National Bureau of Standards
Certificate
Standard Reference Material 1600

Secondary Standard Magnetic Tape Cassette
(Computer Amplitude Reference)

This Standard Reference Material is intended for use in the calibration of the output signal amplitude from computer magnetic tape cassette recording and reproducing systems. It is defined as an NBS Secondary Standard Magnetic Tape Cassette (Computer Amplitude Reference). This SRM consists of approximately 91.4 m (300 ft) of 3.81 mm (0.150 in) wide unrecorded magnetic tape wound in a digital cassette housing. The material consists of oriented ferromagnetic oxide particles dispersed in a suitable polymeric binder material, that has been uniformly coated over the surface of a flexible polyester, or equivalent, base material.

The National Bureau of Standards maintains in repository a Master Standard Magnetic Tape Cassette (Computer Amplitude Reference) that is used periodically to calibrate selected "Working" Standard Magnetic Tape Cassettes. These selected tapes, in turn, are used to calibrate the instrumentation for measuring and documenting the performance of the NBS Secondary Standard Magnetic Tape Cassettes (Computer Amplitude Reference).

The output of each secondary tape cassette is calibrated in terms of its percentage of the signal amplitude level of the NBS Master Standard Magnetic Tape Cassette, which is taken as the 100 percent reference. Each secondary tape is calibrated at the recording density of 32 bpmm [800 bpi] PE.

To qualify as Standard Reference Material 1600, the tape cassette must meet the following criteria: except for momentary dropouts the average peak-to-peak output signal amplitude from the secondary tape as measured at the test recording current I_M level must be within 6 percent of that measured under the same conditions from the NBS Master Cassette.

The test recording current I_M is equal to 1.5 times the write current I_R (where I_R is the current value that produces an average peak-to-peak output signal amplitude from the tape which is equal to 95 percent of its maximum output signal). All signal amplitude measurements were made on the first read-after-write pass. The cassette tapes are bulk erased prior to recording.

The percentage relationship between the signal amplitude of Standard Reference Material 1600, Serial No. _____, and the NBS Master Cassette as measured and charted under this criterion is _____ percent with an accuracy of _____ percent.

No characteristics other than this preceding signal amplitude response is implied or ascribed to this reference material.

Washington, D. C. 20234
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J. Paul Cali, Chief
Office of Standard Reference Materials

The following documentation accompanies each SRM 1600:

(a) Two saturation curves consisting of the peak-to-peak and average peak-to-peak signal output voltage e_o (%) versus the record head current I_w made at the recording density of 32 bpmm (800 bpi) PE. One of the curves is produced from the SRM 1600 Serial No. , and the other is produced from the NBS Master Standard Magnetic Tape Cassette (Computer Amplitude Reference). The output from the master has been used as the 100 percent system reference level and the output from the SRM 1600 is calibrated against this level. The saturation curves are measured in the region between 30.5 m (100 ft.) and 61.0 m (200 ft.) from the beginning of the tape.

(b) A copy of NBS Technical Note 731, and an addendum sheet, describe the design and operation of the measurement system.

The data provided with each NBS Secondary Standard Magnetic Tape Cassette (Computer Amplitude Reference) is derived using the NBS measurement system. The National Bureau of Standards cannot guarantee the repeatability of the test data unless the signal amplitude measurements are performed on an equivalent system and under laboratory conditions similar to those described in the accompanying documentation.

The enclosed calibrations for SRM 1600, Serial No. , were completed on