

VALVE REVIEWS

Hivac PX230 S.W.

THE Hivac PX230 S.W. is a battery power valve modified for ultra short wave working manufactured by *The High Vacuum Valve Co., Ltd.* The valve is a triode fitted with a 4-pin ceramic base, and has the grid brought out to a push-on type top cap.

Characteristics.	Makers.	Measured Sample.
Filament volts ...	2.0	2.0
" current (amps.) ...	0.3	0.30
Anode volts ...	150	150
Mutual conductance ...	3.5†	3.75† 1.77 *
Amplification factor ...	6.5†	7.08† 6.60 *
Impedance (ohms) ...	1850†	1900† 3800 *
Optimum load (ohms) ...	4000	Not measured
Power output (watts) ...	0.45	" "
†Taken at anode volts 100, grid volts 0.	150	" -15.

Characteristic Curve

The sample was found to agree quite closely with the makers' published curve, except that the grid base was somewhat shorter, cut off being at -20 volts compared with -25 volts; this difference is of no consequence. The valve was found to be quite hard, no trace of gas being measurable after running for 15 minutes at maximum conditions.

Inter-electrode Capacities

Grid—all other electrodes ...	8.5 $\mu\mu\text{F}$
Anode " " ...	10.0 "
Grid—anode ...	6.5 "

The valve is primarily designed as an output triode for battery receivers, for which purpose it would appear quite satisfactory, the S/W version reviewed is suitable for use in 56 Mc. receivers and for the low power stages of a 56 Mc. transmitter. In the latter connection a unit for a 56 Mc. transmitter employing three of these valves was described in the April BULLETIN.

Hivac D210 S.W.

The Hivac D210 S.W. is a battery detector valve modified for use on ultra short waves. The valve is a triode and is fitted with a 4-pin ceramic base. The grid is brought out to a push-on type top cap; the bulb is metallised.

Characteristics.	Makers.	Measured Sample.
Filament volts ...	2.0	2.0
Filament current (amps.) ...	0.1	0.11
Anode volts (max.) ...	150	150
Mutual conductance ...	1.35†	1.75† 1.64 *

Amplification factor ...	16†	19.2†	18.0 *
Impedance (ohms) ...	12,000†	11,300†	11,500 *
†Measured at anode volts 100, grid volts 0.			
" " " "	150,	"	-3.

Characteristic Curve

The sample was found to agree closely with the makers' published curve, except that the slope was slightly higher.

Inter-electrode Capacities

Anode—all other electrodes ...	5.0 $\mu\mu\text{F}$
Grid— " " " ...	5.5 "

The valve is designed as a high-efficiency detector suitable for use on short waves and 56 Mc. receivers. The valve on test appeared to be quite free from any microphonicity.

Hivac SG220 S.W.

The Hivac SG220 S.W. is a battery screen grid valve modified for use on ultra short waves. The valve is fitted with a 4-pin ceramic base and has the control grid connected to a push-on type top cap; the bulb is metallised.

Characteristics.	Makers.	Measured Sample.
Filament volts ...	2.0	2.0
Filament current (amps.) ...	0.2	0.205
Anode volts (max.) ...	150	150
Screen volts (max.) ...	80	80
Mutual conductance ...	1.5†	2.1† 1.45 *
Amplification factor ...	500†	665† 840 *
Impedance (ohms) ...	330,000†	310,000† 580,000 *
Anode current (ma) ...	—	4.9† 2.0 *
Screen current (ma) ...	—	0.9† 0.35 *

†Measured at anode volts 150, screen volts 70, grid volts 0.

*Measured at anode volts 150, screen volts 80, grid volts -1.5.

Characteristic Curve

The sample was found to agree with the makers' published curve, except that the mutual conductance was rather higher, which is, of course, an advantage.

Inter-electrode Capacities

Grid—all other electrodes ...	7.0 $\mu\mu\text{F}$
Anode— " " " ...	12.0 "
Grid anode ...	not measured

The valve has characteristics entirely suitable for use as an R.F. amplifier in ultra short wave receivers or as a S.G. detector. The valve should perform in a most satisfactory manner for either purpose.