

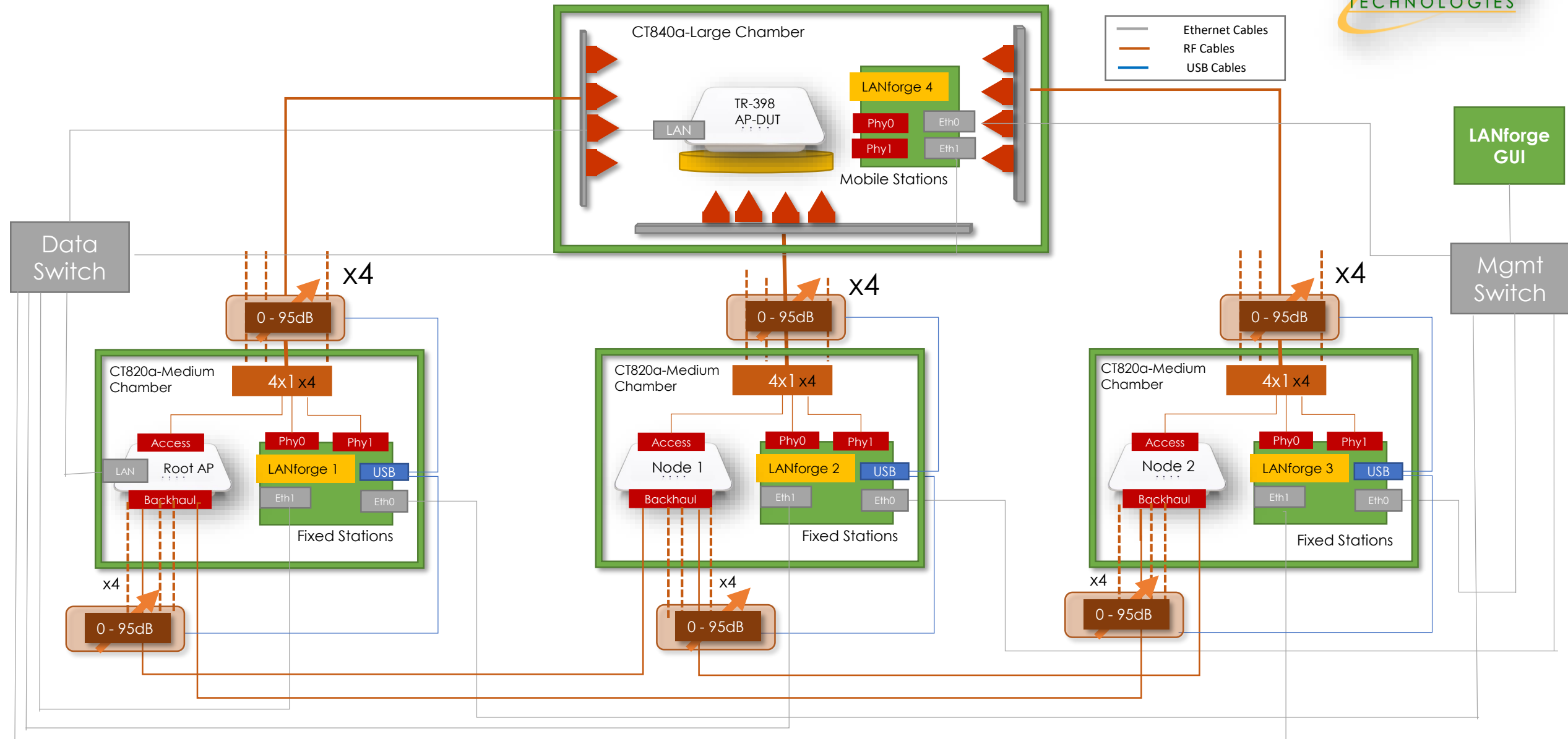


Network  
Testing &  
Emulation  
Solutions

# TR-398 and 3-Node Mesh Testbed Setups

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 1-360-380-1618

# TR-398 + 3-Node Mesh Tested



# Testbed Bill of Materials (BOM)

## ✓ Hardware

- ✓ **04x** LANforge Units – minimum 2 radios per unit (1x 2.4GHz, 1x 5GHz NICs), 2-eth ports (optional 10gE Ports)
- ✓ **03x** CT820a-Medium RF Chambers
- ✓ **01x** CT840a-Large RF Chamber with Programmable Turntable
- ✓ **06x** CT704b- 4 Port Programmable Attenuators
- ✓ **24x** 2:1 Splitters
- ✓ **12x** 4:1 Splitters
- ✓ **12x** Directional Antennas (optional)
- ✓ **96x** RF Cables
- ✓ **32x** 30dB Fixed Attenuators
- ✓ **32x** Ethernet Cables
- ✓ **02x** 8-port Ethernet Switches
- ✓ **03x** USB Hubs
- ✓ **03x** USB to USB Cables

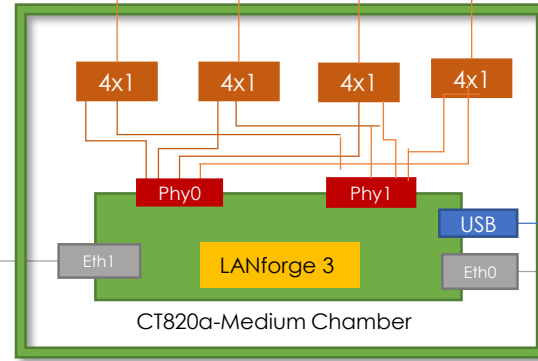
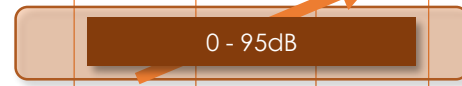
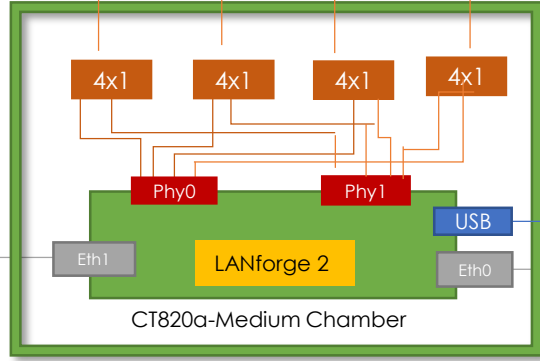
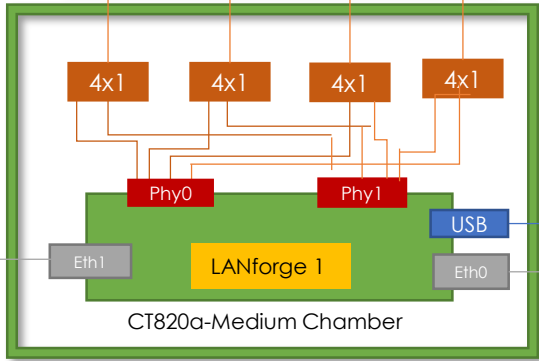
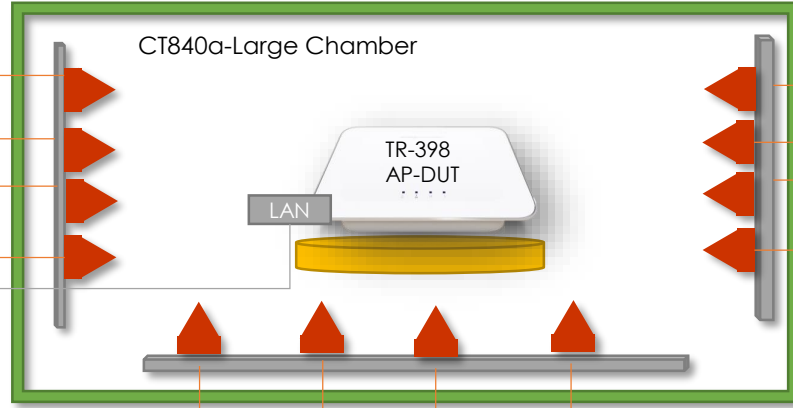
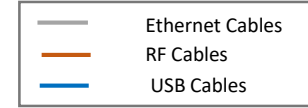
## ✓ Software

- ✓ **04x** 128 Virtual Stations License
- ✓ **04x** 1000 Concurrent Connections License
- ✓ **04x** 10GE Port License (optional)
- ✓ **08x** 1GE Port Licenses
- ✓ **04x** Mesh Test Automation Software License
- ✓ **04x** TR-398 Automation Software License

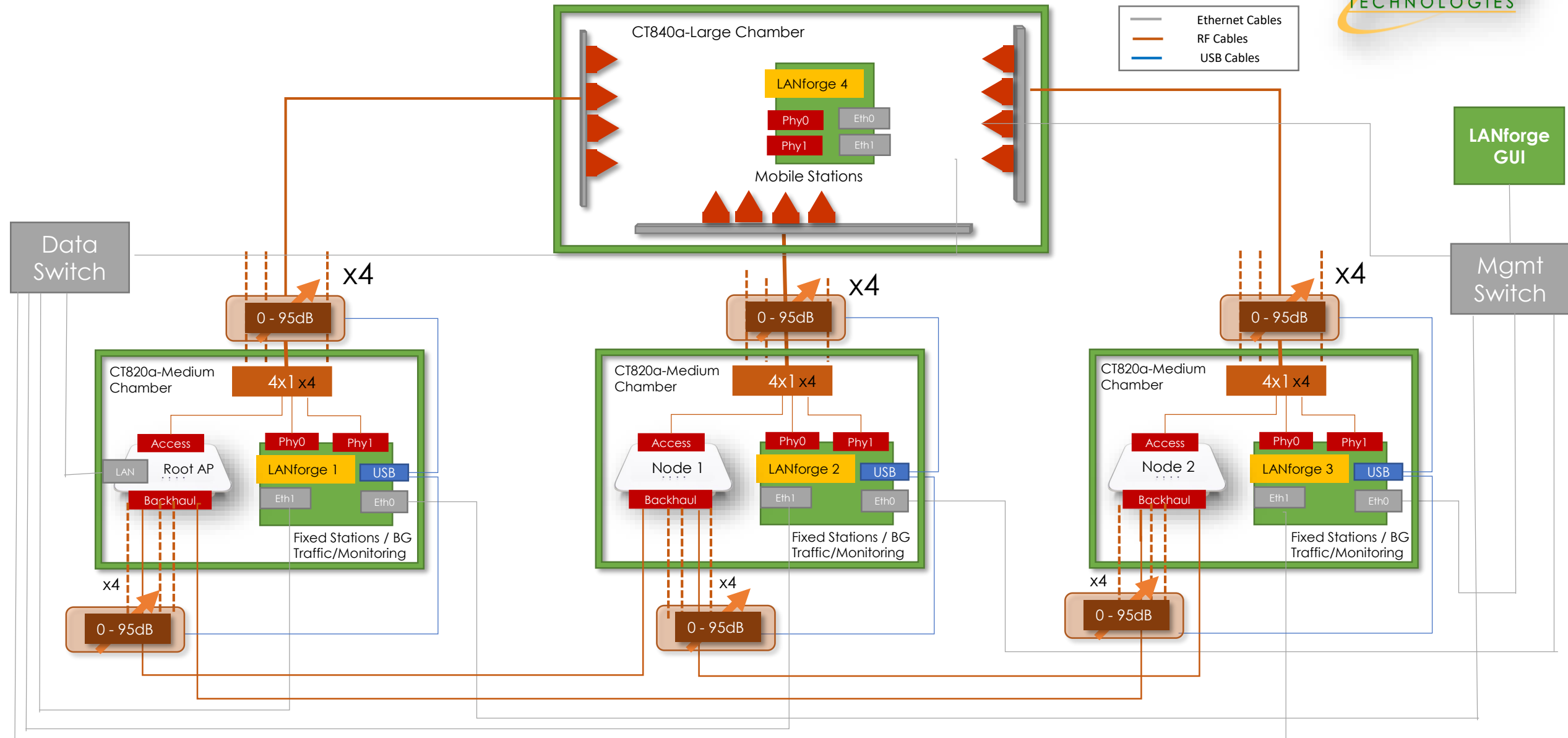
## ✓ Support/Warranty

- ✓ **01x** 1-year hardware and software support

# TR-398 Part of the Testbed



# 3-Node Mesh Part of the Testbed



# Roles of Hardware Components

## 3-Node Mesh Testing

Component	Role
LANforge1,2 and 3	<ul style="list-style-type: none"> <li>➤ Fixed stations created on each mesh node</li> <li>➤ Optional Background Traffic/Interference</li> <li>➤ Optional Real-time Capturing</li> </ul>
LANforge4	<ul style="list-style-type: none"> <li>➤ Mobile Stations Roaming across the Mesh</li> </ul>
Medium RF chambers	<ul style="list-style-type: none"> <li>➤ Provide Isolation for the 3 nodes in the mesh</li> </ul>
Big RF Chamber	<ul style="list-style-type: none"> <li>➤ Provides Isolation for the Mobile Stations LANforge system</li> </ul>
Programmable Attenuators 1,2,3	<ul style="list-style-type: none"> <li>➤ Used for access network connections between the Mobile Stations LANforge and the 3 nodes in the mesh. Used for Roaming STAs between Mesh nodes</li> </ul>
Programmable Attenuators 4,5,6	<ul style="list-style-type: none"> <li>➤ Control the connections and distance between the mesh nodes on the backhaul</li> </ul>

## TR-398 Testing

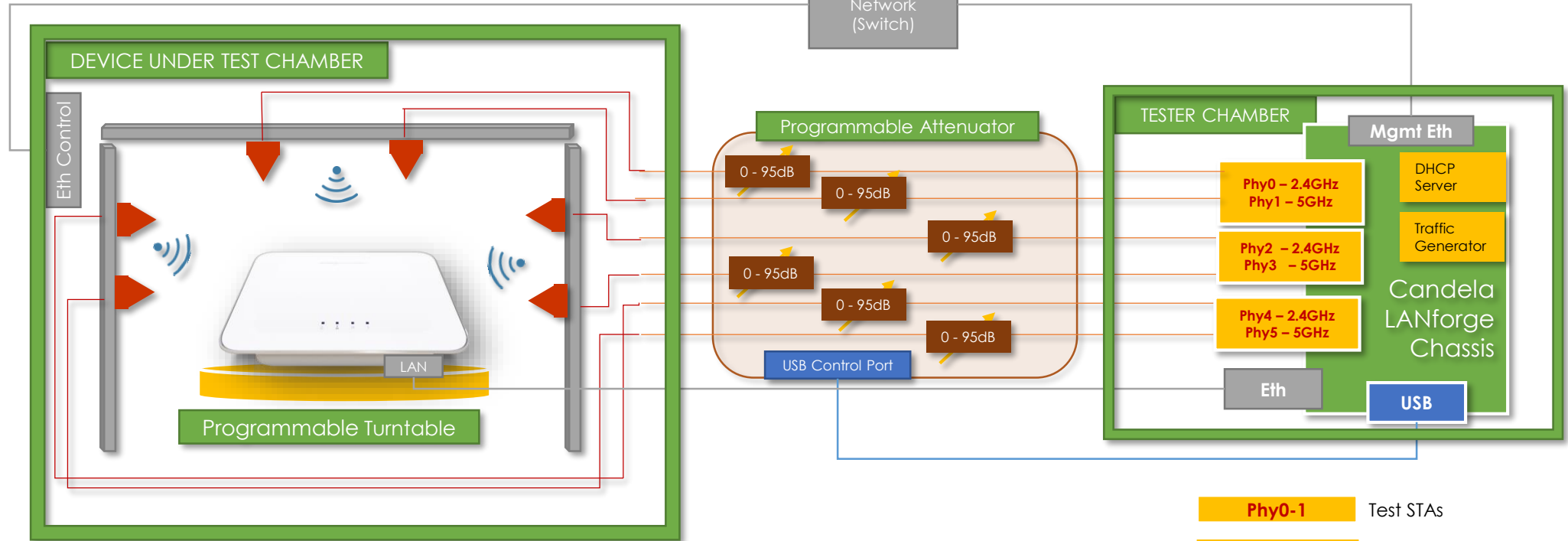
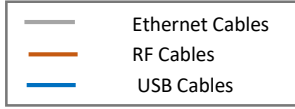
Component	Role
LANforge1	<ul style="list-style-type: none"> <li>➤ Create the stations needed for receiver sensitivity test, Rate vs Range, throughput test, maximum connection test, airtime fairness test, spatial consistency, long term stability and multi Assoc/Disassoc stability tests</li> </ul>
LANforge2	<ul style="list-style-type: none"> <li>➤ Create additional stations at different distances for multiple STA perf test.</li> <li>➤ Create additional STAs for Mu—MIMO Test</li> <li>➤ Create Alien APs for AP co-existence Test</li> </ul>
LANforge3	<ul style="list-style-type: none"> <li>➤ Add more clients for Mu-MIMO test</li> <li>➤ Create Alien Clients for AP co-existence test</li> </ul>
LANforge4	<ul style="list-style-type: none"> <li>➤ Not Used</li> </ul>
Medium RF chambers	<ul style="list-style-type: none"> <li>➤ Provide Isolation for the LANforge units</li> </ul>
Big RF Chamber	<ul style="list-style-type: none"> <li>➤ Programmable turntable used for Spatial Consistency test and other tests that need changing antenna orientation.</li> </ul>
Programmable Attenuators 1,2,3	<ul style="list-style-type: none"> <li>➤ Used to simulate distance for Receiver Sensitivity and Rate vs Range tests.</li> <li>➤ Create far clients for multi STA Perf Test.</li> </ul>
Programmable Attenuators 4,5,6	<ul style="list-style-type: none"> <li>➤ Not Used</li> </ul>

# Standalone TR-398 Testbed

Automated TR-398 Tests



PASS/FAIL Reports



- Phy0-1** Test STAs
- Phy2-3** Mu-MIMO STAs/Alien APs
- Phy4-5** Mu-MIMO STAs/ Alien STAs

# Testbed Bill of Materials (BOM)

## ✓ Hardware

- ✓ **01x** LANforge Units – minimum 6 wave-2 radios (3x 2.4GHz, 3x 5GHz NICs), 2-eth ports (optional 10gE Ports)
- ✓ **01x** CT820a-Medium RF Chambers
- ✓ **01x** CT840a-Large RF Chamber with Programmable Turntable
- ✓ **02x** CT704b- 4 Port Programmable Attenuators
- ✓ **16x** 2:1 Splitters
- ✓ **08x** Directional Antennas (optional)
- ✓ **48x** RF Cables
- ✓ **08x** Ethernet Cables
- ✓ **01x** 8-port Ethernet Switches
- ✓ **01x** USB Hubs
- ✓ **01x** USB to USB Cables

## ✓ Software

- ✓ **01x** 128 Virtual Stations License
- ✓ **01x** 1000 Concurrent Connections License
- ✓ **01x** 10GE Port License (optional)
- ✓ **02x** 1GE Port Licenses
- ✓ **01x** TR-398 Automation Software License

## ✓ Support/Warranty

- ✓ **01x** 1-year hardware and software support





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