MEMORANDUM

To: IMP Guys

From: Bernie Cosell

Subject: On Making Checksumming more efficient (or more comprehensive)

Date: March 15, 1973   IG# 16

Relative to IG# 15, with a slight shift of viewpoint we could have either the same amount of protection for considerably less cost (in speed), or more protection for about the same cost.

The observation to make is that most of those four cycles per word of generating check sums are all duplicating work that has been done before; that is, adding together the data words. If Host/IMP generated a check sum for all packets it produced, data words and length only, then modem output would only have to add a single word into this check sum to produce the IMP/IMP check sum, and modem input would, after checking the check sum, merely subtract off the one word for the acknowledges.

This provides us with the same IMP to IMP check summing power, but with no need for the four cycles per data word in modem output. However, if we <u>are</u> willing ot pay the four cycles per data word in modem output, we could use those cycles for the intra-IMP check sum check and thereby have somewhat greater protection.