



# NetCheck

## TMoIP Traffic Generator, Analyzer & Impairment Emulator

Summation Research, Inc.  
Flight Test Range Instrumentation

Multi-stream IRIG 218-20 Ethernet traffic generation, analysis, and network impairment emulation for range infrastructure validation.

### Overview

**NetCheck** verifies that the Ethernet infrastructure carrying IRIG 218-20 TMoIP delivers data reliably under nominal and stressed conditions—using traffic that matches actual operational patterns, not generic test traffic.

**RFC 2544 benchmarking, built for telemetry ranges.** NetCheck runs all four tests — Throughput, Latency, Frame Loss, Back-to-Back — against IRIG 218-20 TMoIP traffic at selectable frame sizes (64 B–9000 B), confirming your network can support mission telemetry before operations begin.

NetCheck generates traffic at variable packet lengths and emulates real-world impairments — latency, packet loss, jitter, reordering, duplication, corruption — on internal or live traffic. Pair with a remote DQQL or HexaBERT for far-end signal validation.

### Applications

- IRIG 218-20 Ethernet network infrastructure validation
- Pre-deployment network performance verification
- Multi-stream telemetry traffic load testing
- Network equipment evaluation and benchmarking
- Impairment emulation for system resiliency testing
- Live traffic impairment analysis in operational networks
- Range network troubleshooting and fault isolation

SRI's *Far-End Loopback* function reflects incoming data streams back to the source address, enabling enhanced troubleshooting and validation of the acquisition chain from a single location.

### RM-7162 NetCheck Supported Impairments

|                 |                                                                                         |
|-----------------|-----------------------------------------------------------------------------------------|
| Bandwidth       | 10 Kbps – 1,000 Mbps                                                                    |
| Latency / Delay | 100 $\mu$ s – 4,000 ms (1G); 100 $\mu$ s – 2,000 ms (10G/2.5G); single, uniform, random |
| Packet Loss     | 0 – 50%                                                                                 |
| Reordering      | 0 – 50%; delay $\leq$ 8 sec                                                             |
| Duplication     | 0 – 50%; periodic or random                                                             |
| Congestion      | Link utilization 0 – 50%; burst 64 – 1,000,000 bytes                                    |
| Error Insertion | Message error insertion                                                                 |

### Operational Benefits

- IRIG 218-20 formatted TMoIP packets for typical traffic patterns
- Combined generator, analyzer, and impairment emulator
- Validates network health before mission-critical data is at risk
- Analysis with live traffic—no need to take systems offline
- Impairment emulation helps identify the effects of network impairments on critical instrumentation and data analysis tools.

### Physical & Interface

- 19-inch rackmount chassis
- 1 Gigabit Ethernet interfaces
- Browser-based interface—no client software
- System health monitoring: CPU, NIC errors, socket stats
- Suitable for range room, WAN lab, and mobile deployment

