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Digital Computer Laboratory
Massachusetts Institute of Technology
Cambridge, Massachusetts

SUBJECT: TRIP TO MAGNETICS, INC., AUGUST 5, 1952

To: Kenneth H. Olsen

From: David R. Brown

Date: August 8, 1952

Abstract: We have reviewed the measurements made on the batch of 300 molybdenum permalloy cores, received July 23, 1952, at Magnetics, Inc., and find that their measurements do not differ greatly from ours. More precision is needed to bring the two together. Non-uniformity is being studied. Magnetics, Inc. is going ahead with production of the 20,000 cores and will complete delivery by October 31, 1952.

The trip was made on the completion of pulse tests of 12 of the 300 mo perm cores received on July 23, 1952. Our tests indicate that these cores are unsatisfactory. They have switching times of from 11 to 20 microseconds and the average for the 12 tested was 17 microseconds. Nine of the twelve cores which we tested were cores which had been tested by Mr. Walt Lewis at Magnetics, Inc. These measurements were discussed with him. His results indicated that the cores were slightly better, having an average switching time of perhaps 12 microseconds. We checked his equipment and measuring technique and found both to be satisfactory. We have suggested a few changes in his technique, however, to get more data near the optimum operating conditions. Greater precision of measurement and standardization of the technique will be required. We did impress upon them the need for uniformity. We showed them the pulse response of two cores, one fast and one slow, when both cores were being driven by the same current. The waveforms for the two cores were different in switching time and peak amplitude by perhaps 20%. Integration of the voltage waveform proved that the area of the voltage waveform or total flux change was the same in each case. They are going to take these two cores and make further studies to determine why the two are different. Dr. Gaugler is particularly interested in this problem.

We told them to go ahead on the 20,000 cores and I am initiating the order here. The performance specifications for the 20,000 cores are:

1. A mean switching time of from 8 to 12 microseconds--all cores within plus or minus 10% of the mean.

2. A mean I_m of from 0.17 to 0.23 ampere--cores to be within plus or minus 5% of the mean.

3. A mean 1_d of from 0.015 to 0.025 volt--cores to be within plus or minus 10% of the mean.

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4. A ratio of peak 1_d to 0_d measured at the time of the peak 1_d to be equal to or greater than 25.

Twenty thousand cores which meet these specifications are to be delivered by October 31, 1952. Magnetics, Inc. expects to be completing cores at the rate of 500 per day beginning September 2, 1952. Bobbins and 1/8-mil tape are being ordered by them for this job.

I had reported earlier that the batch of 300 cores we received on July 23, 1952, was the second such batch they had made since June 26--the first having been rejected. This is not true. Only one batch was made and the delay was due to the illness of the girl who winds the ribbons.

Signed David R. Brown
David R. Brown

DRB/jk

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