

Errata

The following corrections are made to “Proximity Link Throughput Enhancements via Raptor Code Technology,” by Amogh Rajanna, Clay Okino, and Ken Andrews, which appeared in vol. 42-224 of *The Interplanetary Network Progress Report*, published on February 15, 2021.

The corrected article is available at: https://ipnpr.jpl.nasa.gov/progress_report/42-224/42-224A.pdf.

The original article is available at: https://ipnpr.jpl.nasa.gov/progress_report/42-224/42-224A-orig.pdf.

The original article misstated the capabilities of the Proximity-1 protocol standard. To correct this,

1. The sentence in the abstract

“This standard is severely limited in throughput due to an inefficient retransmission protocol,”

should be

“It also includes an optional feedback mechanism by which the receiver can request transmitter changes; this was first used by the Mars Science Laboratory to implement an Adaptive Data Rate (ADR) mechanism based on the received signal quality. If such an ADR mechanism is not used, the Proximity-1 standard can have severely limited throughput due to an inefficient retransmission protocol.”

2. The sentence in the abstract

“By simulation, we show that Raptor codes provide greater throughput than the Proximity-1 (Prox-1) standard over a wide range of SNRs,”

should be

“By simulation, we show that Raptor codes provide greater throughput than the Proximity-1 (Prox-1) standard operating without ADR, over a wide range of SNRs.”

3. The sentence in the first paragraph of p. 2

“The current Prox-1 standard severely limits the throughput when the environment differs from the optimal operating point such as when the channel has higher signal-to-noise ratio (SNR),”

should be

“When used with fixed transmission parameters, the current Prox-1 standard severely limits the throughput when the environment differs from the optimal operating point such as when the channel has higher signal-to-noise ratio (SNR).”

4. The sentence in the third paragraph of p. 4

”This retransmission approach is bandwidth-inefficient and suffers from throughput loss due to inefficient retransmissions,”

should be

“When used with fixed transmission parameters, this retransmission approach is bandwidth-inefficient and suffers from throughput loss due to inefficient retransmissions.”

5. Before the sentence in first paragraph of Section VI beginning “We also assume...” should be

“The effect on throughput of dynamically changing transmission parameters as allowed by the prox-1 standard was not included in this study.”

The original article referred to “data packet” in an unclear way. To correct this,

1. The sentence in the first paragraph of Section II

“It specifies the data communication operations procedures for transfer of data packets from the sender to the receiver. On the sender side, the DLL accepts data packets from the network layer and relays them to the physical layer. On the receiver side, the DLL accepts the received data signal vectors from the physical layer and forwards the data packets to the network layer.”

should be

“It specifies the data communication operations procedures for transfer of Service Data Units (SDUs, typically packets) from the sender to the receiver. On the sender side, the DLL accepts SDUs from the network layer and delivers a coded symbol stream to the physical layer. On the receiver side, the DLL accepts a stream of noisy demodulated symbols from the physical layer, and delivers SDUs to the network layer.”

2. The sentence in the first paragraph of Section III

“The idea is to optimize the throughput of a K -bit packet transmission by only sending the necessary parity bits, i.e., minimizing the parity overhead.”

should be

“The idea is to optimize the throughput of a K -bit message block [3, Section 3.4.4.1(c)] transmission by only sending the necessary parity bits, i.e., minimizing the parity overhead.”

3. The sentence in the first paragraph of Section VI.A

“For every E_b/N_0 point, enough number of K -bit packets are transmitted over the communication system such that the number of codeword/packet errors obtained is at least 100.”

should be

“For every E_b/N_0 point, enough K -bit message blocks are transmitted over the communication system such that the number of codeword errors obtained is at least 100.”

4. The several sentences in Section VI.C and Section VII referring to “packets” should instead refer to “message blocks.”

Finally, the following should appear in the Acknowledgments section:

“The authors would also like to thank Peter Shames and Greg Kazz for providing important corrections to this paper.”