This came up with regard to the estimated uncertainties of the ripple |F(q)|.

Let the best estimate of intensity be I and |F|2=I. After considering all sources of uncertainty (box position, background subtraction, absorption and mosaic corrections), estimate the most likely upper bound. Call it I+I. Determine the most likely upper bound for |F| by (|F|+F)2= I+I. This determines F = |F|(-1 + sqrt[1+(I/|F|2]). In the small I/I regime, F = I/2|F|. In the large I/I regime, F =sqrt[I]. One may also consider the estimate for the lower limit. For the small I/I regime, this gives the same uncertainty to leading order. For the large I/I regime, the estimated intensity would be an impossible negative, so the lower limit for |F| is technically 0; of course, the lower limit for F is - F. However, I think it is less confusing to just use a symmetrical F for the uncertainty in all cases. Finally, if we can’t see a peak but we can see and estimate the intensities of nearby peaks, then I think we should assign zero to |F| and F =sqrt[I] where I is determined by box uncertainty. Zero is an observation and should be reported with an uncertainty. It can be used in modeling, although it has no effect on the eventual map, unless we do something more sophisticated with the uncertainties.