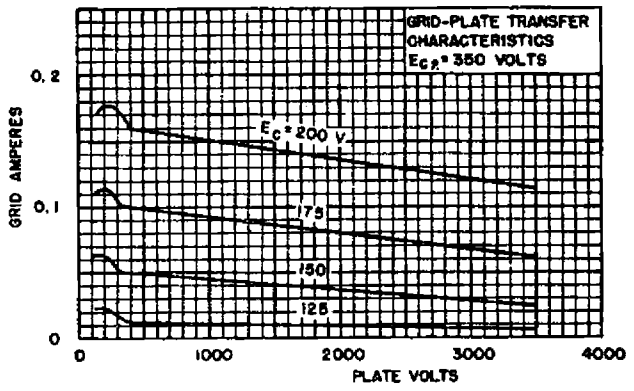
The 6155/4-125-A is a four-electrode tube designed for use as a radio-frequency power amplifier and modulator. The anode is capable of dissipating 125 watts. The cathode is a thoriated-tungsten filament. Maximum ratings apply up to 120 megacycles. At reduced ratings it may be operated up to 200 megacycles.

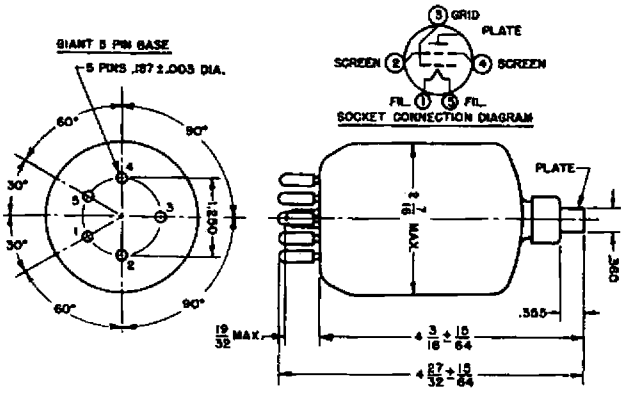
GENERAL CHARACTERISTICS

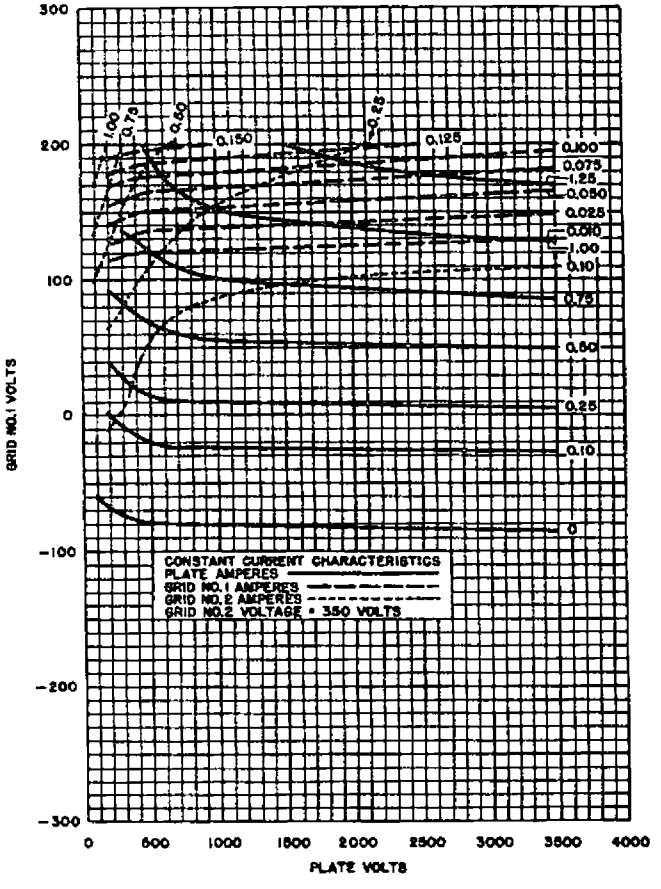
Electrical Data	Min.	Bogey	Max.	
Filament Voltage	4.75	5.0	5.25	volts
Filament Current at Bogey Voltage	6.0	6.5	7.0	amperes
Amplification Factor G_1 -G_2 Mu at Eb = 3000 volts, E_{c_2} = 400 volts, Ib = 50 ma	5.6	6.2	6.8	
Peak Cathode Current[1]	--	--	1600	ma
Direct Interelectrode Capacitances				
Grid-Plate	--	0.05	0.07	uuf
Input	9.2	10.8	12.4	uuf
Output	2.5	3.1	3.5	uuf

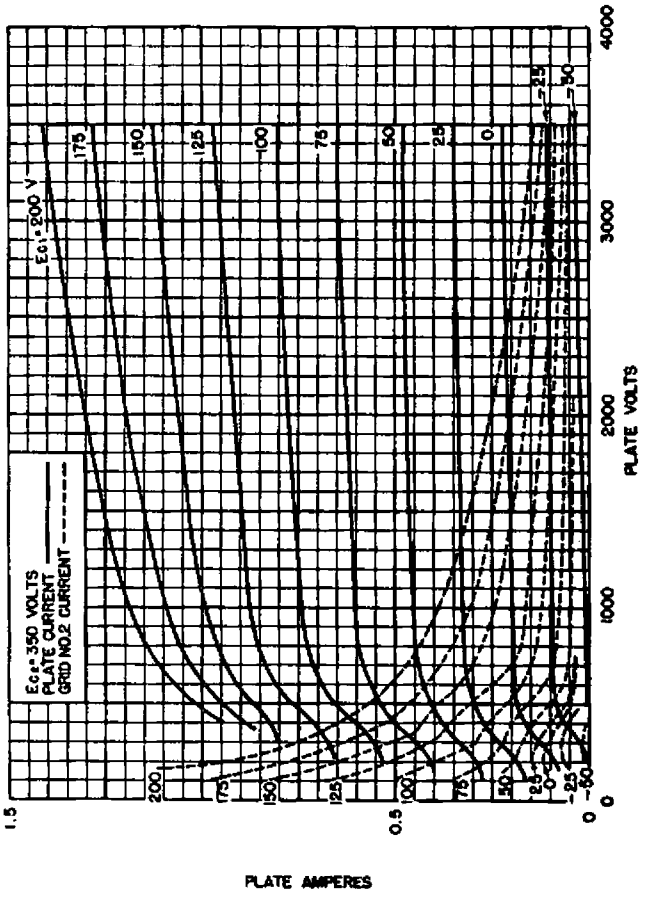
Mechanical Data	
Mounting Position - vertical, base up or down	
Maximum Plate Temperature	850° C
Required Air Flow to Envelope[2]	5 cfm
Maximum Glass Temperature	
at bottom seals	180° C
at plate seal	220° C
Net Weight, approximate	3.5 ounces

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[2]	225	ma max.
Maximum Signal Plate Input[3]	350	watts max.
Maximum Signal Grid No. 2 Input[3]	20	watts max.
Plate Dissipation[3]	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	17,600	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[5]	225	ma max.
Maximum Signal Plate Input[3]	500	watts max.
Maximum Signal Grid No. 2 Input[3]	20	watts max.
Plate Dissipation[3]	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	36	ma
Effective Load Resistance, Plate to Plate	7200	12,000	20,000	ohms
Maximum Signal Driving Power[5]	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[6]	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	80	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 modulation[7]

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	260	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	85	75 per cent
Class C Plate Telephony	100	80	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	Limits Min.	Bogey	Max.	
Grid Voltage	Eb=500 V				
	Ec₂=350 V				
	Ib=800 ma	Ec₁: —	—	180	volts
Grid No. 2 Current	Eb=500 V				
	Ec₂=350 V				
	Ib=800 ma	Ic₂: —	—	400	ma
Grid No. 1 Current	Eb=500 V				
	Ec₂=350 V				
	Ib=800 ma	Ic₁: —	—	100	ma
Plate Current	Eb=3000 V				
	Ec₂=350 V				
	Ec₁=—25 V	Ib: 71	110	155	ma
Plate Current	Eb=3000 V				
	Ec₂=350 V				
	Ec₁=—45 V	Ib: 25	45	70	ma
Plate Current	Eb=3000 V				
	Ec₂=350 V				
	Ec₁=—85 V	Ib: —	—	6	ma
Grid No. 2 Current	Eb=3000 V				
	Ec₂=350 V				
	Ec₁=—45 V	Ic₂: —	—	6	ma
Power Output	Eb=3000 V				
	Ec₂=350 V				
	Ec₁=—150 V				
	Ib=140 ma				
	Ic₂=30 ma				
	Ic₁=9 ma				
	f=80 megacycles	Po: 250	—	—	watts

[2] Averaged over any audio-frequency cycle of sine-wave form.

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

[4] Driver 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.

[5] At crest of audio-frequency cycle with modulation factor of 1.0.

[6] Modulation 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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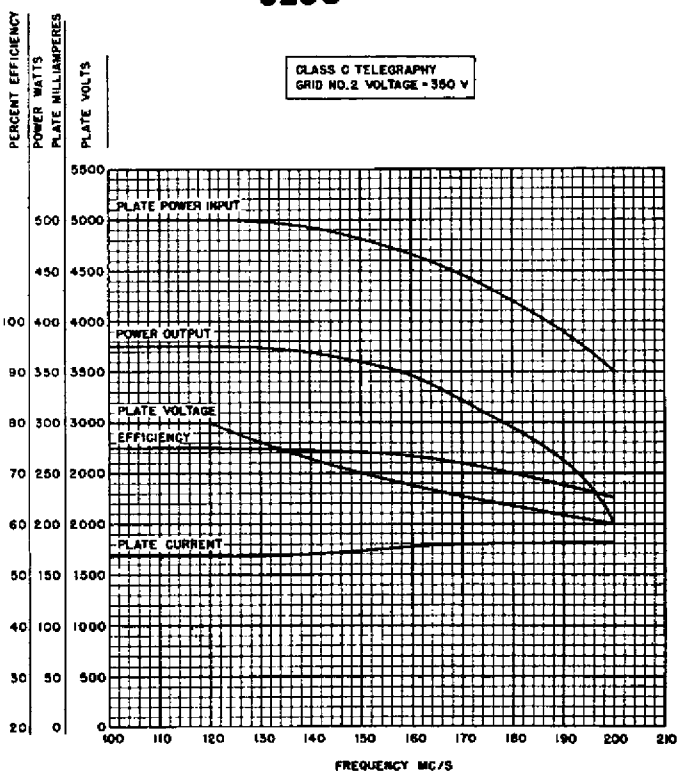

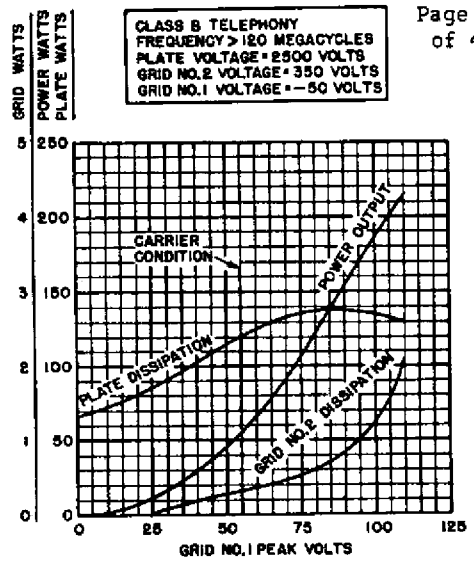

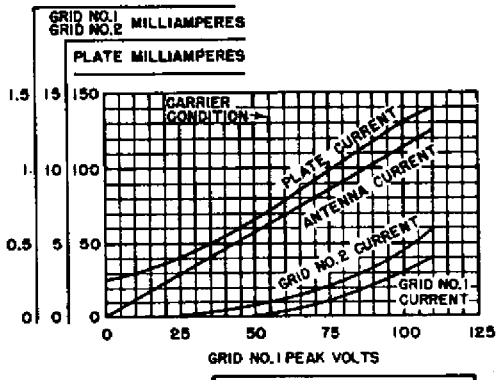

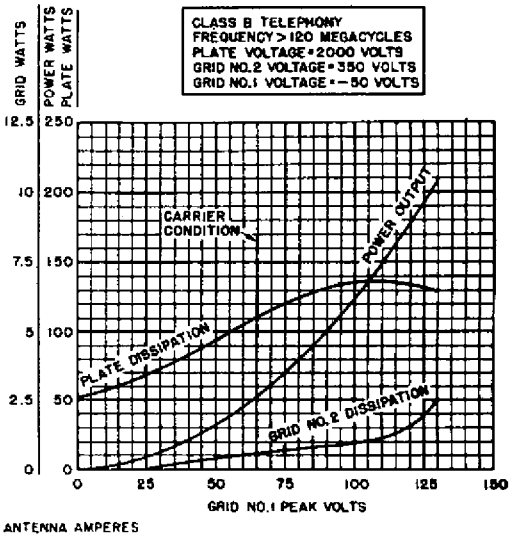

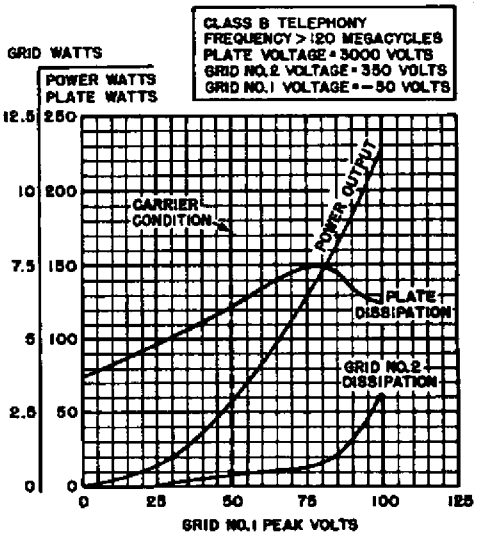

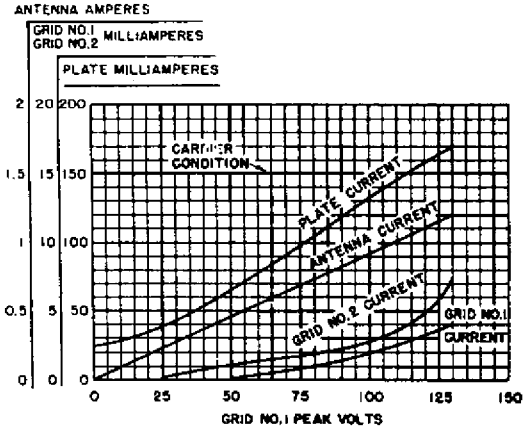

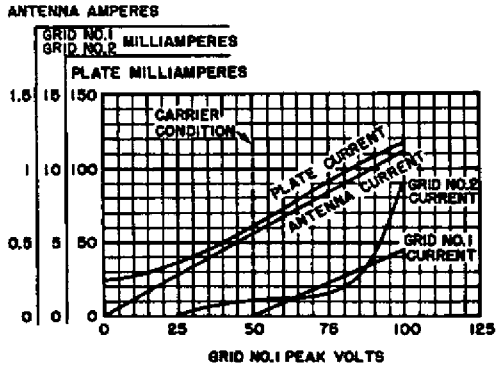

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