AMM-1 Conversion from 16 bit RAMS product to 8 bit integer data

The original output of RAMS product is 16 bit signed integer data. Because of disk space problem and inefficiency of managing 16 bit data, it is recommended to convert 16 bit data to 8 bit data. The steps which will be explained in the following are not only applied to 8 bit data but also applicable to 16 bit data. We used equation (1) to convert 16 bit RAMS output data to 8 bit unsigned integer. This routine is based on the histogram analysis of block 1 through block 14 of RAMP product (Figure 1).

RN

DN

(a)   (b)
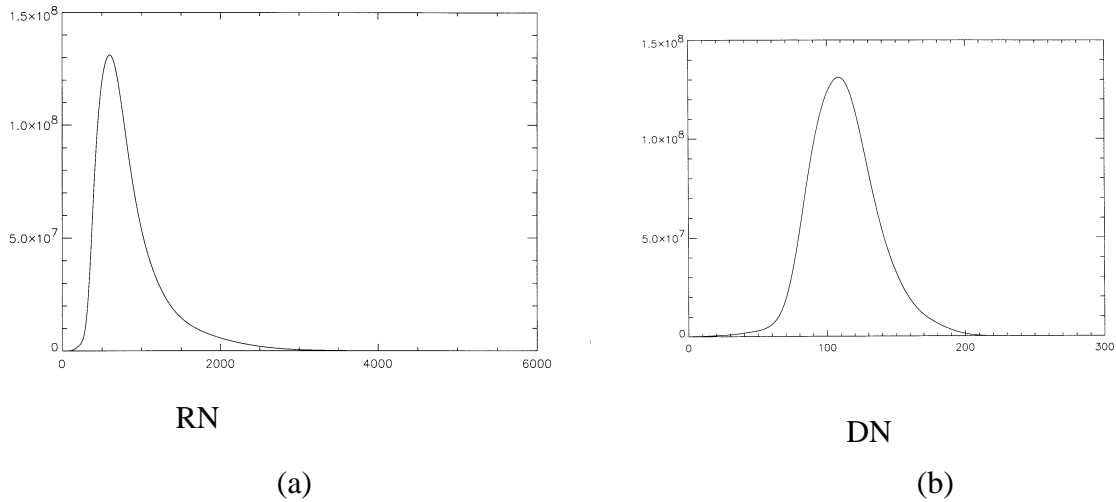
Figure 1. Histogram comparison between 16 bit RAMS data and 8 bit converted data (a); histogram of block 1 through 14 based on 16 bit data, (b); histogram of block 1 through 14 after converting 8 bit using equation(1).

$$DN = 7 \cdot [10 \cdot \log(RN^2) - 40] \tag{1}$$

where, RN :16 bit RAMS DN number
        DN: 8 bit DN number.