



DEVELOPMENT STANDARD

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MAGNETIC HEAD FOR USE WITH
QIC-1350-DC RECORDING FORMAT

**Quarter-Inch
Cartridge
Drive Standards, Inc.**

311 East Carrillo Street
Santa Barbara, California 93101
Telephone (805) 963-3853
Fax (805) 962-1541
www.qic.org

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1.0 MECHANICAL REQUIREMENTS

- 1.1 The magnetic head is of a read-while-write bi-directional configuration and is to be used on a 1/4" data cartridge with 900 Oe magnetic media. A separate erase head is used, however the write gap must overwrite previously recorded data (overwrite only used for 1.35 GB).
- 1.2 Physical dimensions and track layout are detailed in Figure 1.
- 1.3 Read effective track width is $.003" \pm 150 \text{ u}"$.
- 1.4 Write effective track width is $.007 \pm 150 \text{ u}"$.
- 1.5 Write gap length (electrical) is $100 \text{ u}" \pm 10 \text{ u}"$ (measured at first gap null). Read gap length is 17 u" nominal.
- 1.6 Number of tracks is 30.
- 1.7 Track pitch of recorded tracks on tape is .0075" nominal (reference only).
- 1.8 Centerline to centerline spacing of the channels in the magnetic heads is $.115" \pm 500 \text{ u}"$ (15x the recorded track pitch .0025", applies to dual channel only).
- 1.9 Gap centerline offset tolerance is $\pm 150 \text{ u}"$ (see Figure 1).
- 1.10 Read gap to write gap spacing - see Figure 1.
- 1.11 Tape speed is 120 inches per second for read and write; 72, 90 IPS for read only.
- 1.12 Tape: DC 9135, DC 6320, DC 6525 (erase/write/read)
DC 6150, DC 600A, DC 300XLP (read only)

2.0 ELECTRICAL AND MAGNETIC REQUIREMENTS

- 2.1 Maximum recording flux density is 38,750 F.T.P.I.
- 2.2 Recording code is 1, 7.
- 2.3 Read head output at 120 IPS, DC 9135 tape, and 38,750 F.T.P.I. is 7.5 uV P-P per turn minimum.

- 2.4 Write saturation current (I_{sat}) at 38,750 F.T.P.I. is defined as the write current value required to produce the first 95% of the maximum read out-put. Total I_{sat} variation shall be $\pm 20\%$ of nominal.
- 2.5 Write current (I_W) is set at the value of $1.15 I_{sat} \pm 3\%$. (No equalization used in head testing). Write current rise time shall be 25 nS maximum measured from -90% to +90% point. Overshoot shall be 5% maximum of 0-pk value.
- 2.6 Resolution is determined as:

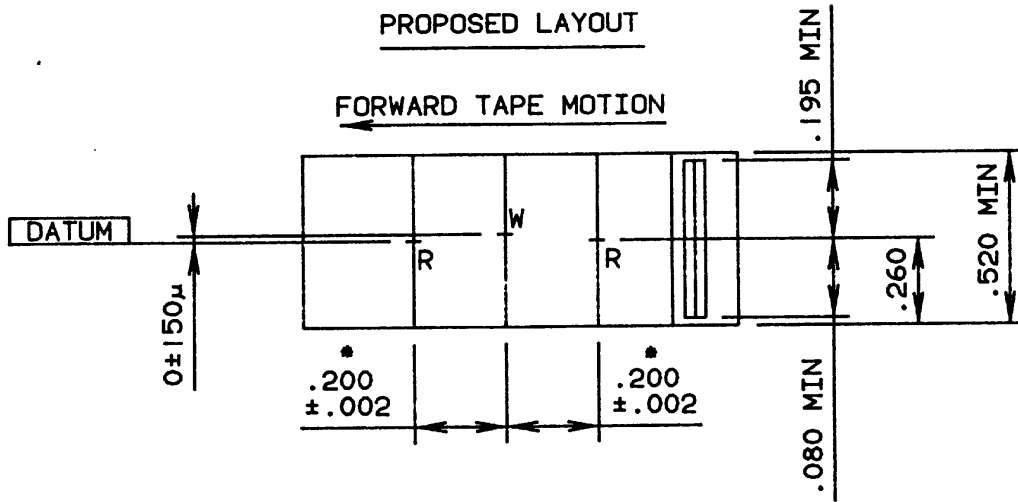
$$\frac{E_o \text{ at } 38,750 \text{ F.T.P.I.}}{E_o \text{ at } 9,687 \text{ F.T.P.I.}}$$

The minimum resolution shall be 45% without equalization.

- 2.7 Resonance frequency for the read head with a capacitance load of 15 pf at the head connector shall be 5.5 MHz minimum and the write head shall be 15 MHz minimum with 15 pf load.
- 2.8 Magnetic crossfeed is determined by the ratio of the read head output without tape movement and the write head energized at 38,750 F.T.P.I. at I_W to the "read-while-write" output signal at 38,750 F.T.P.I. This ratio to be a maximum of 5%.
- 2.9 Magnetic crosstalk is determined by the ratio of the read head output while writing with the write head in the same gap line, to the "read-while-write" output signal at 38,750 F.T.P.I. Option 1 only. This ratio to be a maximum of 500%.
- 2.10 Overwrite - When a recorded signal of 9,687 F.T.P.I. written at I_W is overwritten with a signal at 38,750 F.T.P.I. using I_W , the remaining 9,687 F.T.P.I. signal shall be -28 dB below the "read-while-write" output level at 9,687 F.T.P.I.
- 2.11 Read gap and write gap azimuth error - Reference datum line in Figure 1 should be less than 5' of arc.
- 2.12 Erasure residual of any signal from 3333 to 20,000 F.T.P.I. on DC 6525 tape shall be 4% maximum of 20,000 F.T.P.I. output. Residual of any signal from 9,687 to 38,750 F.T.P.I. on DC 9135 tape shall be 5% maximum of 38,750 F.T.P.I. output.
- 2.13 Read filter bandpass shall be -3 dB at 4.65 MHz with a -6 dB per octave rolloff.
- 2.14 Write coil read output - TBD.

FIGURE 1

PROPOSED LAYOUT



(*)
OPTION $.100 \pm .002$

