5. Revised media signal interface

This section revises the media signal interface specification previously described in section 4.2.2 of IEEE Std 1394-1995.

Analysis of connectors and cables reveals that the minimum rise or fall times of the differential signaling voltage need to be limited to avoid excessive reflections of energy from connector impedance discontinuites. Such reflections degrade the rise/fall characteristics of received signals and add deterministic jitter. Additionally, the IEEE Std. 1394-1995 receiver sensitivity specified in Table 4-13 is very marginal for long cable/low transmitter launch voltage situations.

5.1 Data signal rise and fall times (normative)

In addition to tables 4-22 and 4-23 in IEEE Std 1394-1995 we specify the minimum rise or fall time for data signals. The output rise and fall times for data signals are measured from 10% to 90% and are dependent on the data rate as specified in table 5-1. This specifcation shall be adhered to by measurement at the connector/cable interface of the 1394 device.

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Table 5-1 — Minimum output rise and fall times

	Minimum rise or fall time (ns)
S100	0.5
S200	0.5
S400	0.5

5.2 Signal amplitude (informative)

Table 4-13 of IEEE Std 1394-1995 gives a minimum signal amplitude detection limit of 118 mV for S400 signals. This is close to the practical limit for CMOS receivers due to process variations and device offsets. However, it should be noted that analysis of connectors and cables in 1394 systems indicates that receivers must expect to reliabily detect signals at this voltage level. Receivers with no more sensitivity than the table 4-13 specification may not work reliably.