Clause 169 Development

▶ Characteristics that drive forward-looking concepts and details:

- Number of nodes (16)
- Mixing Segment Loop Resistance (15Ω)
  - Gauge (23g)
  - Channel length (50m)
  - Connector resistance (58mΩ)
  - Compensation component resistance (355mΩ)

▶ Then choose:
- MPSE minimum power on voltage

▶ Which determines:
- Available power per node

▶ To Enable Specification of:
- **Voltage Stack-Up / Operating thresholds**
  - Reset, Discovery, Type 0, Type 1
- **And enable Objective 11**
  - Addition / Removal from powered mixing segment

▶ Author Clause 169:
- Inrush attributes
- Power on attributes
- Discovery time, voltage, current attributes
- Maintain Power Signature (MPS) attributes

System Setup for Power Delivery Calculations
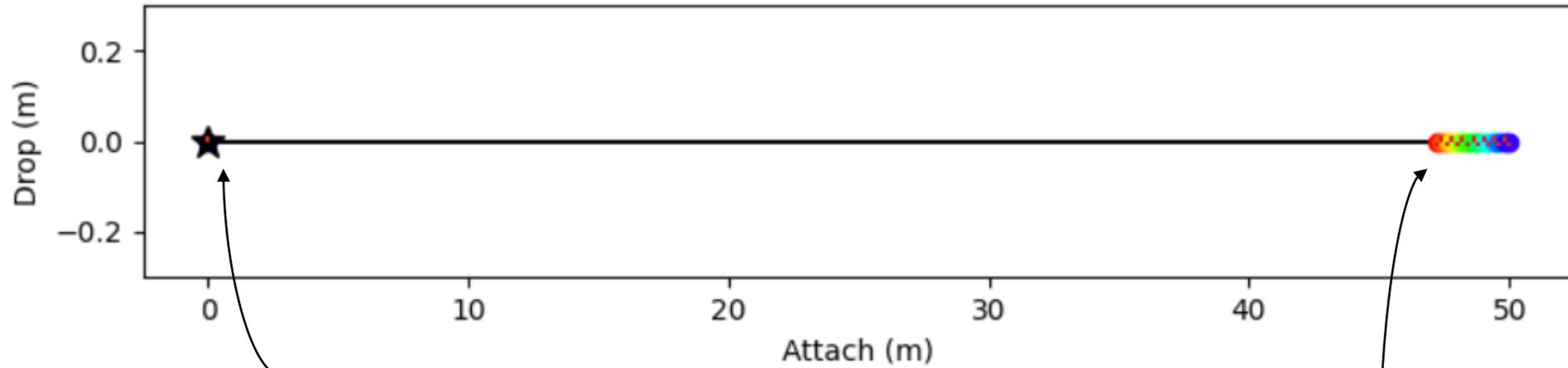
- ▶ 16 nodes – 413mΩ T-connector resistance
- ▶ 23g cable – 50meters
- ▶ 1 MPSE at start of cable
- ▶ 15 MPDs at end of mixing segment
  - ▪ 0.2m separation

Proposed Voltage Stack-Up

Param	Min	Max	Note
Vpse_type0	**26V**	30V	28.0V +/- 7.1%
Vpse_type1	**45V**	50V	47.5V +/- 5.3%
Ppd_type0		0.75W	
Ppd_type1		2W	
Vpd_type0	**18V**	30V	
Vpd_type1	**34V**	50V	

▶ Need distinct operating regions to support addition of nodes to powered mixing segment

▶ Max. Cable drop on a Type1 system must not enter the Type0 operating region

   ▪ ~5V Gap with parameters above
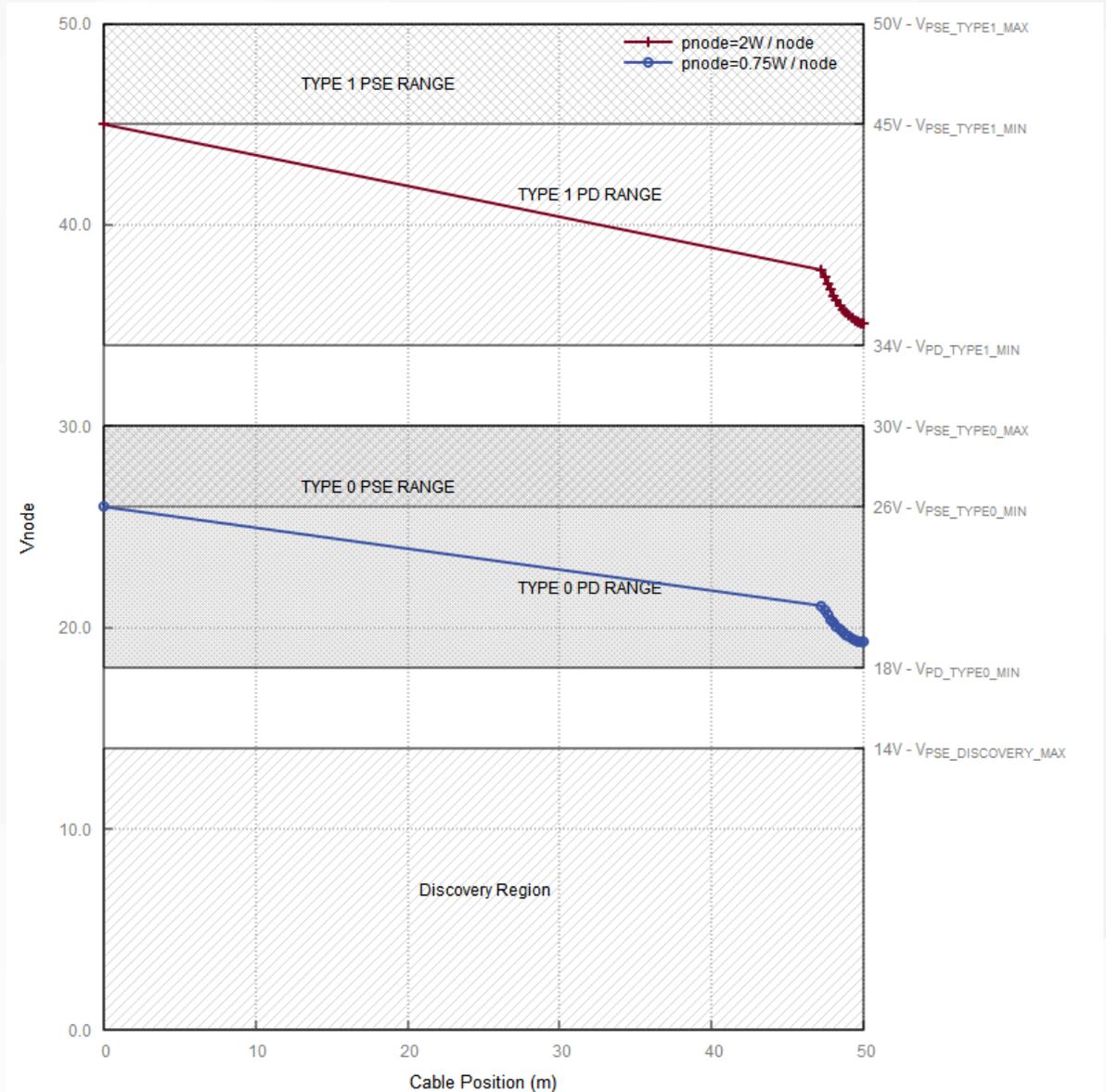
Converging on a system solution

- ► What if:
  - Cable gauge changes?
    - Increase system reach
  - PSE Voltage Changes?
    - Change power per MPD
  - T-Connector Resistance Changes?
    - Change power per MPD
  - Node Count changes
    - Please don't ☺
- ► Make slight adjustments to voltage stack-up as necessary

Convergence

You Are Here

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