

## ► Tube Imp Update

By Charles Hansen

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Price: £299 U.K.

Net weight with carrying case: 4.4 lbs (2kg)

Available online at <http://store.securehosting.com/stores/sh204131/shophome.php?itemprcd=tubeimp>

Following our first review of the Tube Imp Mini Tester<sup>1</sup>, British Audio Products sent an updated version of the Tube Imp for follow-up evaluation. I am happy to report that the modified unit produced results closer to those I obtained with the Audiomatrica Sofia. As of this writing, there was no word on the availability of updates for existing Tube Imp owners.

### MEASUREMENTS

I used the exact same vintage Mullard ECC83 as last time, checking the gain and transconductance using the tube for the two Class A amplifier conditions specified in the RCA Receiving Tube Manual RC-30. As before, I set the specified plate voltage and then adjusted the grid voltage to produce the specified cathode current. For the second Class A amplifier condition I needed to use  $V_a = 200V$  DC rather

than the 250V DC specified in the RCA manual due to the  $V_a$  limitation of the Tube Imp. I compared them to the same data points from the plate curve data file I ran on the Audiomatrica Sofia.

The results of these tests on section 1 of my Mullard ECC83 are shown in **Tables 1** and **2**. I included the earlier Tube Imp test data for reference. The Sofia displays  $\mu$ , gm, and  $R_p$  directly along with plate current  $I_a$ . The Tube Imp measures gain ( $\mu$ ), mA/V (gm), and cathode current ( $I_k$ ), so I calculated  $R_p$  from the formula  $R_p = \mu/gm$ .

### CONCLUSION

The revised Tube Imp understated the gain by only 6% for the  $V_a = 100V$  test in comparison to the Sofia, and 10% for the  $V_a = 200V$  test. The gm was only

3% low in the first test and 7% low in the second test.

The revised Tube Imp now produces better absolute values of  $\mu$  and gm than the first review sample. I can also now read gm with a resolution of two decimal places rather than one.

### REFERENCE

1. "Review: Tube Imp Mini Tester," Hansen, C., *aX*, pp. 33-35, May 2007.

*We believe it is appropriate to congratulate this British company for their traditional quality of response to critical reviews, in sharp contrast to some US manufacturers who behave petulantly in aggrieved fashion when responding to such review criticism.—E.T.D.*

**TABLE 1 Measurements, Mullard ECC83 section 1**

RC-30 Class A: $V_a = 100V$ , $V_g = -1V$ $I_a = 0.5mA$				
Parameter	Data Book	Sofia	Tube Imp 5/07	Revised Tube Imp
$\mu$	100	95.2	72.4	89.4
gm (mA/V)	1.3	1.17	1.3	1.14
$R_p$ k $\Omega$	80	81.2	55.7 (calc)	78.4 (calc)
Note 1: $R_p$ calculated from $R_p = \mu/gm$ for Tube Imp				

**TABLE 2 Measurements, Mullard ECC83 section 1**

RC-30 Class A: $V_a = 200V$ , $V_g = -2V$ $I_a = 1.2mA$				
Parameter	Data Book	Sofia	Tube Imp 5/07	Revised Tube Imp
$\mu$	100	98.1	72.1	88.2
gm (mA/V)	1.6	1.64	1.2	1.53
$R_p$ k $\Omega$	62.5	59.8	58.1 (calc)	57.6 (calc)
Note 1: $R_p$ calculated from $R_p = \mu/gm$ for Tube Imp				
Note 2: $V_a$ held to 200V due to $V_a$ limit of Tube Imp				