HIOKI 8860 and 8861 Memory HiCORDER Defect Details

1. Erroneous Current Measurements with the Hioki 8940 and 9279

Affected Versions:
- 1.01 and 1.02 (released between February 24 and April 22, 2005)
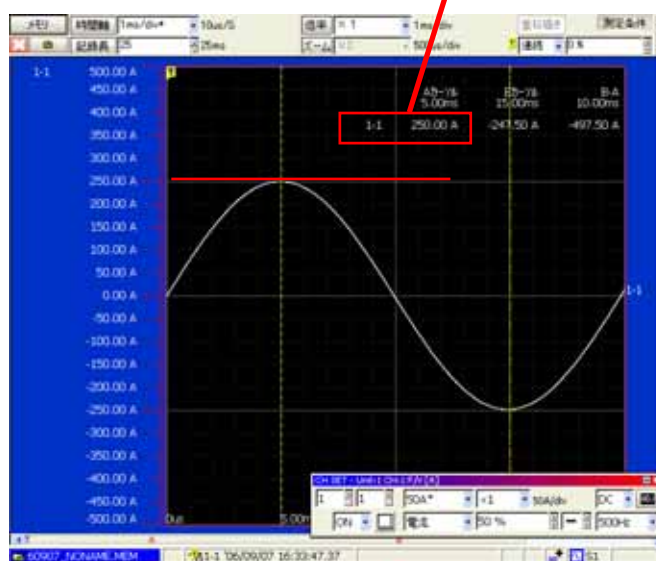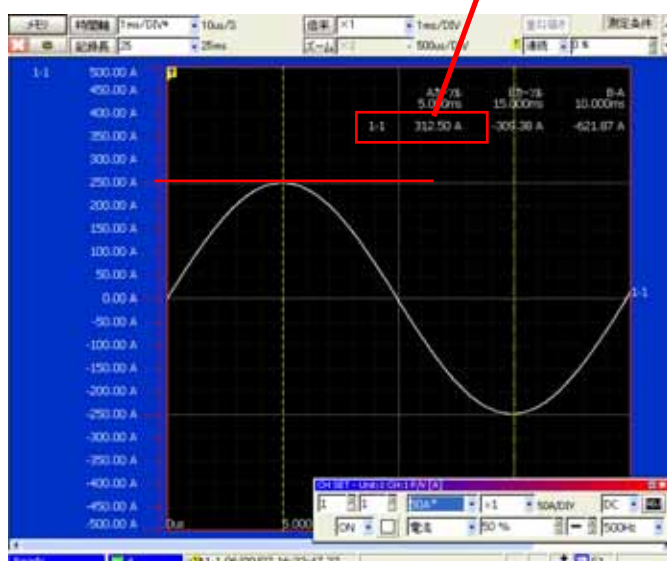
Details:
- When measuring current with the combination of the Model 8940 Voltage and Current Unit and the 9279 Current Probe, erroneous data values are 1.25 times larger or 0.8 times smaller than their original measured values.
- The errororneous values are as follows depending on the current range settings on the 8860 and 8861:

    200 mA/div and 100 A/div ranges: measured value x 0.8

    500 mA/div and 50 A/div ranges: measured value x 1.25
- The same erroneous factors are applied to measurement values loaded by the cursor function and waveform data saved in text format.

Defect Example:
- When measuring 500 AP-P (+250 to -250 A) with the 50 A/div range, the indicated cursor value at the positive peak should be 250 A.

Defective cursor value = **312.5 A (Incorrect)**   Correct cursor value = **250.00 A (Correct)**

2. Erroneous Auto Saving to PC Card

Affected Versions:
- 1.01 to 1.10 (released between February 24, 2005, and November 14, 2006)

Details:
- When the auto-save destination for the MEM or REC function is set to a PC Card, the following malfunctions occasionally occur while measuring:

    The message "An unexpected error has occurred" appears, and waveform file saving is aborted.

    Operation of the 8860 hangs, and no further key operations are accepted.

    Erroneous data is saved to files (see defect examples)
- However, no malfunctions occur in the following cases:

With the Memory function, when the Roll mode is disabled (OFF) (saving proceeds when finished measuring)

When the recording time (timebase x recording length) is 9 seconds or less

When the timebase setting is faster than 1 ms/div, display magnification is not compressed, and saving proceeds when finished measuring

When the timebase setting is slower than 1 min/div, saving proceeds simultaneously with measurement

Malfunction conditions in the file saving progress dialog while measuring

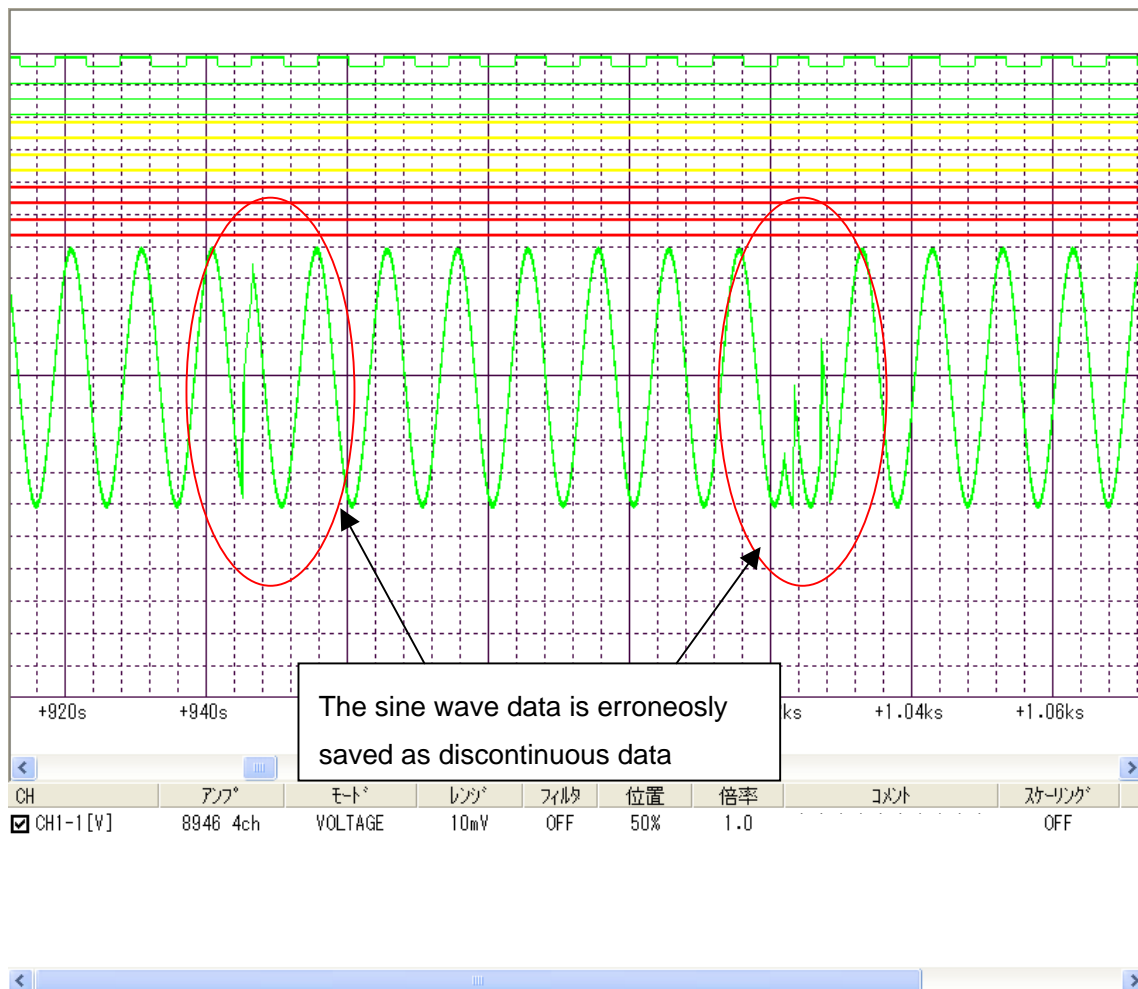| Display Dialog State	Possibility of Malfunction
Not displayed while measuring, but appears when finished measuring	No saving is performed while measuring, so there is no possibility of this malfunction.
Always appears while measuring, with saving progress advancing with measurement	Measurement and saving are performed simultaneously, so there is
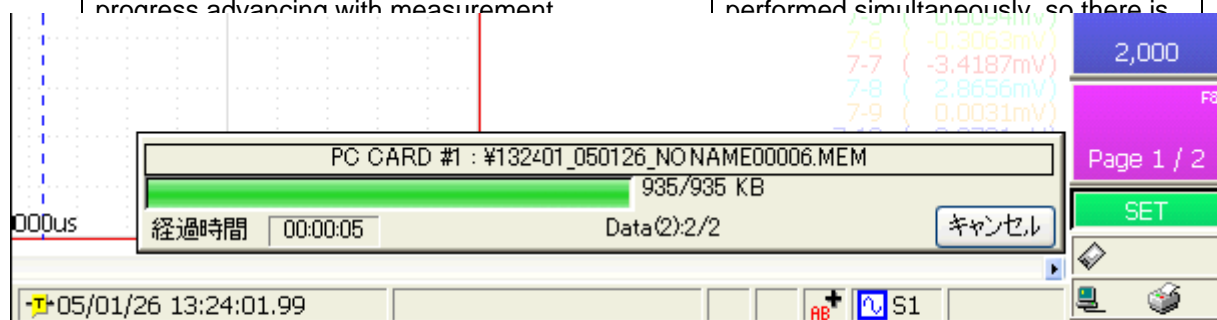
Progress Dialog

Example of problematic settings

REC Function:

Timebase: 1 s/div   Recording Length: 1000 div

Time axis display magnification: x1

Analog channels: 5

Logic channels: A to D

Auto-save destination: PC Card

Screen format: One screen horizontal scroll

Real-time printing: OFF

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Example of erroneous data saving

The sine wave data is erroneosly saved as discontinuous data

CH	アンプ	モード	レンジ	フィルタ	位置	倍率	コメント	スケーリング
☑ CH1-1[V]	8946 4ch	VOLTAGE	10mV	OFF	50%	1.0		OFF

3. Model 8860 or 8861 waveform channel data malfunction when aborting measurement with the 8958 module installed

Affected Versions:

- 1.01 to 1.05 (released between February 24 and October 19, 2005)

Details:

- When measuring with the Memory function and Model 8958 Scanner Unit installed in the 8860 or 8861 HiCORDER, pressing the STOP button twice to abort the measurement in progress may cause the order of the measurement channels in the Scanner Unit to be changed for the next measurement only.

- The rate of occurrence of the error depends on the sampling rate setting (Note 1) of the Scanner Unit. With the default 50 ms/sample setting, the error rate is about 0.0032%, but with the fastest sampling rate setting of 10 µs/sample, the error rate is about 16%.

    (Note 1) The timebase settng item for the Memory function


Channel displayed and saved

8958 channel
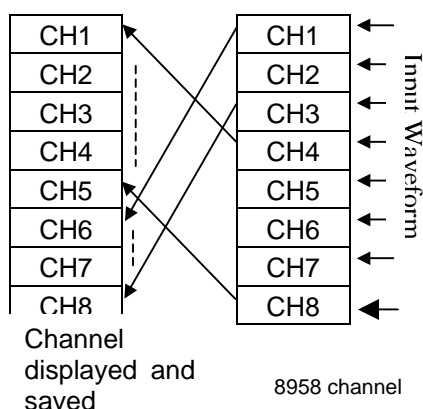
The figure at the left shows how channels 1 to 8 are improperly shifted in the Scanner Unit. The waveform applied to CH4 is acquired as CH1, and that applied to CH5 is acquired as CH2, with other waveforms acquired in sequentially shifted channels.

Although the shifting process does not follow any particular pattern, CH9 to CH16 are similarly exchanged among themselves. If only CH1 to CH3 are used, when shifted as in the figure at the left, only a straight line waveform (0V) appears (incorrectly) as the acquired data for CH1 to CH3.

Defect Example:

A square wave is applied to CH1_2 of the Scanner Unit, while a sine wave is applied to CH1_8. No input is applied to the other channels.
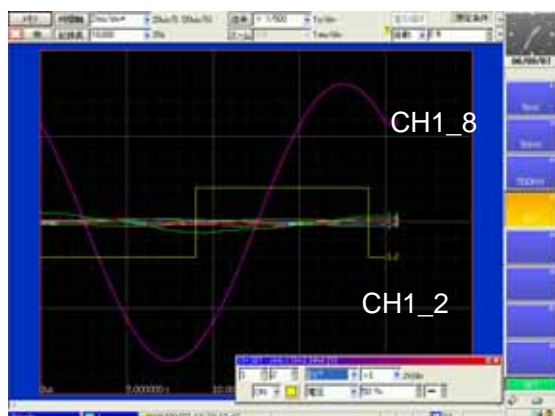
Correct Waveforms
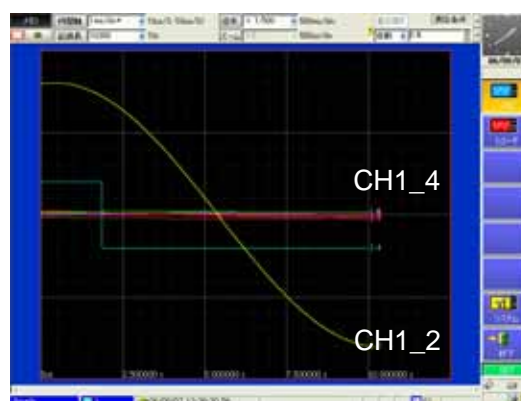
Erroneous Waveforms

The malfunction causes the sine wave applied to CH1_8 to be indicated as CH1_2, and the square wave applied to CH1_2 to be indicated as CH1-4. In this case, the shapes of the shifted measurements can be seen as follows:

1. CH1_1 is indicated as CH1_3
2. CH1_2 is indicated as CH1_4 (Fig.)
3. CH1_3 is indicated as CH1_5
4. CH1_4 is indicated as CH1_6
5. CH1_5 is indicated as CH1_7
6. CH1_6 is indicated as CH1_8
7. CH1_7 is indicated as CH1_1
8. CH1_8 is indicated as CH1_2 (Fig.)

4. Auto-save errors with slow timebase in the Memory Function of the 8860 and 8861

Affected Versions:

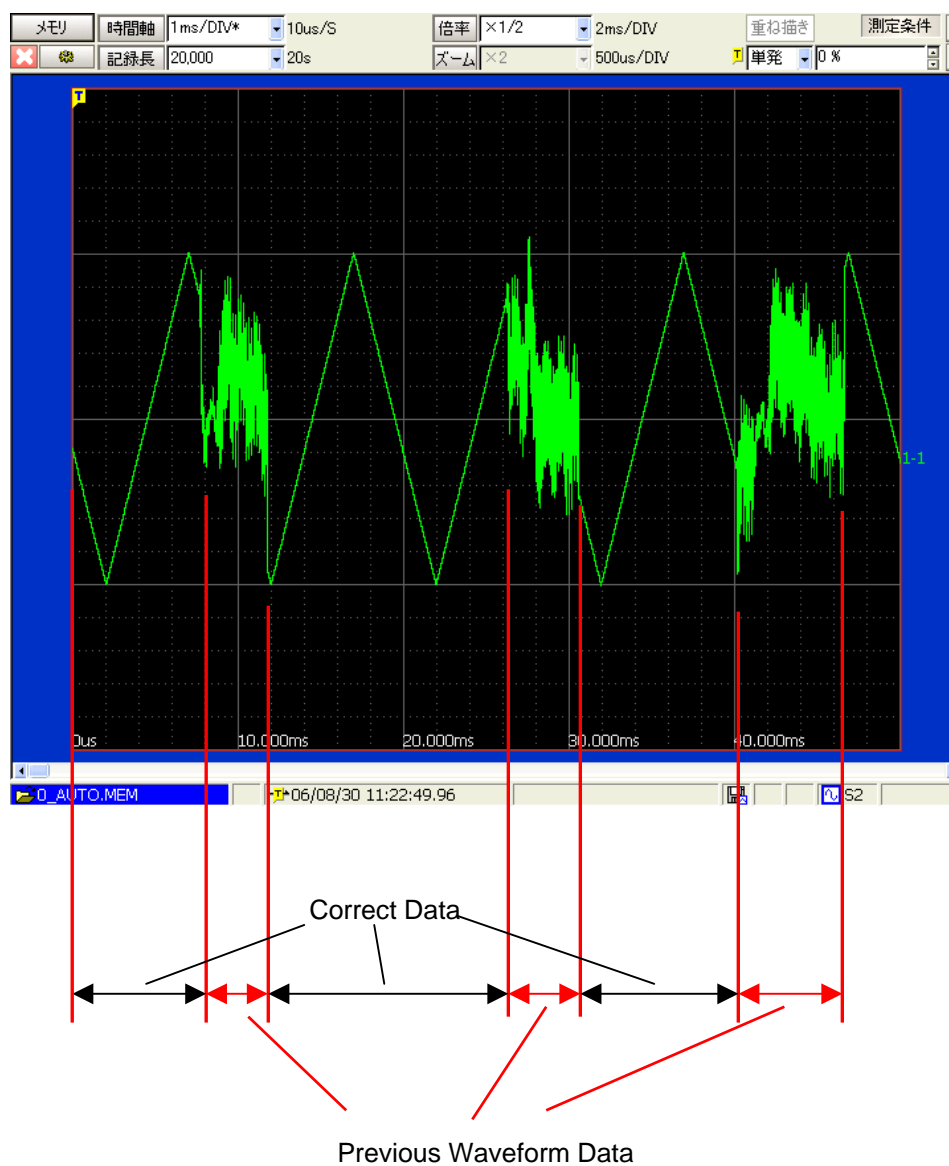- 1.01 to 1.05   (released between February 24 and October 19, 2005)

Details:

- With the following Memory function settings:

    Timebase: 1 ms/div or slower

    Roll Mode: ON or Auto

    Auto-saving upon trigger occurrence

- When measurement is started with the above settings, and depending on trigger timing, previously acquired waveform data may be interjected into the data being currently saved.

Defect Example

When measuring a triangle wave signal after measuring a noise waveform, the error appears as previously acquired waveform data within the current triangle wave input.

5.

Correct Data

Previous Waveform Data

5. Auto-save errors when using two time axes with the Memory function of the 8860 and 8861
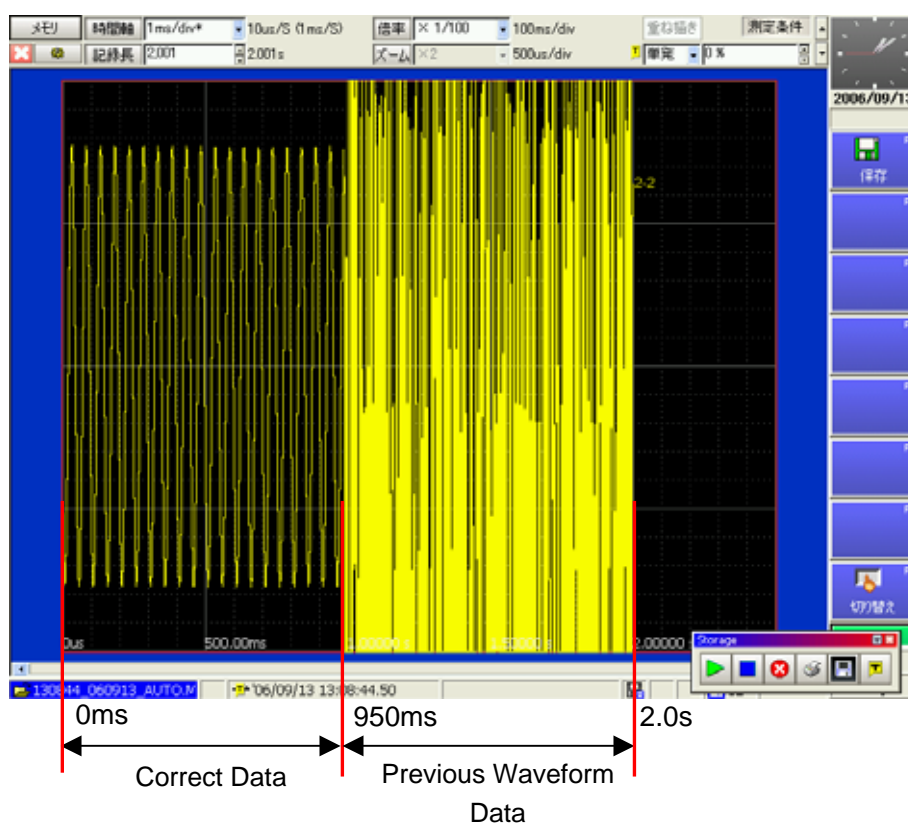
Affected Versions:
- 1.01 to 1.06   (released between February 24, 2005, and January 13, 2006)

Details:
- With the following Memory function settings:

   2-Axis Timebase setting: enabled (ON)

   Timebase: 1 ms/div or slower

   Product of the timebase and display magnification: faster than 100 ms/div

   Roll Mode: AUTO

   Auto-save only the waveform on time axis 2
- When measurement is started with the above settings, previously acquired waveform data may be interjected into the data being currently saved.

Defect Example:
- Measure a sine wave signal after measuring a noise waveform
- With the defect, previously acquired data replaces current waveform data after about 950 ms.

6. Auto-save malfunction using Save Destination #2 with Memory Division in the 8860 and 8861

Affected Versions:

- 1.07 to 1.10   (released between January 12 and November 14, 2006)

Details:

- When performing auto-saving using Memory Division with the Memory Function, the latter portion of block data from used blocks may not be saved.
- When auto-saving is enabled, and the second save destination is set to "Save on Error", data is saved to destination #2 when destination #1 becomes full. However, this malfunction causes only one block of data to be saved, with subsequent blocks unsaved. After this has occurred, if the trigger mode is Continuous and measurement returns to the starting block, subsequent blocks are saved to destination #2.

Defect Example:

- With the following settings: Memory Division = ON, Number of Memory Divisions = 8, Start Block = 1, Used Blocks = 8, Auto Save = ON, Save Destination 1 = "PC CARD #1:¥" and Save Destination 2 = "PC CARD #2:¥", after starting measurement, when PC CARD #1 becomes full after saving three blocks, the fourth and later blocks should be saved to PC CARD #2. However, unless the defect is fixed, only the fourth block is saved on PC CARD #2, and later blocks are never saved.
- When the defect has been fixed, the fourth through eighth blocks are saved along with the AUTO.SEQ (index) file.

Before Fix   **Only one file exists (malfunction)**   After Fix   **Six files exist (normal)**
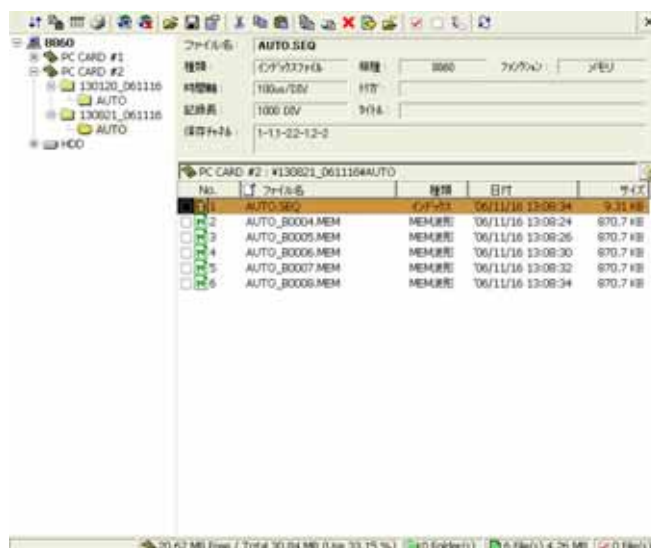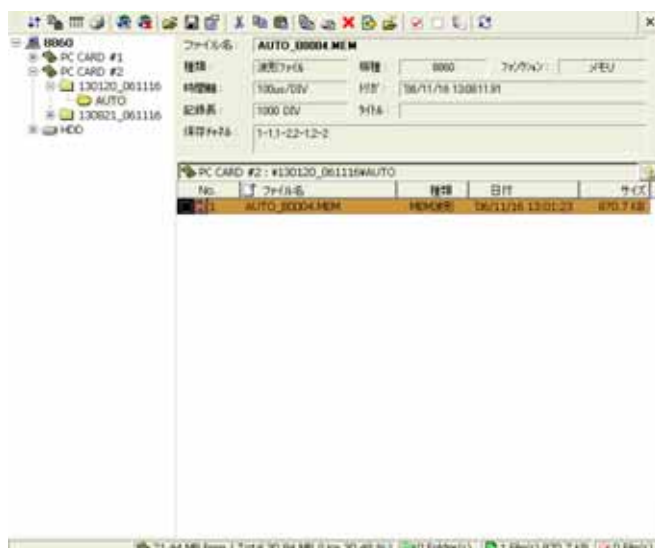
7. Erroneous Moving Average Waveform Calculation in the Hioki 8860 and 8861

Affected Versions:
- 1.06 and 1.07   (released between October 19, 2005, and June 12, 2006.)

Details:
- With waveform calculation using the Memory Function, when calculating moving average where k is the number of values to average, the summed data is one count short, so the resulting calculated data is too low by a value of about (k-1)/k.

Defect Example:
- A sine wave of 1 VP-P (+1 V to -1 V) is applied, and waveform calculation is performed to obtain the moving average with k = 4.
- The calculation result is a waveform with a peak-to-peak value three-fourths the pre-calculation value.

Input Waveform 1 V_{P-P}

Calculation Result 750 mV_{P-P} Waveform is too small