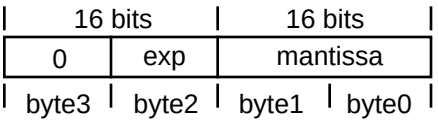
fers on the RS232 interface is not recommended.

The parameter i selects the display buffer (i=1, 2) and is required. Points are read from the buffer starting at bin j (j≥0). A total of k bins are read (k≥1) for a total transfer of 4k bytes. To read a single point, set k=1. Both j and k are required. If j+k exceeds the number of stored points (as returned by the SPTS? query), then an error occurs. Remember, SPTS? returns N where N is the total number of bins - the TRCB? command numbers the bins from 0 (oldest) to N-1 (most recent). If data storage is set to Loop mode, make sure that storage is paused before reading any data. This is because the points are indexed relative to the most recent point which is continually changing.

TRCL ? i, j, k

The TRCL? command queries the points stored in the Channel i buffer. The values are returned in a non-normalized floating point format (with the units of the trace). There are 4 bytes per point. Multiple points are not separated by any delimiter. The bytes CANNOT be read directly into a floating point array.

Each point consists of four bytes. Byte 0 is the LSB and Byte 3 is the MSB. The format is illustrated below.



The mantissa is a signed 16 bit integer (-32768 to 32767). The exponent is a signed integer whose value ranges from 0 to 248 (thus byte 3 is always zero). The value of a data point is simply,

$$value = m \times 2^{(exp-124)}$$

where m is the mantissa and exp is the exponent.

The data within the SR830 is stored in this format. Data transfers using this format are **faster** than IEEE floating point format. If data transfer speed is important, the TRCL? command should be used.

Do not query the IFC (no command in progress) status bit after sending the TRCL command. This bit will not be set until the transfer is complete.

When using the GPIB interface, EOI is sent with the final byte. The points must be read using a binary transfer (see your GPIB interface card software manual). Make sure that the software is configured to NOT terminate reading upon receipt of a CR or LF.

When using the RS232 interface, the word length must be 8 bits. The points must be read as binary bytes (no checking for linefeeds, carriage returns or other control characters). Most serial interface drivers are designed for ASCII text only and will not work here. In addition, the data transfer does not pause between bytes. The receiving interface must always be ready to receive the next byte. In general, using binary trans-