ASSOCIATION CONNECTING
ELECTRONICS INDUSTRIES®

2215 Sanders Road
Northbrook, IL 60062-6135

Number	
1.6	
Subject	
Numerical Reporting	
Date	Revision
01/03	**A**
Originating Task Group	
N/A	

IPC-TM-650
TEST METHODS MANUAL

The following guidelines should be used for numerical reporting:

1. Follow the IPC policy for the use of metric and English units.

   In an effort to prepare the industry for a full change to complete metric measurements in IPC standards and specifications, the Technical Activities Executive Committee (TAEC) voted on a new way for both to be included. Through this new metric conversion policy, IPC documents will have hard metric numbers and parenthetical soft imperial numbers with appropriate units.

   The hard metric numbers will represent accuracy of the numerical values as decided by the working committee/task group according to their respective contexts.

   For example:

   The working committee/task group will decide whether a hard metric number should be represented as:

   1.3 mm (any value within the range of 1.25 mm to 1.34 mm is acceptable), or

   1.30 mm (any value within the range of 1.295 mm to 1.304 mm is acceptable).

   The soft imperial numbers will have one significant digit more than the metric numbers to capture the accuracy represented by the metric numbers.

   For example:

   3 m *(one significant digit)* converts to 118.1102 in, which will be documented as **3 m [120 in]** *(two significant digits because the zero is a placeholder).*

   3.0 m *(two significant digits)* converts to 118.1102 in, which will be documented as **3.0 m [118 in]** *(three significant digits).*

   9.17 m *(three significant digits)* converts to 30.0853 ft, which will be documented as **9.17 m [30.09 ft]** *(four significant digits because all zeros embedded between nonzero digits are significant).*

   2 mm *(one significant digit)* converts to 0.07874016 in, which will be documented as **2 mm [0.079 in]** *(two significant digits because the zeros are placeholders used to locate the decimal point).*

   66 µm *(two significant digits)* converts to 0.002598425 in, which will be documented as **66 µm [2.60 mil]** *(three significant digits because the non-truncated zero is not a placeholder).*

   725 µm *(three significant digits)* converts to 0.02854331 in, which will be documented as **725 µm [28.54 mil] or [0.02854 in]** *(appropriate units are determined by the context of numerical values and both have four significant digits).*

   3.8×10^{-6} m converts to 1.496063×10^{-4} in, which will be documented as **3.8×10^{-6} m [1.50×10^{-4} in]** *(if scientific numerical format is appropriate).*
2. Spell out numbers one through ten, except in use with measurement and time.
3. Spell out any numbers at the beginning of a sentence.
4. When reporting numbers less than a whole number, place a zero to the left of the decimal point.
5. Report average results to the same amount of significant figures as the numbers being averaged.
6. When readings reach maximum of test equipment or maximum of practical values, precede the number with ''greater than'' or ''>'' and explain the reason for not going to the limit.
7. Always report results in the same unit of measurement as that of the requirement.
8. In reporting ranges use the preposition ''to,'' not a hyphen as: 3 cm to 9 cm.
9. Report portions of a unit of measure in the singular.
10. Mark a failed result in such a way as it will stand out to the reader. Later state what this marking signifies.
11. When tabulating, use clearly defined headings.
12. Clarify when more than one set of numbers is in a tabulation of statement.