

# MoCA Common Issues & Troubleshooting Guide

## TARGET AUDIENCE

All Fulfillment Technicians

## OVERVIEW

We can proceed onto resolving any MoCA related issues once we educate ourselves on the fundamentals of MoCA technology and the different installation configurations. MoCA resonance technology is completely dependent on the impedance quality of our coaxial home drop systems and the host or terminal devices. Therefore, we want to educate our frontline employees on some of the common issues with our customer's MoCA reliant functionality. This job aid is designed to keep our troubleshooting methodology and common understanding concise and simple when assessing MoCA issues.

## COMMON MoCA RELATED ISSUES

MoCA related issues can sometimes be easy to pinpoint and at times a little more complex to visualize. In this job aid, we focus on some of the most common X1 related issues affected by MoCA impairments.

- ✓ Unable to Access Recording or OnDemand Content
- ✓ Latency, and Lag in the Navigating Guide, On-Screen Menu, or Overall XRE Functionality with Xi-Devices
- ✓ Frozen, Macro Blocking, with or without Jittering Video and Audio (Primarily on Xi-Devices)
- ✓ Complete Loss of Services (Due to Drop System & UGA Configuration Issues)
- ✓ *XB3 MoCA Conflict Challenge Updated (Resolved & Will Review in this Job Aid)*

## MoCA SIGNAL FUNDAMENTALS

One of the very first key components of an X1 MoCA Home Network of which to be conscientious is that MoCA signals begin in the home and should end in the home. All MoCA devices generate the MoCA resonant frequencies in a home network. MoCA signaling is then transmitted between the different Nodes (Set-Top Controllers, Terminals, Gateways, and Wi-Fi Extenders) in the home via our In-Home Coaxial Drop System that connects all CPE in the home. Therefore, the origin of impairment will always be somewhere in the home.

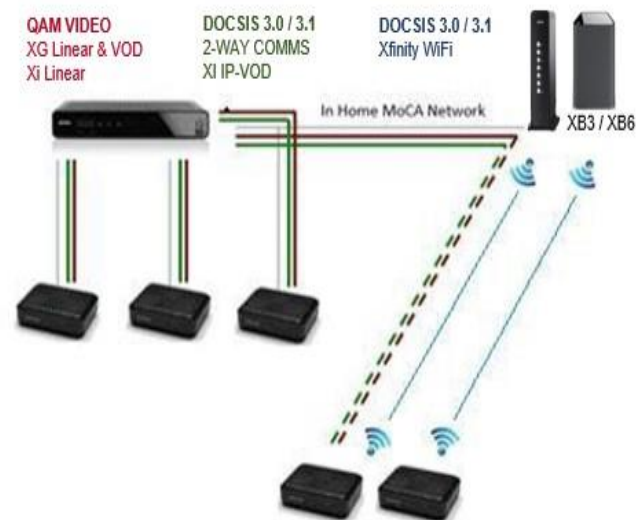
If you have MoCA PHY Rate deficiency, your PHY rate issue is somewhere between the listed MoCA components below. PHY is an abbreviation for the physical layer of the OSI model and refers to the circuitry required to implement physical layer functions. A PHY connects a link layer device (often-called MAC's) to a physical medium such as a coaxial cable.

## **MoCA Network Components**

- PoE Resonator (Previously Called MoCA Filter)
- Set-Top Controller (XG1's and XG2's)
- Set-Top Terminals (RNG's, Xi3, and Xi-D's)
- Docsis Gateways (XB3's & XB6's)
- Fiber Gateways (New XF3's)
- In-Home Coaxial Passive/Drop System (Connecting MoCA Devices)

MoCA PHY Rates and Wi-Fi Technology will continue to become a large part of our future home networks and interfaces. See Figure 1 for a diagram of connected devices via a MoCA network.

In addition to our current configuration, we will incorporate XB3 Gateways to deliver linear video content to our Xi5 Terminals via Wi-Fi in the near future. Therefore, we want to understand the common drivers that negatively affect a healthy MoCA Network, such as **Improper Network Configurations** and **Severe Impedance Mismatch**



## Troubleshooting Improper Network Configuration

Improper home network configurations can negatively affect a MoCA Network. Resolving impairments is easy so long as the technician knows what to look for in a MoCA home configuration. Our X1 Platform relies 100% on its ability to communicate within the MoCA Mesh network. An improperly configured component will create issues.

### Troubleshooting Guidelines

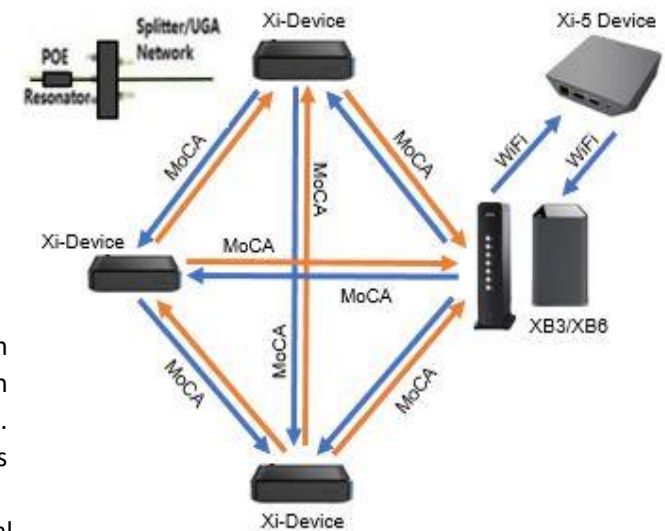
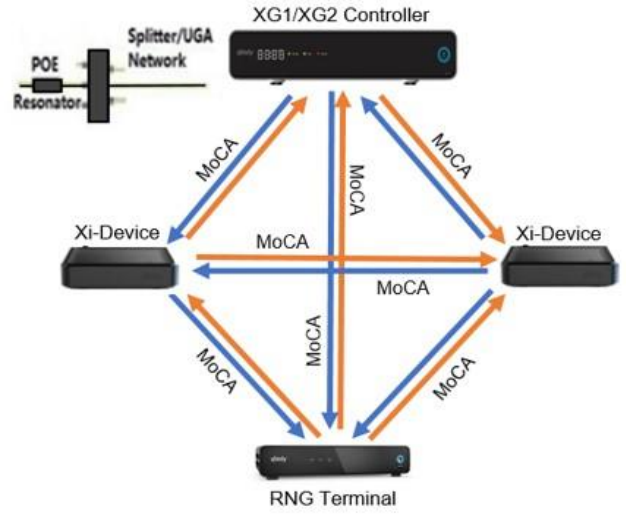
- I. A POE Resonator/Filter **must** be present and installed before any Splitter configuration set-ups; preferably as close as possible to the centrally located Splitter network.
- II. Configure coaxial network (Splitters, MoCA Passives, and UGA's) in a centrally located network. Try your best to minimize daisy chained and loop-system splitter configurations when at all possible.
- III. Always begin troubleshooting at Devices with the poorest PHY Rate signal paths. Devices have In/Out MoCA transmission paths.

### Troubleshooting Severe Impedance Mismatches

Severe impedance and mismatches in the coaxial drop system negatively affect a MoCA Network. Any extreme breaks, bends, or gaps in the drop system will cause impedance changes. After verifying the home is configured correctly, when troubleshooting MoCA PHY Rate issues, start by looking for cable and connector deficiencies in the drop system.

### Troubleshooting Tips Below

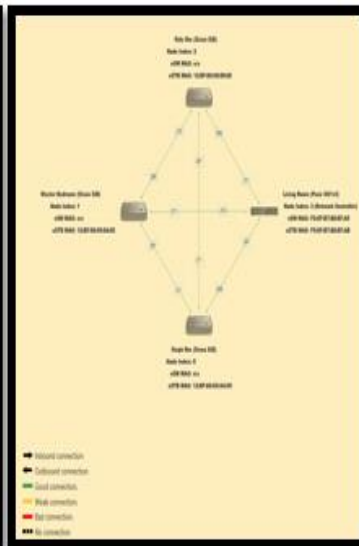
- I. MoCA signal source can come from any of the MoCA Enabled Devices
- II. Once connected, any of the X1 Clients (XB's; XG's, Xi's, RNG's) can form a MoCA Network in a home. Therefore, an impedance mismatch can be found between the MoCA devices & components connecting them. Such as coaxial cable, connectors, and active/passives components connecting all the devices in a home's internal drop system.
- III. Start troubleshooting with the devices with the lowest PHY Rate signal path. The devices with the lowest PHY Rate paths can be located using some of our diagnostic tools listed below.



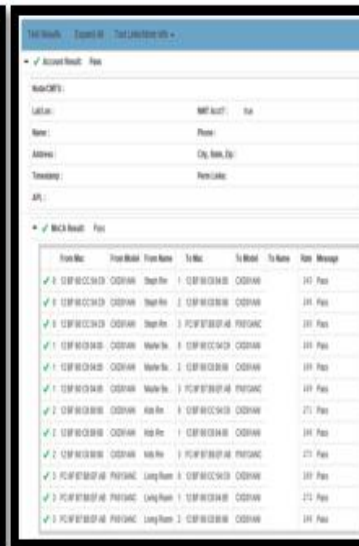
## MoCA Validation & Troubleshooting Tools



Set-Top Diagnostics Menu



X-RAY Platform



PHT (Stand-Alone)



Tech 360 (pH MoCA)

PLEASE SEND US YOUR FEEDBACK AT [Field\\_Operations\\_Tech\\_Talk@comcast.com](mailto:Field_Operations_Tech_Talk@comcast.com)

