# 1 RMK Testing Results

## 1.1 December Testing

During December 2009, Tess and I did some preliminary testing of the RMK problem. The only results of this was a confirmation that "something was wrong". I got several data line captures showing both good and bad attempts at downloading a Spectra IV from a PC/Palm.

From the December testing we were able to draw the following conclusions:

1. The voltage levels from several USB/RS-232 converters were within specification.
2. Examining the serial output of the USB/RS-232 converter reveled that the timing of the signals was OK.
3. Through use of an internal data tap on the serial input circuits in the Spectra IV, we were able to verify that the Spectra IV receiver/driver chips were operating correctly.
4. The "problem" could be reproduced with quite short messages. The download messages are over 100 bytes in length. We were able to get failures with seven byte messages.

At this point I had to return to working on the Esprit 35X release.

## 1.2 RMK Testing Resumption in March

With a successful release of the Esprit software Annie and I (Tess was no longer with us) started to examine the RMK problem again.

At this point we had several USB/RS-232 converters which were "lettered" to help in identifying them:

1. **A**: A small USB/RS-232 converter with an install CD. Supplied by Steve Harris. The only model number is on the package and it is "ADL-USB-D9MS".
2. **B**: A similar to **A** USB/RS-232 converter with an install CD. This was found in Tess's old office. The only model number is on the package and it is "SBT-USC1M".
3. **C**: A Belkin USB/RS-232 converter with an install CD. It was found in Tess's office. The closest to a model number comes from the CD and it is "P73754-B F5U409-CU F5U109". The other model number might be "USB/Serial Portable Adapter".
4. **D**: A MicroInnovations USB/RS-232 converter, no CD or instructions. It was found in Tess's office. According to Steve Harris, it has the best reputation for being able to download with. No obvious model number is available.
5. **E**: An unknown USB/RS-232 converter with no CD or instructions. It was fond in Tess's office. There is no indicated manufacturer or model number.
6. **F**: An IO gear 2 port USB/RS-232 converter with an install CD. Eric brought this in from home. It is model number"GUC2322" and is made by "IO Gear". Craig Hannen used it with communicating to some hardware from Colorado. No other of our USB/RS-232 converters worked with the Colorado equipment.

[1] `$Header: d:/0rmk/RCS/test.tex,v 1.17 2010-03-23 13:28:00-08 Hamilton Exp Hamilton $`
[4] `tocdepth = 4`
[5] `$Header: d:/0rmk/RCS/results.inc,v 1.1 2010-03-23 13:45:33-08 Hamilton Exp Hamilton $`

7. **G**: A small USB/RS-232 converter with an install CD. Is very similar to **A**. Eric bought it some time ago from a "CompUSA" going out of business sale. Model number is "Item # 60466".

8. **H**: This is identical to item **C** above which Eric brought from home. It has an install CD. At one point Siva used it for working with Linux and Windows on his system. He said that none of the other units worked at all.

9. **I**: A small USB/RS-232 converter with an install CD. It is very similar to item **A** above. Eric brought it from home for this testing. It is made by "IO Gear", the same manufacturer as item **F**. It is model number "Model GUC232A".

## 1.3 Results of RMK Testing Resumption

Annie carefully examined the Spectra IV source code and made several modifications for testing. We were able to get a successful download when we reduced the download speed to 57600 baud from the standard 115200 baud download speed. This testing was done with USB/RS-232 adapter **D**. (It did have the best reputation at test start.)

While Annie was working with the Spectra IV software, I started to look at the PC Version of the Downloader software. It took awhile but I finally found some apparent bugs. When the "first level" bugs were fixed, Annie and I could:

1. Download and PTZ functions were normal with USB/RS-232 converters: **B**, **D** and **E**.

2. We could get good PTZ control with USB/RS-232 converters **C** and **H**. But could not get a download to work.

3. USB/RS-232 Converters **A**, **H** and **I** just plain "didn't work" for any thing.

4. And USB/RS-232 converter **G** won the grand prize when it locked the computer up so badly that we had to reboot once and got the "blue screen of death" once.

## 1.4 Summary

1. USB/RS-232 converters **A**, **B**, **G** and **I**, appear to be physically identical, but have the widest range of operation. Some of them work with no reservations and one of them crashes the computer.

2. Looks do not determine the quality of operation and successful working on one project does not guarantee successful operation in a downloader application.

3. Two of the best units had no installation CD nor instructions and in one case it was impossible to determine the manufacturer's name.

   With the "easy" bug fixes in the downloader software, there should be no problems when using a "suitable" USB/RS-232 converter. It may be necessary to test each converter prior to shipping them to a customer.

4. No effort was made in testing non-PC compute platforms.

5. The PC version of the downloader has several internal problems that should be fixed. The most important of these problems relate to the human interface (GUI). At times it gets very frustrating attempting to determine what is going on when anything other than perfect conditions exist.