

Using Digital POP on the AT2500

September 2011



Introduction

FCC proof seasons can be a stressful time of the year, and the addition of digital proof testing has not made life any easier. The AT2500 spectrum analyzer with the AT-Web option are the tools needed to help alleviate this stress. The analyzer is not only capable of making all the required analog measurements, but perform all of the required SCTE-40 digital tests. It takes some preparation, but managing your Digital POP can be relatively easy utilizing the procedures outlined here. This application note will go through in detail how to create a digital POP report. This will include building a channel plan using the system editor, uploading that information into ATWebRemote, and then generating a report in an Excel® spreadsheet.

When using the AT-Web option on your AT2500, keep in mind that all of the channel plans and all of the results of the tests are created from/stored on your PC. This eliminates the need to worry about transferring data from the AT2500 to your PC after the test is complete. One mouse click places the test results on your PC immediately. The necessary IP connection can either be made remotely, or can be accomplished with a simple Ethernet cross-over cable between the instrument and PC.

Before starting your Digital Proof testing, please visit our website, www.sunrisetelecom.com, to make sure you have the latest firmware version on your instrument.

Procedures for Digital POP Testing

Building A Channel Plan Using The System Editor

1. The first step in a successful digital proof is to build a channel plan for your system using the System Editor software. If your system is already using the CM series instruments, chances are that there are channels plans that have already been built, which can be easily modified for use with the AT-Web. Simply download the latest version of the System Editor software and install it on your laptop or PC. System Editor will allow you to create and/or edit System File(s) on your machine.
2. If this is your first experience with System Editor and you would like to see more detailed explanations, you can download the System Editor Manual for use as an additional reference.
3. If you have obtained a previously created System File for use with our CM series instruments, place the file on your PC in the My Documents\My Instrument Files\System Files directory. This is the default location for your System Editor-System Files. Otherwise, you can simply edit the default system file provided with System Editor, and save it with another appropriate file name.
4. Open System Editor and proceed as follows:
 - A. Click on "File/Open" and go to the "My Documents\My Instrument Files\System Files" directory as shown in Figure 1 below.

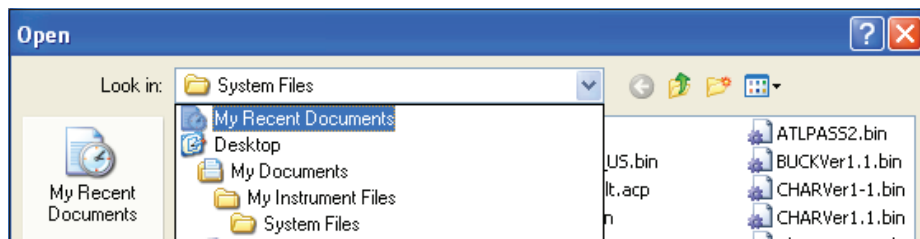


Figure 1: Open the System Files Directory

- B. If you have a previously saved System File on your PC, open that file and edit it as necessary.

C.If you do not have a previously created System File, you will need to open the NTSC default plan, and edit this plan to match your system.

D.The Digital Proof will ignore any channels designated other than Active digital channels so the only changes needed are related to those digital channels you want to test. Analog channels will be ignored by the AT-Web Digital POP program.

E. When editing is complete be sure to do a File/Save.

5. Editing your Channel Plan (System File):

A.When creating a System File to use with the Digital Proof on AT-Web, only the Channel Plan section of the System file needs to be edited, and only basic information for each channel is needed.

Notes

- The System File contains a great deal of information. Other settings in the System File such as “DOCSIS Ranging”, “Pilot”, “Auto Test Plans” and “Instrument settings” will not affect the AT-Web testing in any way and can be ignored for the purpose of the Digital Proof testing.

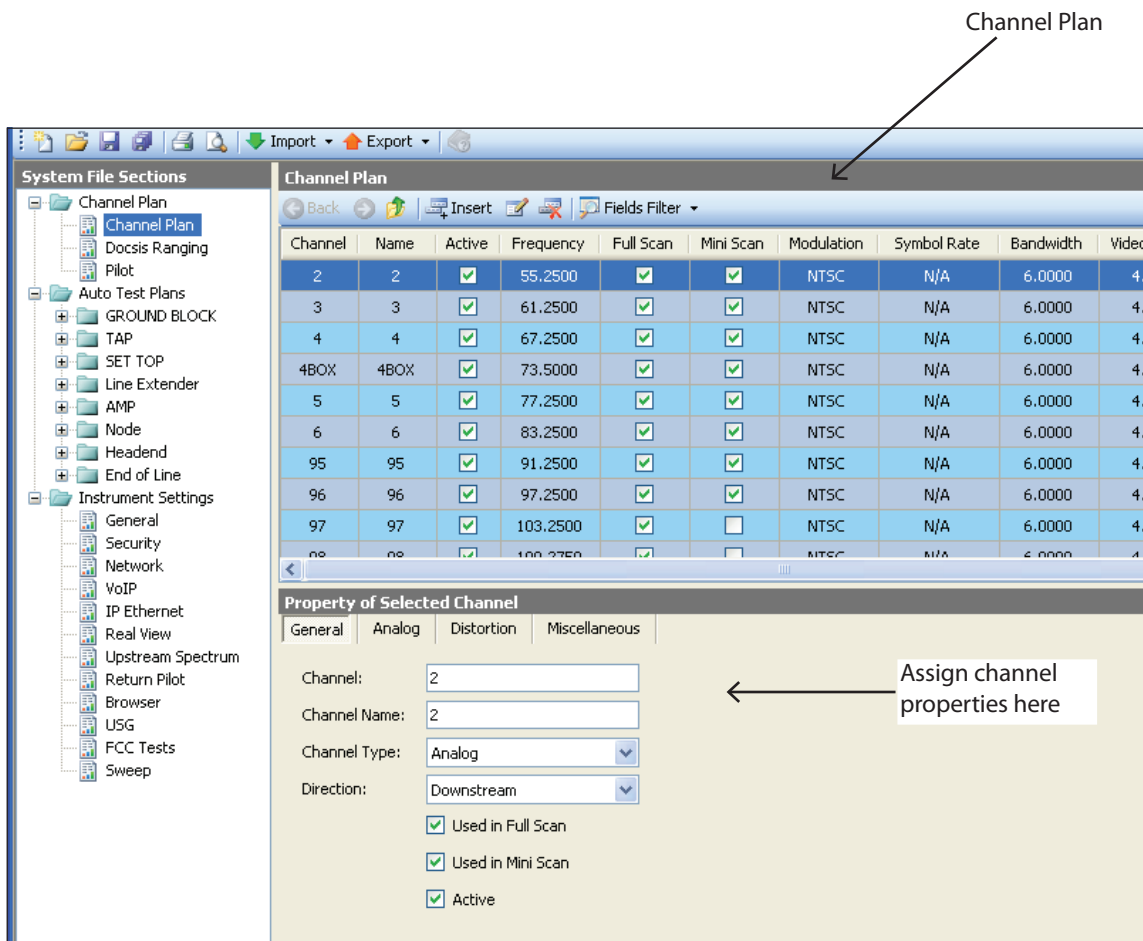


Figure 1: System File Editor

- For further information on creating your customized channel plan, refer to the Sunrise Telecom System Editor Manual Chapter 4, pages 19-21.

B. With your channel plan created, select File Save As [Channel Plan Name].bin; note the location of the .bin file.

* By default channel plans are saved in C:\Documents and Settings\[User]\My Documents\My Instrument Files\System Files\.

Connecting To At WebRemote And Uploading Channel Plan

1. In the AT2500, go to Setup\Remote Setup. Verify the IP address of the unit, and make a note of it. This IP address will be used to access the Web Application.
2. To connect to the ATWebRemote Analyzer Web Application, AT2500 must be in Remote Mode. Confirm this setting. The analyzer is now ready for remote access.
3. In your web browser software, navigate to the IP address from step 1. The WebRemote application should now be open.



Figure 2: WebRemote Opens

4. Navigate to the Connect button at the upper left hand corner of the screen. The default analyzer screen will display.

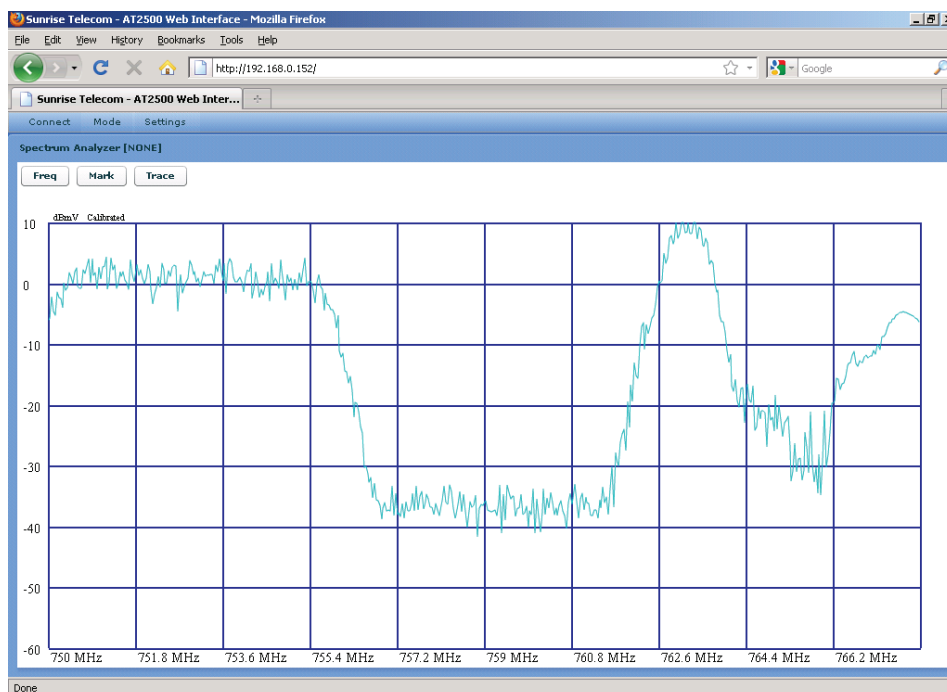


Figure 3: Analyzer Screen

5. Navigate to the Mode button and click on Configuration. This will bring up the channel plan upload and configuration screen.

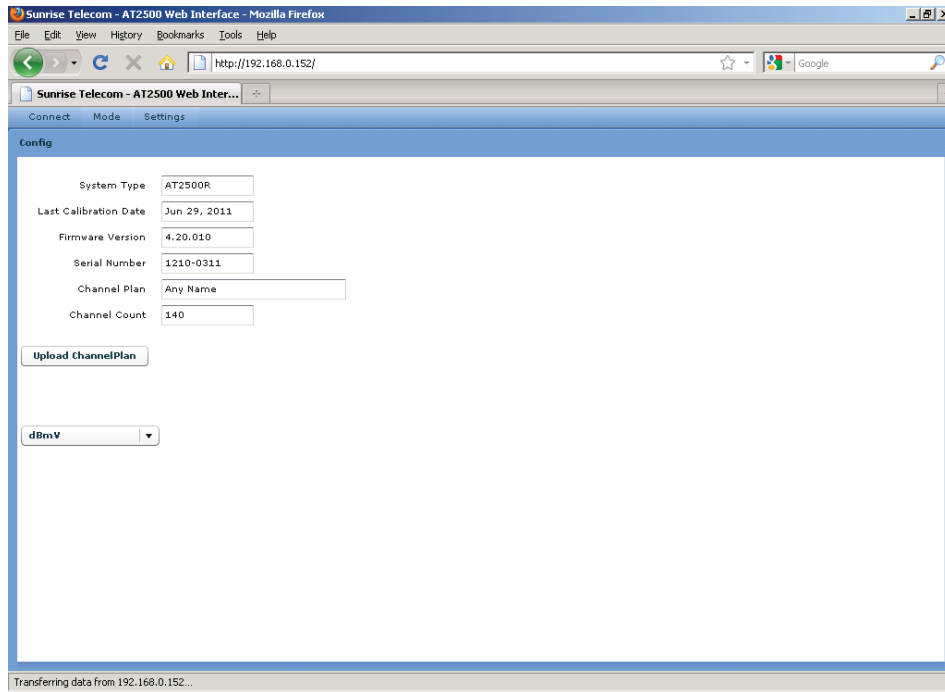


Figure 4: Channel Plan Upload and Configuration

6. Click Upload Channel Plan, and navigate to the saved [Channel Plan Name].bin file. Reference Step 4 of Building a Channel Plan Using the System Editor in previous pages.
7. Highlight [Channel Plan Name].bin file and click open. The progression bar will indicate that your channel plan file is being uploaded onto the server.

Running Digital Pop Test And Exporting To Excel®

1. Now that the channel plan is uploaded, click on the Mode button, then Digital POP.
2. Click the Start button; this will perform the Digital POP test on your channel plan. Depending on the number of digital channels, this test will take approximately 15-45 minutes.

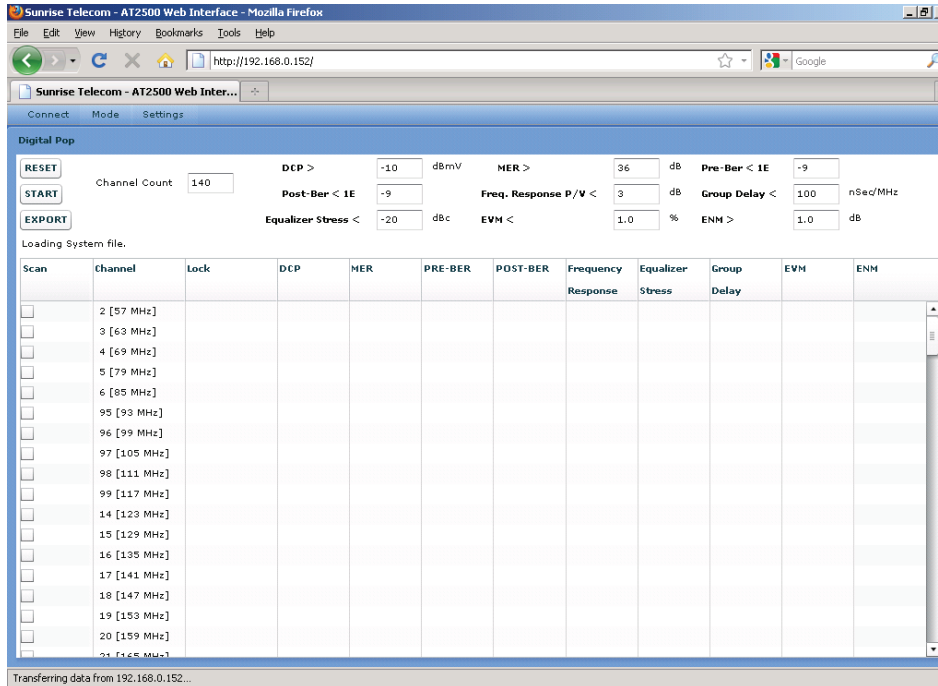


Figure 5: Digital Pop

3. When the test is complete, "Digital POP complete" will display in the upper left hand corner.

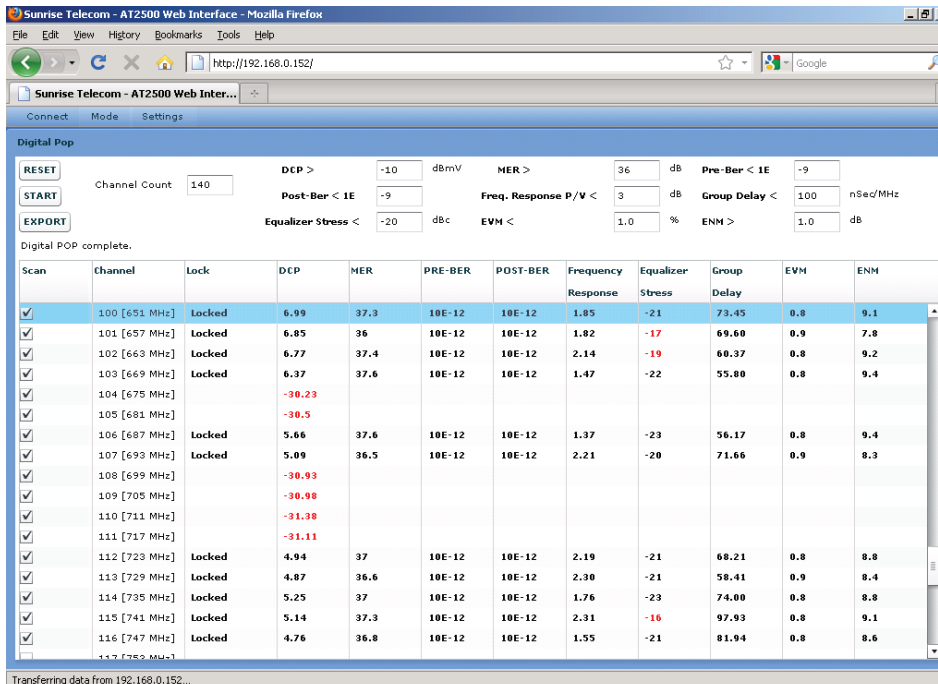


Figure 6: Digital Pop Complete

- Click the Export button and save the results in a preferred location. It will save as a .CSV file, which can be opened by MS Excel.

Channel	Description	LOCK	DCP (dBmV)	MER	PREBER	POSTBER	Frequency Response	Equalizer Stress	Group Delay	EVM	ENM
107	[893 MHz]	Locked	6.42	37.0	1.00E-11	1.00E-11	3.2	-15	76	0.8	8.8
108	[899 MHz]	Locked	6.10	39.5	1.00E-11	1.00E-11	3.3	-13	82	0.6	11.3
109	[705 MHz]	Locked	5.99	39.7	1.00E-11	1.00E-11	1.5	-20	68	0.6	11.5
110	[711 MHz]	Locked	4.94	36.0	1.00E-11	1.00E-11	3.8	-11	85	0.9	7.8
111	[717 MHz]	Locked	5.55	39.6	1.00E-11	1.00E-11	2.0	-18	70	0.6	11.4
112	[723 MHz]	Locked	6.25	37.2	1.00E-11	1.00E-11	1.7	-22	68	0.8	9.0
113	[729 MHz]	Locked	6.30	39.2	1.00E-11	1.00E-11	4.7	-10	75	0.6	11.0
114	[735 MHz]	Locked	9.09	34.6	1.00E-04	1.00E-11	6.4	-7	67	1.1	6.4
115	[741 MHz]	No Symbol	8.54								
116	[747 MHz]	Locked	7.72	41.1	1.00E-11	1.00E-11	2.7	-13	75	0.5	12.9
118	[759 MHz]		-28.17								
119	[765 MHz]	Locked	7.92	>43	1.00E-11	1.00E-11	1.1	-26	16	0.4	14.8
120	[771 MHz]	Locked	7.83	>43	1.00E-11	1.00E-11	0.9	-29	19	0.4	14.8
121	[777 MHz]	Locked	7.79	>43	1.00E-11	1.00E-11	1.3	-26	20	0.4	14.8
122	[783 MHz]	Locked	8.00	>43	1.00E-11	1.00E-11	1.0	-27	22	0.4	14.8
123	[789 MHz]	Locked	7.50	>43	1.00E-11	1.00E-11	1.4	-25	23	0.4	14.8
125	[801 MHz]	Locked	7.76	>43	1.00E-11	1.00E-11	0.8	-27	19	0.4	14.8
124	[795 MHz]	Locked	8.07	>43	1.00E-11	1.00E-11	1.1	-26	26	0.4	14.8
126	[807 MHz]	Locked	7.20	>43	1.00E-11	1.00E-11	0.8	-27	15	0.4	14.8
127	[810 MHz]										
128	[817 MHz]										
129	[825 MHz]										
130	[833 MHz]										
131	[841 MHz]										
132	[843 MHz]										
133	[849 MHz]										
134	[855 MHz]										

Figure 7: Open Saved Results

- The result data can now be manipulated and customized as required.

Conclusion

While FCC proof season remains one of the most stressful times of the year, the new At-Web Digital Proof of Performance capabilities on the AT2500 provide a number of options for relieving some of that stress. Whether via a local Ethernet connection or a remote IP connection, the “one button” Digital Proof of Performance” provided via AT-Web has the tools needed to help get the job done easily and efficiently.



302 Enzo Drive San Jose, CA 95138 • Tel +1 408-363-8000 • www.sunrisetelecom.com

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