Sky digibox RF2 checker

The ability to check the power output from a digibox's RF2 socket is a great help both in the field and on the bench. This simple checker has been designed by Michael Dranfield

There's a saying that the simplest ideas are the best. This project couldn't be simpler – there are just five components plus a case and a coaxial socket. It can be built for a couple of pounds, and you will wonder how you ever managed without it!

The problem

It all started a couple of weeks ago when I repaired an Amstrad DRX100 digibox for a customer. He collected the box but, later in the day, phoned to say that he couldn't change channels in the back room with his Sky Digilink. My first thought was that he had got the RF leads crossed over, as only the RF2 socket has power for the Digilink. I tried to explain what to do over the phone, but he didn't seem to understand and insisted that I paid him a visit to sort out the problem. He mentioned that the problem wasn't present when he brought his digibox to the shop.

When I made the two-mile trip to his home I discovered that the RF1 and RF2 leads were in the correct positions and that the red LED on the remote Sky Digilink was not alight. As I had assumed I was calling round only to swap over the RF leads, I had neither tools nor a multimeter with me.

I tried plugging the Digilink directly into the back of the digibox. The LED then lit up, and the digilink worked correctly. So, with no multimeter, I decided that the only thing I could do was to retighten the coaxial plugs at each end of the cable and hope for the best. Hey presto, the fault had been cured. In the eyes of the customer it was all down to me anyway!

The solution

While I was driving back to the shop it occurred to me that it would be helpful to have a handy little pocket-sized tester to carry around, one that could be used to check for power at a digibox's RF2 outlet and also at the end of the remote cable run. Loss of power at the RF2 socket is common with the Panasonic digibox Model TU-DSB30, caused by failure of a chip. So a plug in tester would also be useful on the bench.

Most digiboxes provide a 9V, 50-75mA supply at the RF2 outlet. A simple LED would be no good for testing, as LEDs will light up at down to 2V. In the end I decided to use a single transistor with a 7.5V zener diode in series with its base, see Fig. 1. This ensures that the LED will not light unless the voltage at the RF2 socket exceeds 8V. In addition any poor connections in the cable run will add resistance and reduce the voltage available at the end. The tester is a lot more convenient than fiddling around with a multimeter.

Use of such a large LED might seem to be a bit odd. It was chosen for its high current consumption of 20-25mA. This ensures that, when tested, the RF2 output is loaded. The large LED also serves well as a means of demonstrating to a customer how to turn on/off the RF2 voltage in the installation menu. I always show this to customers who buy a Sky Digilink from me – it saves call-backs later.

Construction

Construction and layout of the unit are in no way critical. Almost any 100mA npn transistor can be used. I used a BC142 simply because I had a drawer full of them. The small piece of Veroboard also serves to hold the LED on to the box.
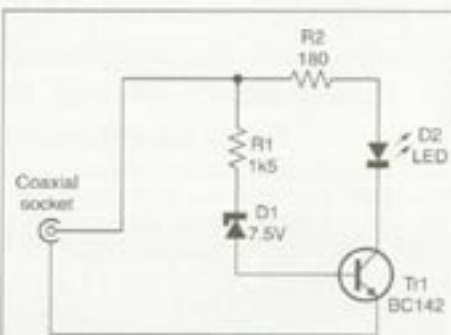

Fig. 1: The digibox RF2 power tester circuit. The LED is a 20mm type from Farnell, order code 637-002. The unit was housed in a case from Farnell, order code 645-680.

Internal view of the digibox RF2 checker