TABLE I

HARD-DECISION FEC THRESHOLDS OF CERTAIN CODES RECOMMENDED FOR OPTICAL COMMUNICATIONS

OH	Code type	Source	post-FEC BER	p
2.7%	Reed–Solomon (RS) (528,514) "KR4"	[26][a]	10^{-15}	$2.18 \cdot 10^{-5}$
5.8%	RS(544,514) "KP4"	[26][a]	10^{-15}	$2.26 \cdot 10^{-4}$
6.7%	RS(255,239)	[27][a]	10^{-15}	$8.27 \cdot 10^{-5}$
6.7%	Bose–Chaudhuri–Hocquenghem (BCH)+BCH	[28, App. I.3]	10^{-15}	$3.15 \cdot 10^{-3}$
6.7%	BCH+RS	[28, App. I.4]	10^{-15}	$2.17 \cdot 10^{-3}$
6.7%	RS(2720,2550)	[28, App. I.8]	10^{-15}	$1.10 \cdot 10^{-3}$
6.7%	Proprietary "P-FEC"	[29]–[32]	$10^{-15} - 10^{-20}$	$3.84 \cdot 10^{-3}$
6.7%	BCH+BCH	[33][b,c]	10^{-15}	$4.42 \cdot 10^{-3}$
7% (6.7%?)	Continuously interleaved BCH	[34]	10^{-15}	$4.52 \cdot 10^{-3}$
~~20%~~	~~Low-density parity-check (LDPC) convolutional~~	~~[35][b]~~	~~10^{-15}~~	~~$2.7 \cdot 10^{-2}$~~
24.5%	Convolutional+RS	[28, App. I.2]	10^{-15}	$5.20 \cdot 10^{-3}$
$6.7 - 24.3\%$	BCH+BCH	[28, App. I.7][c]	10^{-15}	$1.30 \cdot 10^{-3} - 1.30 \cdot 10^{-2}$
$6.25 - 33.33\%$	Staircase	[36][c]	10^{-15}	$4.70 \cdot 10^{-3} - 2.24 \cdot 10^{-2}$

[a]The pre-FEC BER p was estimated by the accurate approximation in [28, App. I.8.2], assuming bounded-distance decoding.

[b]The pre-FEC BER was calculated from the given Q factor in dB as $p = (1/2)\mathrm{erfc}(10^{Q/20}/\sqrt{2})$.

[c]The pre-FEC BER or Q factor was extrapolated from simulation results at significantly higher post-FEC BERs, and may therefore be inaccurate.

Errata:

- The LDPC convolutional code in [35] uses soft-decision decoding and should not be included in this table.
- The BCH+BCH codes in [28, App. I.7] should have a superscript c, since two of the three thresholds come from extrapolated simulations.