

Transmitting Ratings on Receiving Tubes

Newly-Released Data on the More Popular Types

THERE is hardly an amateur transmitter in existence that does not have one or more receiving-type tubes somewhere in the r.f. line-up, tubes that were built and carry ratings only for audio service. Fortunately, they're cheap, so we haven't paid too much for the knowledge of what they'll stand in individual cases. But a manufacturer always has lots more tubes and facilities for finding out their limitations than we amateurs have, so it's nice to have the accompanying set of ratings on some of the more popular types. Furnished by RCA, it should be understood to apply primarily to tubes of RCA manufacture, but despite the manufacturing differences between tubes of different brands it is probable that these ratings will apply pretty closely to others as well.

In using the data, please note that these are *maximum ratings*, not operating conditions. You can use any operating conditions you please so long as no one of the maximum ratings is exceeded. Also note that the ratings appear conservative in the light of what some hams do to tubes, but the point is that the tubes will stand up under these ratings — and it won't be neces-

sary to go through a half-dozen of them before finding one that will. Also (commercial please note), these are ratings specified for *amateur use only*.

The tubes listed in the table are ones frequently used as multipliers in excitors. It must be remembered that in frequency-multiplier service the plate efficiency is considerably lower than in straight-through amplification, and appropriate allowance for this reduction in efficiency must be made in determining permissible operating conditions. As a first approximation, assume an efficiency of 70 per cent for straight-through amplification, 50 per cent for doubling, and 33 per cent for tripling.

The maximum frequency limit should be observed in each case. RCA says that the octal-based types are usable in the six-meter band and the miniatures will work at 144 Mc., but for frequencies higher than those listed in the table all ratings should be reduced by 20 per cent. The ratings are based on nonmodulated service, and if the tubes are to be 100-per-cent amplitude-modulated a 20-per-cent reduction of all ratings is likewise in order.

Amateur Transmitting Ratings for Receiving Tubes

Type	6AG7	6AK6	6AQ5	6C4	6F6	6L6	6N7	6V6GT	12AU7
Max. plate-supply volts	375	375	350	350	400	400	350	350	350
Max. screen-grid volts	250	250	250	—	275	300	—	250	—
Max. control-grid volts	-75	-100	-100	-100	-100	-125	-100	-100	-100
Max. plate milliamperes	30	15	47	25	50	100	30	47	12
							(per plate)		(per plate)
Max. screen-grid milliamperes.	9	4	7	—	11	12	—	7	—
Max. control-grid milliamperes ¹	5.0	3.0	5.0	8.0	5.0	5.0	5.0	5.0	3.5
							(per grid)		(per grid)
Max. plate dissipation, watts . .	9.0	3.5	8.0	5.0	12.5	21	5.5	8.0	2.75
							(per plate)		(per plate)
Max. screen-grid dissipation, watts	1.5	1.0	2.0	—	3.0	3.5	—	2.0	—
Power output, watts ²	7.5	4.0	11.0	5.5	14	28	14.5	11.0	6.0
							(total)		(total)
Maximum frequency, Mc. ³ . . .	10	54	54	54	10	10	10	10	54
Approx. amp. factor for grid-bias calculations ⁴	22	9.5	10	18	7	8	35	9	18
Capacitances (μ fd.):									
Grid-plate (max.)	0.06	0.12	0.35	1.6	0.2	0.4	—	0.7	1.5
Input	13	3.6	7.6	1.8	6.5	10	—	9.5	1.6
Output	7.5	4.2	6.0	1.3	13	12	—	7.5	0.5

¹ Maximum value of grid resistor, 0.1 megohm.

² Power output based on plate-circuit efficiency of 70%.

³ Maximum frequency for full power input and output.

⁴ For pentodes this is the screen-grid amplification factor.