MAGNETIC HEAD FOR USE WITH QIC-80-MC RECORDING FORMAT
Important Notices

This document is a development standard adopted by Quarter-Inch Cartridge Drive Standards, Inc. (QIC). This document may be revised several times during the development cycle. It is intended solely as a guide for companies interested in developing products which can be compatible with other products developed using this document. QIC makes no representation or warranty regarding this document, and any company using this document shall do so at its sole risk, including specifically the risks that a product developed will not be compatible with any other product or that any particular performance will not be achieved. QIC shall not be liable for any exemplary, incidental, proximate or consequential damages or expenses arising from the use of this document. This development standard defines only one approach to the product. Other approaches may be available in the industry.

This development standard is an authorized and approved publication of QIC. The underlying information and materials contained herein are the exclusive property of QIC but may be referred to and utilized by the general public for any legitimate purpose, particularly in the design and development of quarter-inch tape cartridge drive subsystems. This development standard may be copied in whole or in part provided that no revisions, alterations or changes of any kind are made to the materials contained herein. Only QIC has the right and authority to revise or change the material contained in this development standard, and any revisions by any party other than QIC are totally unauthorized and specifically prohibited.

Compliance with this development standard may require use of one or more features covered by proprietary rights (such as features which are the subject of a patent, patent application, copyright, mask work right or trade secret right). By publication of this development standard, no position is taken by QIC with respect to the validity or infringement of any patent or other proprietary right, whether owned by a Member or Associate of QIC, or otherwise. QIC hereby expressly disclaims any liability for infringement of intellectual property rights of others by virtue of the use of this development standard. QIC has not and does not investigate any notices or allegations of infringement prompted by publication of any QIC development standard, nor does QIC undertake a duty to advise users or potential users of QIC development standards of such notices or allegations. QIC hereby expressly advises all users or potential users of this development standard to investigate and analyze any potential infringement situation, seek the advice of intellectual property counsel, and, if indicated, obtain a license under any applicable intellectual property right or take the necessary steps to avoid infringement of any intellectual property right by virtue of the evolution, adoption, or publication of any QIC development standard.
## QIC DEVELOPMENT STANDARDS

### REVISION HISTORY

<table>
<thead>
<tr>
<th>Revision Level</th>
<th>Detail</th>
<th>Revision Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>B (1)</td>
<td>Change in specification and tolerance to the width of the</td>
<td>14 June 1995</td>
</tr>
<tr>
<td></td>
<td>write core.</td>
<td></td>
</tr>
</tbody>
</table>


1.0 PHYSICAL FORMAT

1.1 QIC format, Wide-Write/Narrow-Read (Optional)
QIC-118-1

0.00680 Write ETW

0.0026+/−0.0003
Typ. Write Only

0.0032 Nom. Read ETW

0.0004 max.
2 plcs

R/W GAP 30uin. Nom.

1.2 QIC format, TBD
QIC-118-2

0.00915 Max.
0.00680 Min. Write ETW

0.0032 Nom. Read ETW

R C_L to W C_L within 0.0002
2.0 ELECTRICAL FORMAT

2.1 Recording Density
The maximum nominal recording density shall be 14,700 flux reversals per inch (FRPI) or 579 flux reversals per millimeter (FRPMM) with MFM code.

2.2 Read Head Output
The output of the read head @ 14,700 FRPI and 34 inches per second tape speed shall be 1.0 mV minimum to 3.0 mV maximum.

2.3 Read Head Load
The read head load shall be 5K ohms paralleled by 15 pF for all measurements.

2.4 Write Saturation Current (Isat)
The write saturation current (Isat) at 14,700 FRPI is defined as the current value at the first 95% of maximum read output.

2.5 Write Current (Iw)
The write current (Iw) is set at 130% of the write saturation current.

2.6 Resolution
Resolution is determined as the ratio:

\[
\frac{E_o @ 14,700 \text{ FRPI}}{E_o @ 7,350 \text{ FRPI}} \times 100\%
\]

The resolution shall be in the range of 70% to 90% at a tape speed of 34 inches per second.

2.7 Overwrite
When the longest wavelength of a cartridge recorded with a QIC-40 head (5,000 FRPI) is overwritten by the shortest wavelength of a QIC-80 drive (14,700 FRPI) the remaining 5,000 FRPI signal shall measure no more than -30 dB of the nominal 14,700 FRPI read signal level when measured with a spectrum analyzer having a sampling bandwidth of less than 5% of the overall system bandwidth shall be determined by the shortest recorded wavelength (14,700 FRPI at 34 IPS tape speed).
2.8 PeakShift
The peakshift shall be less than 12.5% when measured in accordance with paragraph 3.11 of the QIC-80 drive specification.

2.9 Output Asymmetry
The output asymmetry is measured by first DC erasing a track (reference paragraph 2.10), then recording with 7,350 FRPI. Measure the read back waveform asymmetry [(time from positive peak to negative peak) - (time from negative peak to positive peak)]. This value at 34 IPS tape speed shall not exceed 150 nanoseconds.

2.10 Write Gap Erase Function
A DC current equal to Iw (reference paragraph 2.4) in either leg of the write winding shall overwrite a 5,000 FRPI signal recorded with a QIC-40 head, such that the remnant 5,000 FRPI signal is a maximum of -30dB of the nominal output at 14,700 FRPI. This current shall not cause any permanent remnant magnetic effects to alter any other head operating parameter.

2.11 Read CrossTalk Due to Adjacent Track
The read crosstalk component, coupled into the read section of the core from either optional closure section of the core, shall not exceed 6%. This is measured by recording a degaussed tape with one track at 7,350 FRPI and then positioning the head such that the only portion of the head that is physically over the receded track is one optional closure section. The read signal in this condition shall not exceed 6% of the nominal read signal when reading this track with the full width of the core.

2.12 Railroad Tracks (Optional)
Railroad tracks are defined as the longitudinal unrecorded areas within a recorded track due to the non-magnetic space separating the read section of the core from the two closure sections of the write core. Each of these two non-magnetic spaces within the head shall not exceed 0.0004 inches in width (mechanical measurement).

2.13 Written Track Width
0.00915" maximum
0.00680" minimum