### Network Conditions and Multiple Profiles

Not all profiles of the service can be run at the highest profile due to varying conditions in the plant. Testing can help to optimize profile management to achieve the best performance in the field across the entire service footprint.

<table>
<thead>
<tr>
<th>Profile</th>
<th>Example Modulation Mix</th>
<th>Approach to dBmV</th>
</tr>
</thead>
<tbody>
<tr>
<td>Profile A</td>
<td>Mixed 1024, 2048 and 4096 QAM</td>
<td>SNR varies by frequency</td>
</tr>
<tr>
<td>Profile B</td>
<td>Mixed 64, 1024, 2048 and 4096 QAM</td>
<td>SNR varies by frequency</td>
</tr>
<tr>
<td>Profile C</td>
<td>Mixed 1024, 2048 and 4096 QAM</td>
<td>SNR varies by frequency</td>
</tr>
<tr>
<td>Profile D</td>
<td>Mixed 64, 1024, 2048 and 4096 QAM</td>
<td>SNR varies by frequency</td>
</tr>
</tbody>
</table>

### Optimizing DOCSIS 3.1 Performance for Gigabit Services

- **Testing PLC — PHY Link Channel**
  - TO CHECK: PHY link channel 
  - Targets: All channels, critical channels

- **Testing Higher Profiles**
  - Profiles B, C, D, enable higher modulations for greater efficiency

### Testing and Turn-Up

#### DOCSIS 3.1 DOCSIS Carrier Level Measurements

- **Testing PLC — PHY Link Channel**
  - TO CHECK: PHY link channel
  - Targets: All channels, critical channels

#### Throughput and Bandwidth Download Speeds

- **DOCSIS 3.1 testing, but much more...**
  - Consider the breadth of test capabilities offered in optional software and components:
    - **Hyperfiber-ready, carrier-grade transport equipment, even within active upstream carriers.**
      - Throughput and bandwidth download speeds tested in a variety of configurations, including:
        - **Concurrent QAM carriers**
        - **Terabyte-classCarrier service deployment**
      - **Optimizing Service for Gigabit Applications**

- **Upstream Analysis**
  - A close picture of upstream ACI is critical in order to achieve the best possible performance. 

- **Service Level Testing**
  - **Network Conditions and Multiple Profiles**

- **Physical Measurements (Level, MER, noise)**
  - SNR percentiles are better predictors of network health than Average MER or CCWE's

- **Measurement of OFDM carriers compared to power in a 6 MHz QAM 256 carriers.**
  - To learn more, visit viavisolutions.com/DOCSIS

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