

V.35/RS449 Cable Length Recommendations

Document ID: 10795

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Introduction

This document describes the recommended maximum cable length values for normal timing modes and loop timing modes.

Prerequisites

Requirements

There are no specific requirements for this document.

Components Used

This document is not restricted to specific software and hardware versions.

Conventions

For more information on document conventions, refer to the Cisco Technical Tips Conventions.

Recommended Maximum Cable Length Values

These cable length values are the maximum recommended for normal timing modes:

V.35/RS449 Data Rate	Max cable length recommended (feet)	Max cable length recommended (meters)
2 Mb/sec	50	15.24
1 Mb/sec	100	30.48
512 Kb/sec	200	60.96
256 Kb/sec	400	121.92
128 Kb/sec	800	243.84
56 K	1600	487.68
1.2 Kb/sec	3000	914.40

This assumes the cable has these characteristics:

- 24 AWG
- 100 Ohm
- Copper twisted pair cable with maximum capacitance of 16 pf/foot (standard telephone cable)

The EIA422 standard specifies a graph of cable length versus data rate based on AC attenuation. The real limiting factor is clock margin when the timing is set to normal. If the timing is set to loop, the graph applies instead.

Clock margin is calculated by assuming a maximum round trip delay of 4 ns/ft of the cable, with respect to half the period of the clock plus some guardband.

For loop timing mode, use this table (extracted from graph). These cable length values are the maximum recommended for loop timing modes:

V.35/RS449 Data Rate	Max cable length recommended (feet)	Max cable length recommended (meters)
2 Mb/sec	150	45.72
1 Mb/sec	300	91.44
512 Kb/sec	600	182.88
256 Kb/sec	1200	365.76
128 Kb/sec	2400	731.52
56 K	3000	914.40
1.2 Kb/sec	3000	914.40

Related Information

- [Cisco WAN Switching Solutions – Cisco Documentation](#)
- [Guide to New Names and Colors for WAN Switching Products](#)
- [Software Center – WAN Switching Software](#)
- [Technical Support – Cisco Systems](#)

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Updated: Apr 17, 2009

Document ID: 10795
