

SECTION 7 SPECIFICATIONS

7.1 INTRODUCTION

This section lists the specifications for the DS3 Interface Module.

Framing Modes

- T3 unframed
- T3 framed (M13 or C-Bit)

Operating Modes

- Normal
- Test loopback

DS3 Input

- Input Connector: WECO 560A jack
- Input Frequency: 44.736 MHz \pm 100 ppm
- Input Impedance: 75 ohms nominal, unbalanced to ground
- Operating Range:
 - HIGH Level: +6 dB to -26 dB of flat loss from nominal high level
 - DSX Level: +6 dB to -26 dB of flat loss from nominal DSX level

DS3 Output

- Output Connector: WECO 560A jack
- Output Frequency: 44.736 MHz \pm 10 ppm
- Output Impedance: 75 ohms nominal, unbalanced to ground
- Output Pulse:
 - HIGH Level: Rectangular pulse
 - Amplitude: .91 peak \pm .11 volt peak
 - Width (at 1/2 amplitude): 11.2 ns \pm 1.1 ns
 - Rise/Fall Times (10%-90% amplitude): 4.5 ns \pm 1.5 ns, overshoot -10% pulse amplitude
 - DSX Level: Per CB119, Table 8 CCITT G.703
- Line Code: B3ZS

Error Insertion

- Logic Errors: Single insertion or insertion at specified rate
- BPVs: Single insertion or insertion at specified rate
- Logic and BPVs: Single or rate
- Frame: Single insertion of 1-15 consecutive frame errors
- Error Insertion Rates: FIREBERD 6000 = 1E-5 to 1E-9; FIREBERD 4000 = 1E-6

Indicators

- Frame Sync: DS3 frame synchronization achieved
- Code: Idle signal received
- ALM1: Yellow alarm received
- ALM2: Blue signal received

Specifications

Alarm Criteria

- Yellow Alarm: Detects a far-end out-of-frame condition (i.e., framing is lost) (X1 and X2 bits set to zero)
- Blue Alarm (AIS): "Keep alive" pattern detects complete system failure (C-bits=0 and 1000 bits of 1010 pattern)

Signal Loss

- 0.02 ms without valid input pulses

Patterns

- Fixed: 1111, 1100, 1010, and 3- to 24-bit programmable
- Pseudorandom: $2^{15}-1$, $2^{20}-1$, and $2^{23}-1$

Pattern Synchronization Criteria

- Fixed Patterns: 64 consecutive error-free bits
- Pseudorandom Patterns: $60 + n$ consecutive error-free bits for length 2^n-1

Pattern Synchronization Loss Criteria

- 1,024 errors per 32,767 bits

Frame Synchronization Criteria

- 15 consecutive error-free F bits and two consecutive error-free $M_0-M_1-M_0$ sequences

Frame Synchronization Loss Criteria

- Selectable:
 - Fast = 3 of 15 F-bits in error, or two of three $M_0-M_1-M_0$ sequences in error
 - Slow = 6 of 15 F-bits in error