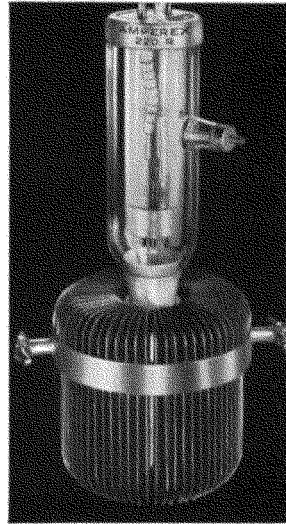
	Maximum Rating per Tube	Typical Operation One Tube
A.C. Filament Voltage	..	21.5
D.C. Plate Voltage	9000	7500
D.C. Grid Voltage	-2000	-700
Plate Load Resistance (ohms)	..	3300
Peak R.F. Grid Voltage	..	1500
D.C. Plate Current (amps)	1.25	1.03
Plate Input (watts)	10000	7700
Plate Dissipation (watts)**	5000	2300
D.C. Grid Current (Approx.) (ma.)	150	60
Driving Power (Approx.) (watts)	..	80
Plate Power Output (watts)	..	5400
Frequency Limit for Above Operation (mc.)	10	..
F.C.C. Broadcast Rating (watts)	5000	5000

R.F. Power Amplifier or Oscillator—Class C Telegraphy

	Maximum Rating per Tube	Typical Operation One Tube
A.C. Filament Voltage	..	21.5
D.C. Plate Voltage	12500	10000
D.C. Grid Voltage	-2000	-500
Plate Load Resistance (ohms)	..	3200
Peak R.F. Grid Voltage	..	1500
D.C. Plate Current (amps)	1.5	1.5
Plate Input (watts)	15000	15000
Plate Dissipation (watts)**	6000	5000
D.C. Grid Current (Approx.) (ma.)	150	50
Driving Power (Approx.) (watts)	..	70
Plate Power Output (watts)	..	10000
Frequency Limit for Above Operation (mc.)	10	15

*Averaged over a cycle of sine-wave form under maximum signal conditions.

**Averaged over any audio-frequency cycle of sine-wave form.



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