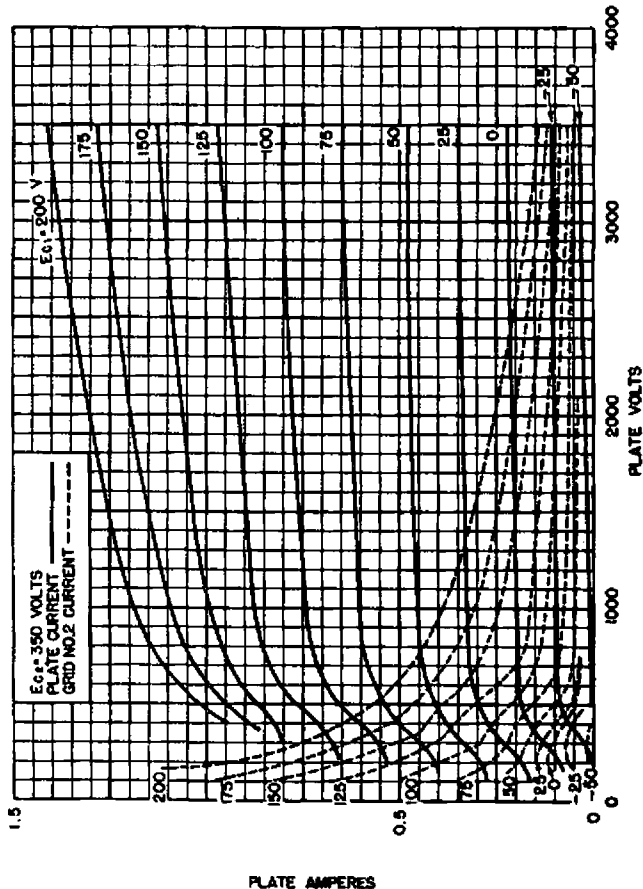
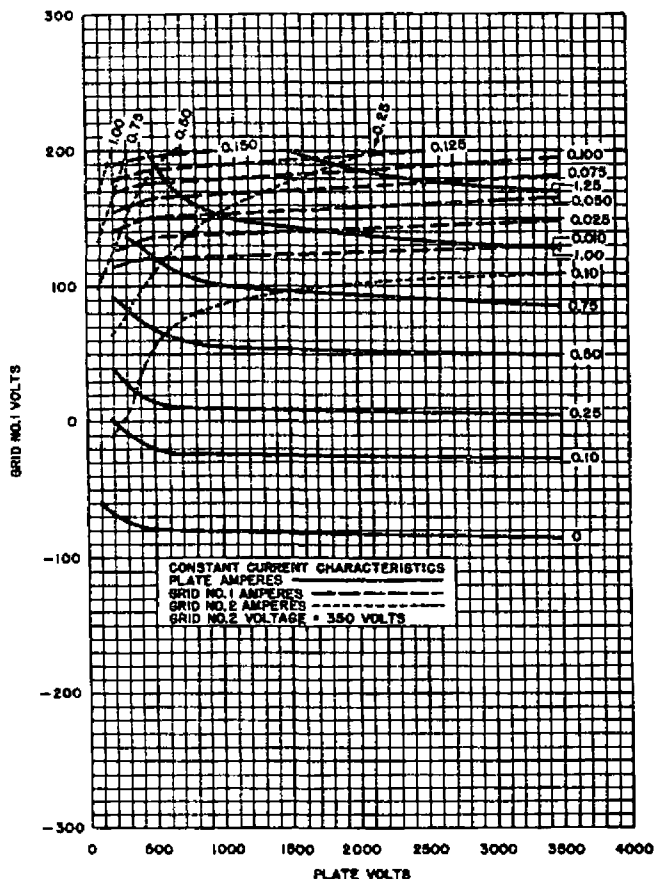
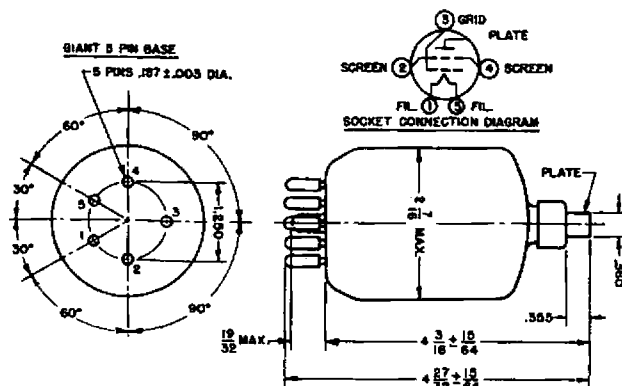
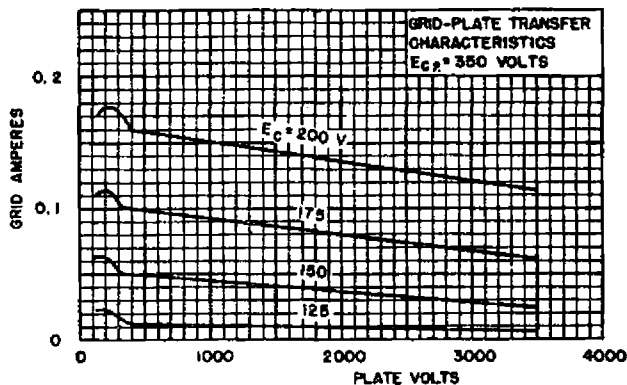


The 6155/4-125-A is a four-electrode tube designed for use as a radio-frequency power amplifier and modulator. The anode is capable of dissipating 125 watts. The cathode is a thoriated-tungsten filament. Maximum ratings apply up to 120 megacycles. At reduced ratings it may be operated up to 200 megacycles.

GENERAL CHARACTERISTICS

Electrical Data	Min.	Bogey	Max.	Mechanical Data
Filament Voltage	4.75	5.0	5.25 volts	Mounting Position - vertical, base up or down
Filament Current at Bogey Voltage	6.0	6.5	7.0 amperes	Maximum Plate Temperature 850° C
Amplification Factor				Required Air Flow to Envelope ² 5 cfm
$G_1 - G_2$ Mu at $E_b = 3000$ volts, $E_{c2} = 400$ volts, $I_p = 50$ ma	5.6	6.2	6.8	Maximum Glass Temperature
Peak Cathode Current ¹	--	--	1600 ma	at bottom seals 180° C
Direct Interelectrode Capacitances				at plate seal 220° C
Grid-Plate	--	0.05	0.07 uuf	Net Weight, approximate 3.5 ounces
Input	9.2	10.8	12.4 uuf	
Output	2.5	3.1	3.5 uuf	

- 1 Represents maximum usable cathode current (plate current plus grid current) for any condition of operation.
- 2 At maximum ratings and frequencies above 50 megacycles, forced-air cooling at the envelope is required.



A.F. Power Amplifier and Modulator Class AB1

Maximum Ratings, Absolute Values	
	CCS
D.C. Plate Voltage	3000 volts max.
D.C. Grid No. 2 Voltage	600 volts max.
D.C. Grid No. 1 Voltage	—500 volts max.
Maximum Signal D.C. Plate Current ¹	225 ma max.
Maximum Signal Plate Input ²	350 watts max.
Maximum Signal Grid No. 2 Input ³	20 watts max.
Plate Dissipation ⁴	125 watts max.

Typical Operation

Unless otherwise specified, values are for two tubes			
	CCS	CCS	CCS
D.C. Plate Voltage	1500	2000	2500 volts
D.C. Grid No. 2 Voltage	600	600	600 volts
D.C. Grid No. 1 Voltage	—94	—95.5	—97 volts
Peak A.F. Grid No. 1 to Grid No. 1 Voltage	185	186	190 volts
Zero Signal D.C. Plate Current	64	60	60 ma
Maximum Signal D.C. Plate Current	218	222	216 ma
Zero Signal D.C. Grid No. 2 Current	0.3	0.2	0.2 ma
Maximum Signal D.C. Grid No. 2 Current	27	24	26 ma
Effective Load Resistance, Plate to Plate	12,000	17,500	25,000 ohms
Maximum Signal Driving Power ⁴	0	0	0 watts
Maximum Signal Power Output	170	260	345 watts

A.F. Power Amplifier and Modulator Class AB2

Maximum Ratings, Absolute Values	
	CCS
D.C. Plate Voltage	3000 volts max.
D.C. Grid No. 2 Voltage	400 volts max.
D.C. Grid No. 1 Voltage	—500 volts max.
Maximum Signal D.C. Plate Current ¹	225 ma max.
Maximum Signal Plate Input ²	500 watts max.
Maximum Signal Grid No. 2 Input ³	20 watts max.
Plate Dissipation ⁴	125 watts max.

Typical Operation

Unless otherwise specified, values are for two tubes			
	CCS	CCS	CCS
D.C. Plate Voltage	1500	2000	2500 volts
D.C. Grid No. 2 Voltage	350	350	350 volts
D.C. Grid No. 1 Voltage	—48	—50	—51 volts
Peak A.F. Grid No. 1 to Grid No. 1 Voltage	330	296	240 volts
Zero Signal D.C. Plate Current	60	60	60 ma
Maximum Signal D.C. Plate Current	455	395	302 ma
Zero Signal D.C. Grid No. 2 Current	0.5	0.3	0.2 ma
Maximum Signal D.C. Grid No. 2 Current	84	64	38 ma
Effective Load Resistance, Plate to Plate	7200	12,000	20,000 ohms
Maximum Signal Driving Power ⁴	4.8	3.2	1.8 watts
Maximum Signal Power Output	455	550	550 watts

R.F. Power Amplifier—Class B

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

Maximum Ratings, Absolute Values

	CCS
D.C. Plate Voltage	3000 volts max.
D.C. Grid No. 2 Voltage	400 volts max.
D.C. Plate Current	135 ma max.
Plate Input	200 watts max.
Grid No. 2 Input	14 watts max.
Plate Dissipation	125 watts max.

Typical Operation

	CCS	CCS	CCS
D.C. Plate Voltage	2000	2500	3000 volts
D.C. Grid No. 2 Voltage	350	350	350 volts
D.C. Grid No. 1 Voltage	—50	—50	—50 volts
Peak R.F. Grid No. 1 Voltage	65	55	50 volts
D.C. Plate Current	83	70	60 ma
D.C. Grid No. 2 Current	1.5	1	1 ma
D.C. Grid No. 1 Current, approximate	1.5	0	0 ma
Driving Power, approximate ¹	0.52	0.44	0.45 watts
Power Output, approximate	54	55	58 watts

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

	CCS
D.C. Plate Voltage	2500 volts max.
D.C. Grid No. 2 Voltage	400 volts max.
D.C. Grid No. 1 Voltage	—500 volts max.
D.C. Plate Current	200 ma max.
D.C. Grid No. 1 Current	15 ma max.
Plate Input	415 watts max.
Grid No. 2 Input	20 watts max.
Plate Dissipation	83 watts max.

Typical Operation

	CCS	CCS
D.C. Plate Voltage	2000	2500 volts
D.C. Grid No. 2 Voltage	350	350 volts
D.C. Grid No. 1 Voltage	—220	—210 volts
Peak A.F. Grid No. 2 Voltage	300	300 volts
Peak R.F. Grid No. 1 Voltage	390	380 volts
D.C. Plate Current	150	152 ma
D.C. Grid No. 2 Current	33	30 ma
D.C. Grid No. 1 Current, approximate	5	4.5 ma
Driving Power, approximate	2	1.7 watts
Power Output, approximate	225	300 watts

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

Key-down conditions per tube without amplitude modulation⁷

Maximum Ratings, Absolute Values	
	CCS
D.C. Plate Voltage	3000 volts max.
D.C. Grid No. 2 Voltage	400 volts max.
D.C. Grid No. 1 Voltage	—500 volts max.
D.C. Plate Current	225 ma max.
D.C. Grid No. 1 Current	15 ma max.
Plate Input	625 watts max.
Grid No. 2 Input	20 watts max.
Plate Dissipation	125 watts max.

Typical Operation

	CCS	CCS	CCS
D.C. Plate Voltage	2000	2500	3000 volts
D.C. Grid No. 2 Voltage	350	350	350 volts
D.C. Grid No. 1 Voltage	—100	—150	—150 volts
Peak R.F. Grid No. 1 Voltage	250	330	300 volts
D.C. Plate Current	200	200	167 ma
D.C. Grid No. 2 Current	50	40	30 ma
D.C. Grid No. 1 Current, approximate	9	9	6.5 ma
Driving Power, approximate	2.4	3.0	2.0 watts
Power Output, approximate	275	375	375 watts

Maximum ratings apply up to 120 megacycles. The tube may be operated at higher frequencies provided the maximum values of plate voltage and power input are reduced according to the tabulation below (other maximum ratings are the same as shown above). Special attention should be given to adequate ventilation of the bulb at these frequencies.

Frequency	120	170	200 megacycles
Percentage of Maximum Rated Plate Input			
Class B	100	95	75 per cent
Class C Plate Telephony	100	90	70 per cent
Class C Telegraphy	100	90	70 per cent
Percentage of Maximum Rated Plate Voltage			
Class B	100	90	70 per cent
Class C Plate Telephony	100	90	67 per cent
Class C Telegraphy	100	75	67 per cent

Electrical Data and Limits

Characteristic	Conditions	Min.	Max.
Grid Voltage	$E_b=500$ V		
	$E_c=350$ V		
	$I_b=800$ ma	$E_c=$ —	180 volts
Grid No. 2 Current	$E_b=500$ V		
	$E_c=350$ V		
	$I_b=800$ ma	$I_c=$ —	400 ma
Grid No. 1 Current	$E_b=500$ V		
	$E_c=350$ V		
	$I_b=800$ ma	$I_c=$ —	100 ma
Plate Current	$E_b=3000$ V		
	$E_c=350$ V		
	$E_b=25$ V	$I_b=$ 71	110 155 ma
Plate Current	$E_b=3000$ V		
	$E_c=350$ V		
	$E_b=45$ V	$I_b=$ 25	45 70 ma
Plate Current	$E_b=3000$ V		
	$E_c=350$ V		
	$E_b=45$ V	$I_b=$ —	6 ma
Grid No. 2 Current	$E_b=3000$ V		
	$E_c=350$ V		
	$E_b=45$ V	$I_c=$ —	6 ma
Power Output	$E_b=3000$ V		
	$E_c=350$ V		
	$E_b=150$ V		
	$I_b=140$ ma		
	$I_c=30$ ma		
	$I_c=9$ ma		
	100 megacycles	Po: 250	— — watts

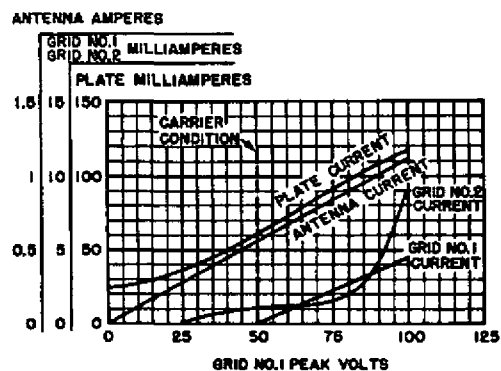
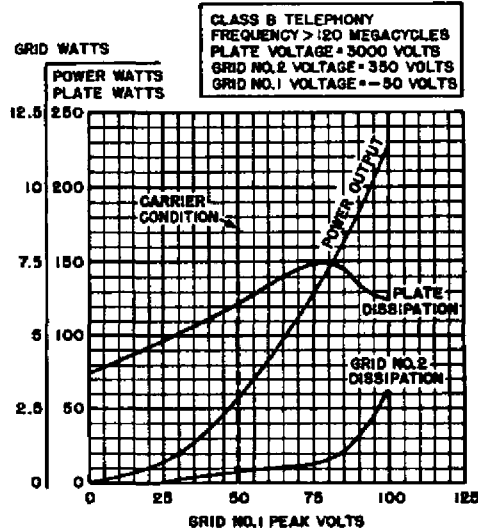
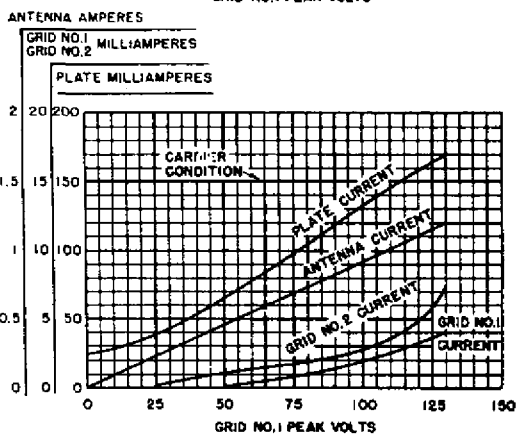
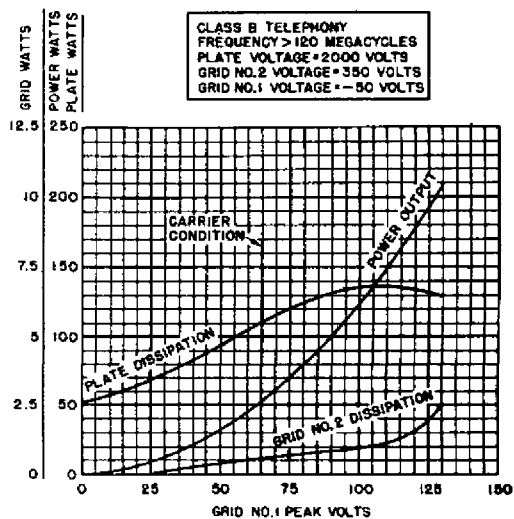
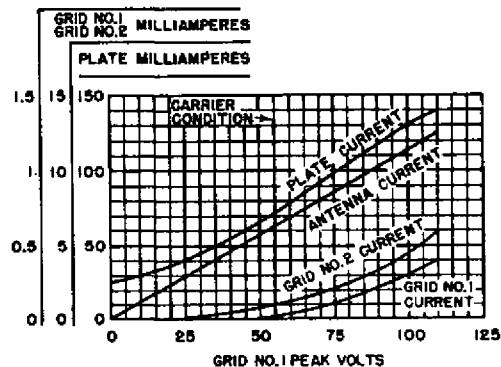
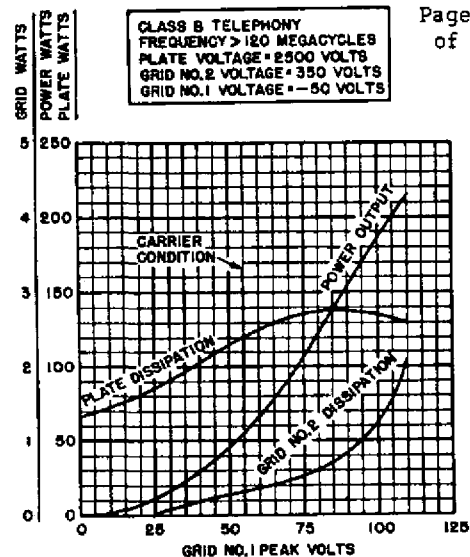
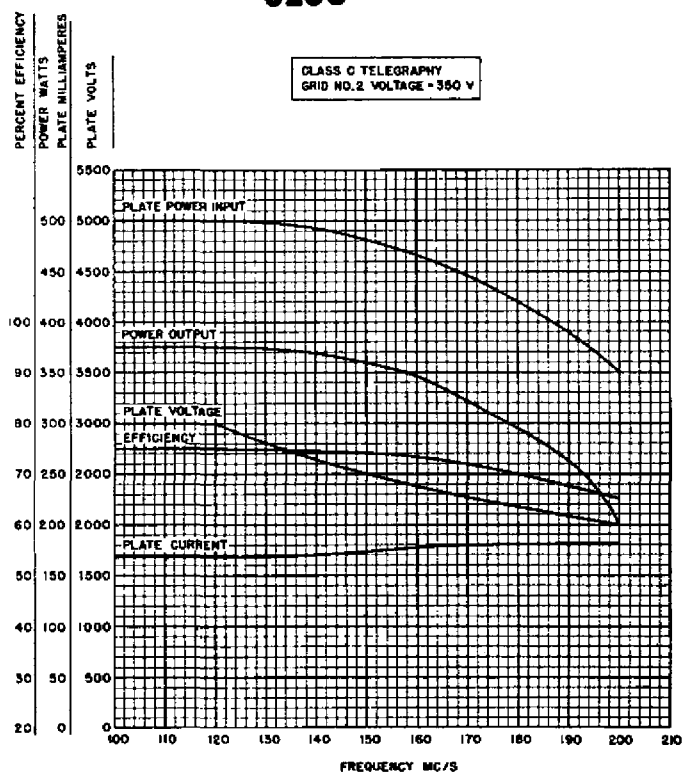
¹Averaged over any audio-frequency cycle of sine-wave form.

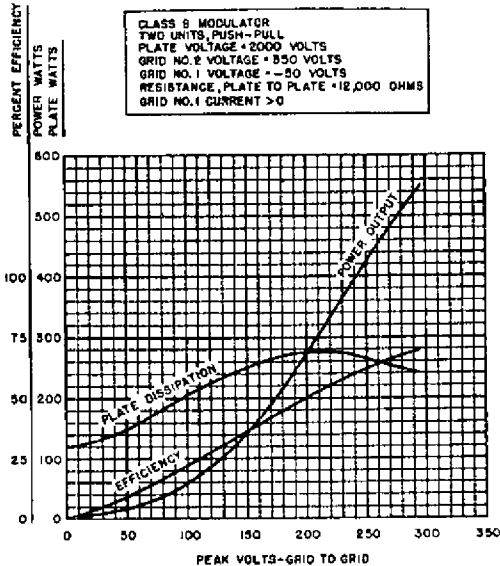
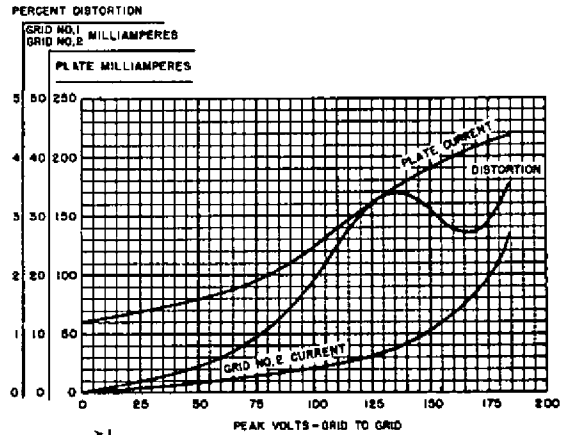
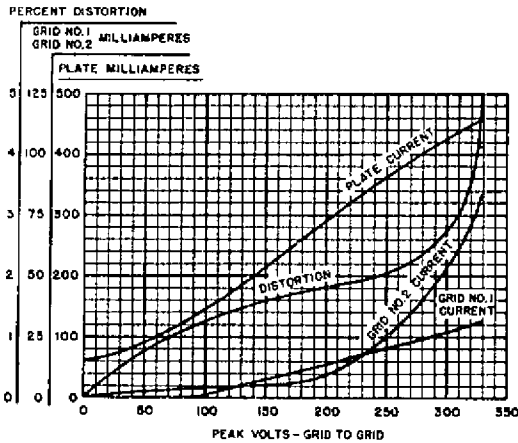
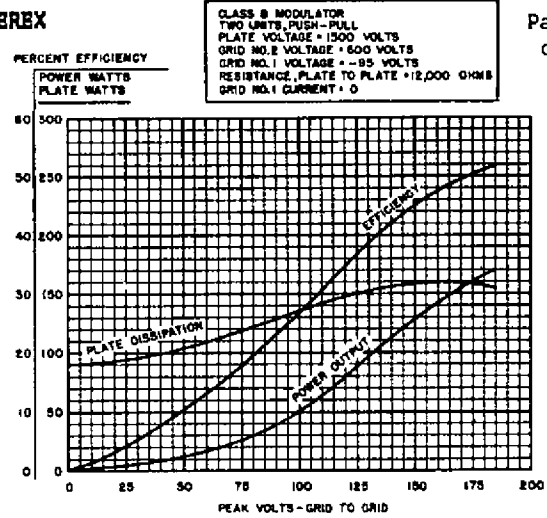
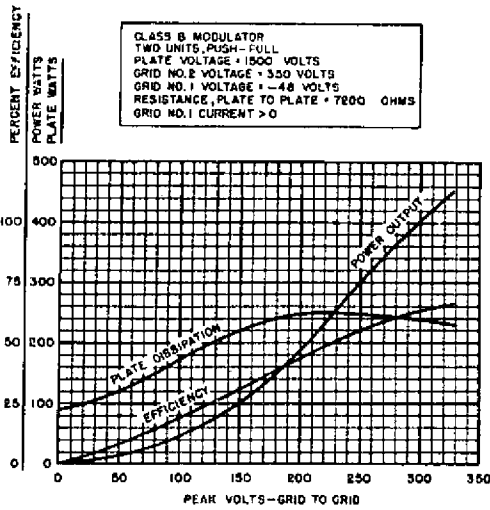
²The effective resistance per grid No. 1 circuit of the class AB1 stage should be kept below 0.15 megohms.

³Driver stage should be capable of supplying the No. 1 grids of the class AB2 stage with the specified driving power at low distortion. When a bias supply is used, the DC resistance of the bias source should not exceed 250 ohms.

⁴At crest of audio-frequency cycle with modulation factor of 1.0.

⁵Modulation essentially negative may be used if the positive peak of the envelope does not exceed 115 per cent of the carrier conditions.





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