

Trilithic 860 DSPi
Home Certification



Method of Procedure

Home Certification Testing

Home Certification Testing is a process by which a Technician will validate the RF signal strength, RF signal quality and upstream / downstream ingress levels (noise) in a customer's home.

This process is to be completed **AFTER** all manual troubleshooting methodologies have been applied and the customer's issues have been resolved. Home Certification Testing will ensure that the customer's home is in compliance with Cablevision's Drop Wiring Specifications, as well as minimizing repeat service calls due to RF and/or ingress issues that were left unresolved.

The Home Certification Testing process will be performed at each job using a series of **MACROS**, or automated tests, preset within the **Trilithic 860 DSPi** meter. At the minimum, testing at **two (2)** locations per job (ex. GROUND BLOCK and SET-TOP, or TAP and GROUND BLOCK) will be performed. ALL test results will be uploaded and saved to local servers for analysis and reporting purposes.



MACROS

Macros are a tool that allow a technician to run multiple tests with minimal button pushing or with one named icon, and then compare the results to a pre-determined limit sets. Macros can consist of any number of steps from 1 to 16.

This example shows the macros as they will be set in the meter.

?_TAP.MAC- Consists of 4 steps:

To be done at the TAP if the job is being referred to OSP.

Full Channel Scan – based on a channel plan within your meter.

MER / BER– Test MER/BER on digital channels pre-selected in your channel plan.

DOCSIS Test – Upstream, Downstream, MER & BER (**CM Stat**)

Ping Test – Round-trip packet time / Packet Loss.

?_SETOP.MAC - Consists of 4 steps:

To be done at the CUSTOMER'S DEVICE.

Full Channel Scan – based on a channel plan within your meter.

MER / BER– Test MER/BER on digital channels pre-selected in your channel plan.

DOCSIS Test – Upstream, Downstream, MER & BER (**CM Stat**)

Ping Test – Round-trip packet time / Packet Loss.

?_GB.MAC – Consists of 2 steps:

To be done at the customer's GROUND BLOCK for drop and ingress certification.

Full Channel Scan – based on a channel plan within your meter.

?_GB.MAC (Step 2) – Must be done manually:

Drop Cert Macro – This macro will run an ingress test from 5 to 45 MHz, 88 to 108 MHz and 700 to 800 MHz with a peak hold for ten seconds.

NAMING CONVENTION

Macros will be named appropriately based on region. The 4 regions are **Long Island (LI)**, **New York City (NYC)**, **New Jersey (NJ)** and **Connecticut/Westchester/Hudson Valley (CWHV)**. Therefore, depending upon the location of the meter, the macros will be named as follows:

LI_SETOP .MAC	NYC_SETOP.MAC	NJ_SETOP.MAC	CWHV_SETOP.MAC
LI_TAP .MAC	NYC_TAP.MAC	NJ_TAP.MAC	CWHV_TAP.MAC
LI_GB .MAC	NYC_GB.MAC	NJ_GB.MAC	CWHV_GB.MAC

Note: DROPCERT.MAC will be universal across **ALL** regions.

SETTING UP TASKS

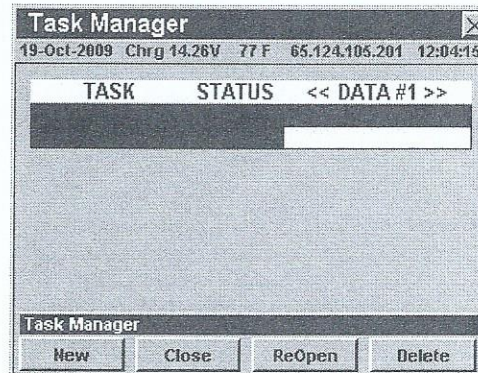
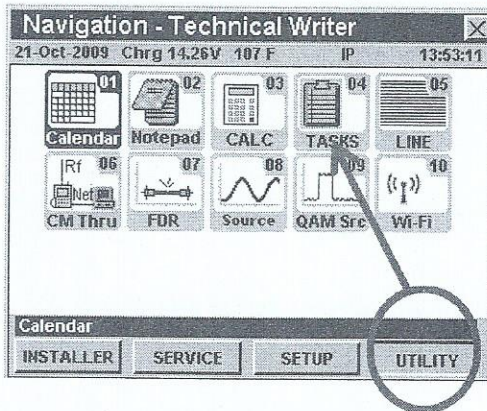
In order for test results to be associated with the account that you are working on, **TASKS** must be set up in the meter *prior* to starting the day's work. Below outlines the process of setting up a task.



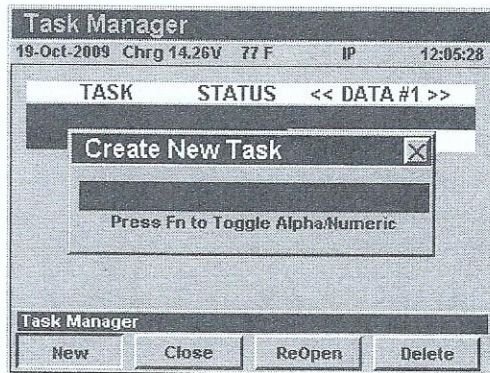
TASKS

This function allows users to store field tests and link this data to a specific account.

1. Turn on your meter
2. From the **UTILITY** menu, select the **TASKS** icon



3. Press the first soft key for **NEW**



4. Input the account number and press **ENT** (ex. 123456. *NO Corp. or Customer#, ONLY the House*). If the number is less than 6 digits, you must use preceding zeros to fill the spaces (ex. 065345).

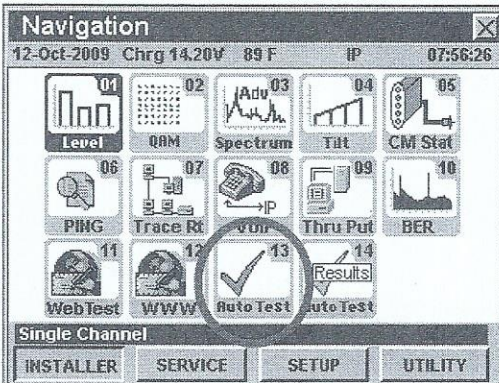
PROCESS WHILE ON- SITE

Steps to follow to complete home certification while at customers location for trouble call, install, or change of service. Prior to running any home certification macros - use your meter to troubleshoot and install using the methods learned in your company's technical training program. Ensure that all services are working properly PRIOR to initiating home certification macros.

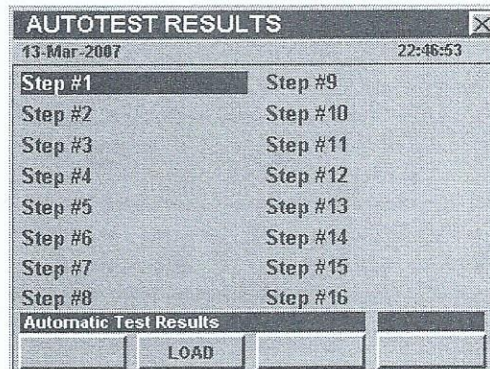
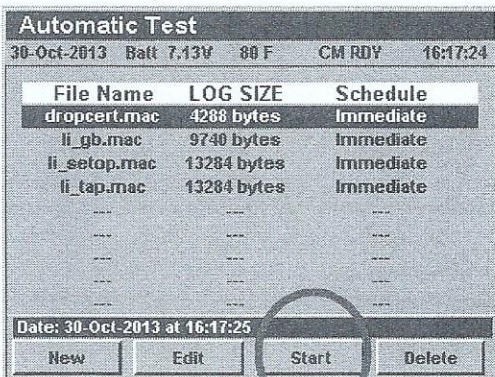


DOWNSTREAM TESTING

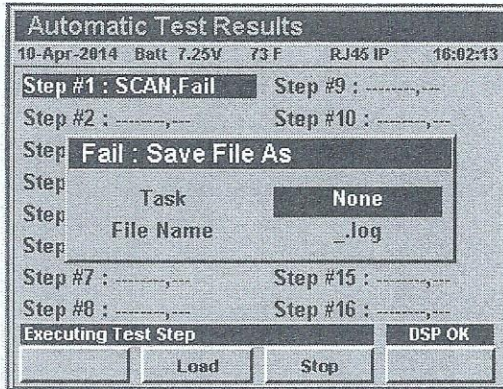
1. Power on meter
2. Select appropriate user if necessary
3. Select **AUTO TEST** icon



4. Using up/down arrows select the appropriate macro
5. Press the third soft key to start test (test could take 2-4 minutes to complete)



- Once test completes, use the up/down or left/right arrow keys to select the correct account number / task for the job that you are working on.

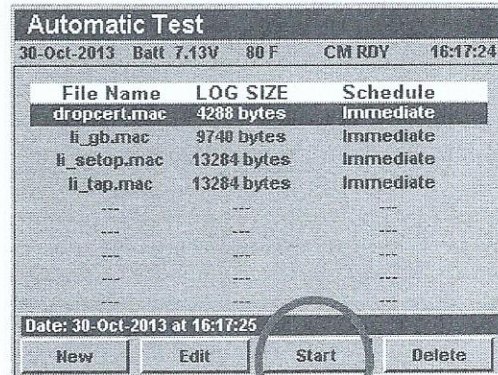
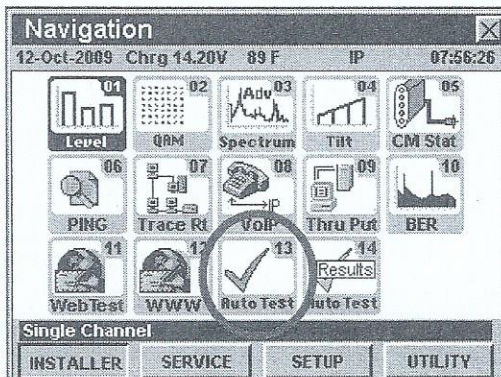


- Press **ENT**. This will automatically name the file
- Press **ENT** again. This completes the downstream test for this outlet



UPSTREAM TESTING

- Access either GB or tap (tap is preferred)
- Disconnect drop
- If you are at the tap, attach customer drop to meter input
- If you are at the GB, attach jumper from meter to the GB or splitter feeding the home
- Press **AUTO TEST** icon
- Using up/down arrow keys highlight **DROPCERT.MAC**
- Press the third soft key to start test



- Once the test completes, use the up/down arrow keys to select the correct account number for the job that you are on. (Same as downstream process above)
- Press **ENT**. This will automatically name the file
- Press **ENT** again. This completes the upstream test for this outlet

*Note - If any of the tests fail, utilize troubleshooting methods to isolate and eliminate the cause for the failure and then rerun the test.

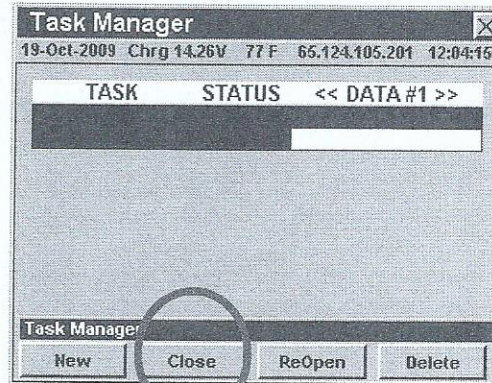
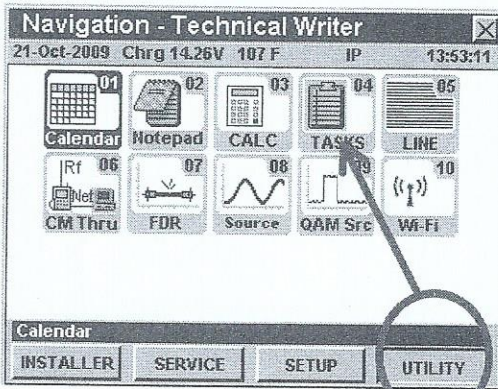
AT THE END OF THE JOB

Tasks must be closed and uploaded to the server at the end of each job, **BEFORE** proceeding to the next one. This will ensure that the data is captured for that specific job and saved on the server. Test results are to be saved after **EACH** macro performed at the job (ex. ?_GB.MAC and ?_SETUP.MAC). Then, close the task and upload all associated files. After the upload is complete, the **TASK** for that job will no longer appear in the **TASK MANAGER**.

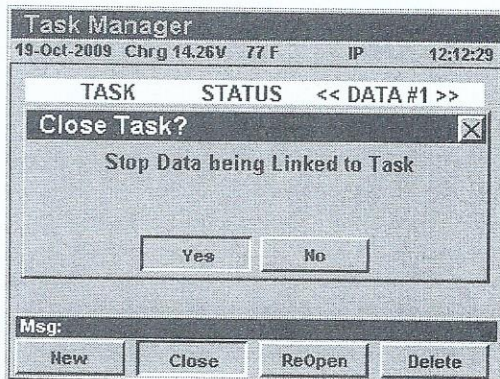


CLOSING TASKS (MUST be done at the END of EACH JOB)

1. From the **UTILITY** menu, select the **TASKS** icon



2. Use the **up/down arrow keys** to highlight task that you have completed
3. Press the second soft key **CLOSE** to close this job

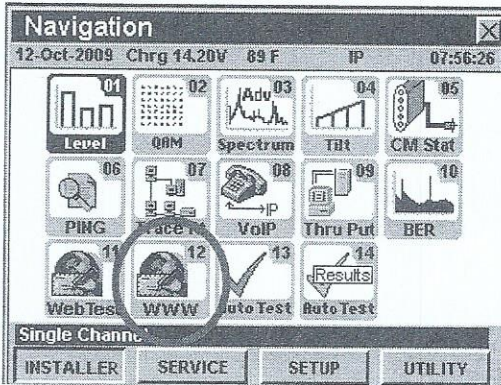


4. The pop up will ask if you want to stop data being linked to this task. Use the arrow keys to select **YES**
5. Press **ENT** and the task is now closed

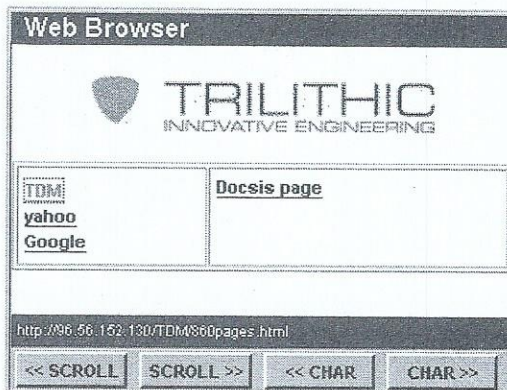


UPLOADING TASKS TO THE SERVER

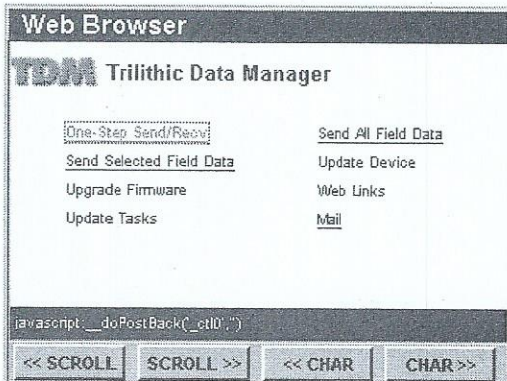
1. Connect your meter to appropriate internet interface (RF/Ethernet)
2. Press the icon for **WWW** (the internal cable modem will initialize and obtain an IP address)



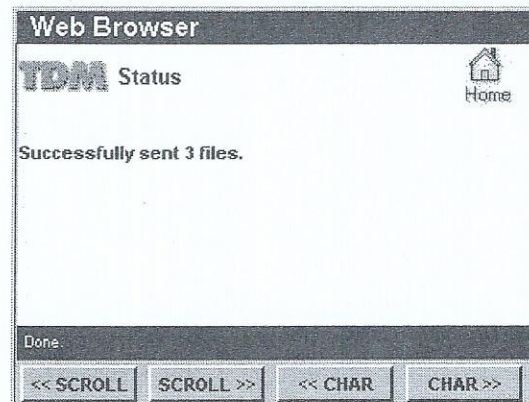
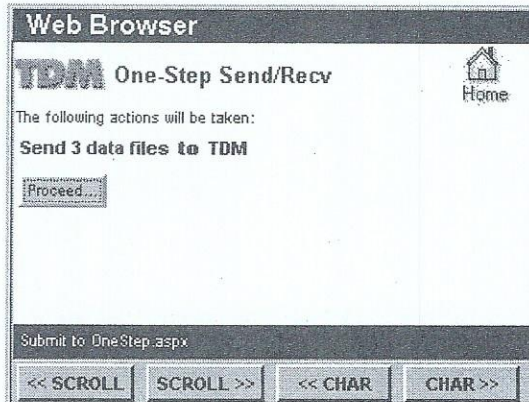
3. Using the **left/right arrow keys**, highlight **TDM** and press enter



4. Using the **left/right arrow keys**, select **ONE-STEP SEND/RECEIVE** and press enter



- Using the **left/right arrow keys**, highlight **PROCEED** and press enter. The meter will confirm files were sent

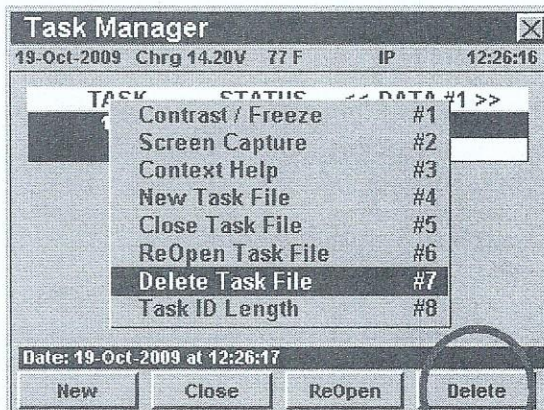


- Home certification is now complete for this job. Press the **FUNCTION (FN)** key and select option **#7 BROWSER HOME**. This brings you back to the **WWW** home page

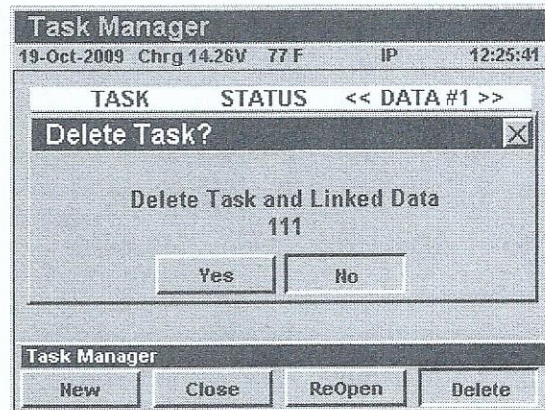


DELETING TASKS

- Follow the process of accessing the task menu outlined in above in the closing tasks section.
- Use the **up/down arrow keys** to highlight task that you have completed
- Press the fourth soft key **DELETE** to delete this task
- Select **YES** and press **ENT**



1

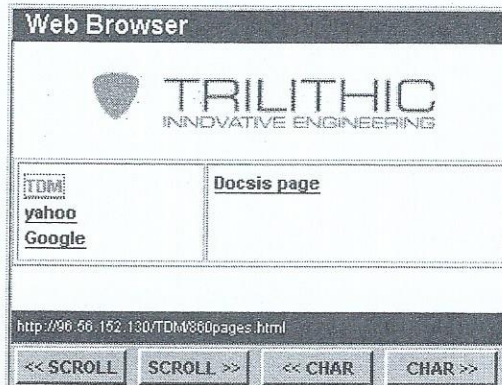
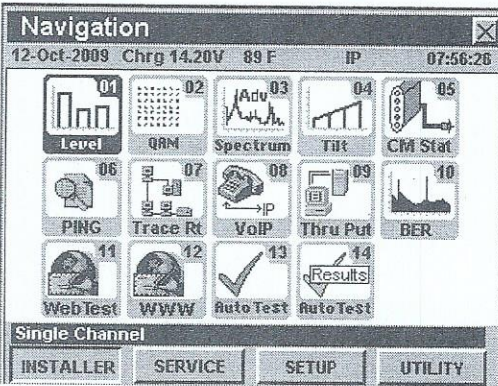


2

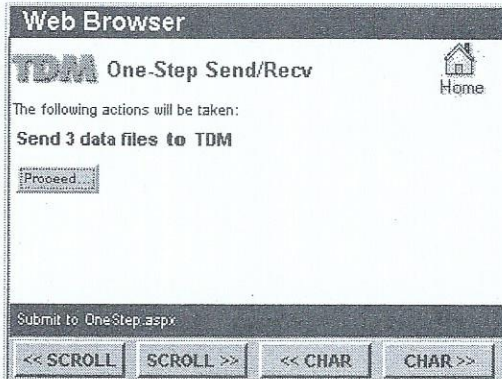
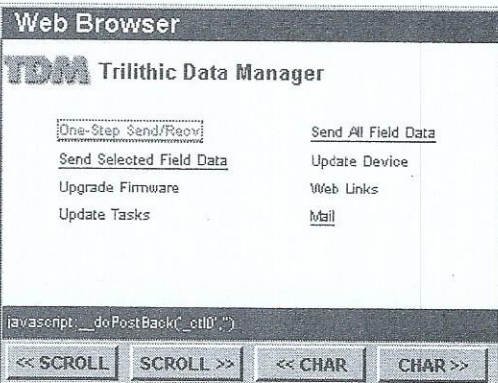
DOWNLOADING UPDATES FROM THE SERVER

Periodically, there will be updates that need to be downloaded to the Trilithic 860DSPi meter. Due to the dynamic nature of our **channel plans**, most of the updates will address just that. It will be the **technician's responsibility** to check the server for updates on a **weekly** basis. The process is outlined below.

1. Connect your meter to appropriate internet interface (RF/Ethernet)
2. Press the icon for **WWW** (the internal cable modem will initialize and obtain an IP address)
3. Using the **left/right arrow keys**, highlight **TDM** and press enter



4. Using the **left/right arrow keys**, select **ONE-STEP SEND/RECEIVE** and press enter
5. Using the **left/right arrow keys**, highlight **PROCEED** and press enter



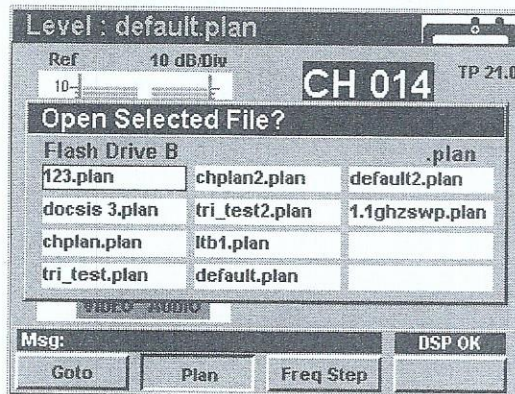
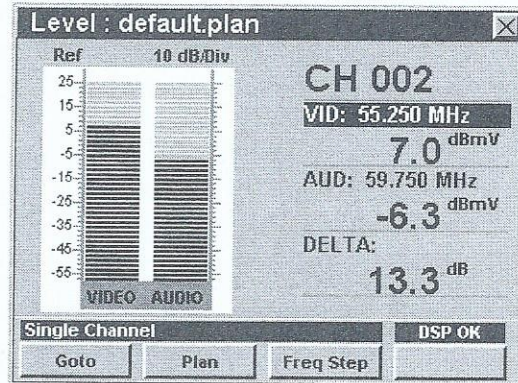
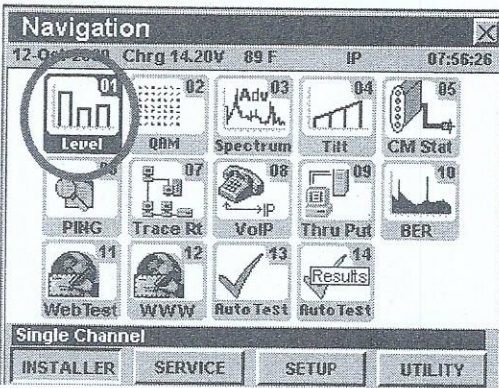
6. The meter will confirm files were received
7. Press the **FUNCTION (FN)** key and select option #7 **BROWSER HOME**. This brings you back to the **WWW** home page then select the back key to go to the navigation page, make sure you do this every time.

CHANNEL PLANS

Channel plans throughout NYMA vary from system to system. Carriers in use, content on the carriers, and DOCSIS Downstream Frequencies, as well as Switched Digital Video and VOD carriers can be different from region to region and even corp. to corp. Therefore, because our Contractor Group work throughout the footprint, all possible channel lineups may need to be loaded into each 860 meter.

TO SELECT THE APPROPRIATE CHANNEL PLAN

From the main screen, select the **LEVEL** icon. Next, press the second soft key (**PLAN**) to open the list of channel plans loaded into the meter. Select the channel plan based on the region and/or Corp. that you are working in that day. Then, press **ENTER**.



Trilithic Meter HIP Measurements

Ground Block Test

This test is performed at the ground block to measure levels coming from the drop, channels that are measured are based on the channel plan the meter is using in the region you are working in. This test checks for levels within the Cablevision specification of no lower than -4 dB and no more than +23 dB.

DROPCERT TEST

This test is performed at the ground block location, connecting your meter to the wiring going inside the home to check ingress coming back from the interior of the home. This test is also done from the tap location for MDU's.

This test checks for any interfering carrier coming back on the interior cable of the home in the 3 Bands, Sub band 5 MHz - 45 MHz, The FM band 88 MHz - 108 MHz and the LTE band, 500 MHz - 700 MHz. Interfering carrier cannot be higher in level than -35dB. This test is done after the Ground Block test is performed.

SETTOP TEST

This test is performed at the device, ie set top or modem furthest away from the ground block. This test measures the levels on the selected channels in the channel plan, measures MER & BER on selected channels, turns the internal modem on and locks up the modem on the specific DOCSIS carriers and measures the upstream and downstream levels on those specific carriers that the modem locked up on, performs a ping test and measures the launch level of the modem upstream and downstream and performs the ping test by sending out packets and measures lost packets.

Specifications on the set top test are listed below

Max percent loss 3%	Max transit time 100 msec
Max Latency 150 msec	Max Jitter 50 msec
Minimum Launch Level 34 dBmV	Min transmit of the modem upstream
Maximum Launch Level 53 dBmV	Max transmit of the modem upstream
Packet Delay 100 msec	Packet size 1024 Bytes
	Packets to send 100 pkts
MER Min 31dB	Max Digital Pre BER 1.00E-7
	Max Digital Post BER 1.00E-8

TAPTEST

This test is performed at the TAP for a referral. This test measures the level on the selected channels in the channel plan, measures MER & BER on selected channels, turns the internal modem on and locks up the modem on the specific DOCSIS carriers and measures the upstream and downstream levels on those specific carriers that the modem locked up on, performs a ping test and measures the launch level of the modem upstream and downstream and performs the ping test by sending out packets and measures lost packets.

Specifications on the set top test are listed below

Max percent loss 3%	Max transit time 100 msec	
Max Latency 150 msec	Max Jitter 50 msec	
Minimum Launch Level 34 dBmV	Min transmit of the modem upstream	
Maximum Launch Level 53 dBmV	Max transmit of the modem upstream	
Packet Delay 100 msec	Packet size 1024 Bytes	Packets to send 100 pkts
MER Min 34dB	Max Digital Pre BER 1.00E-7	Max Digital Post BER 1.00E-8