**Regarding the specs document:**

Peter was fine with Jeff's document as a radar specs document. My comparison with the old LF specs didn't raise any red flags for me. John G just returned from leave, but he hasn't responded with any immediate objections. In summary, I believe HRD is good with this as a specs document that we can use for research publications.

One addition from Peter, and I agree: It would be nice if they explained "why you would change the range affecting the display but also data resolution ... it seems to me you could record at some max range, second trip and all, and let the display software do the zooming".  [This doesn't need to be in the specs document, but we really don't understand why, when the FD adjusts the range for hazard avoidance, etc., that the data resolution is also changed. That's not a good design for research! Data recording and display ought to be separate. But I suppose it is what it is.]

**\*Regarding CfRadials, here's a recap of what I previously wrote on 3 Jan (w/ subsequent feedback from Peter):**

1) I need to digest their VEL comment.

Peter's input: "Reading the VEL description as a units check you have m/s = m/s \* (m? or m/s?) which makes no sense. If VEL is the average over Doppler cells, wouldn't you just multiply by the inverse of the number of cells?"

2) As far as their DBZ comment, I don't think their expression for DBZ in terms of raw reflectivity, scale\_factor and add\_offset is quite right. I'm double checking with Peter and John for their confirmation. In any event, for scale\_factor=1 and add\_offset=0, one gets DBZ = raw\_reflectivity either way, but I want to make sure the correct formula is stated in the comment. I would also ask that scale\_factor and add\_offset be added as attributes of DBZ, as we've previously requested, with ELTA's default values of 1 and 0, respectively, assigned. But the comment (with a likely correction) is acceptable as an addition. If the values of DBZ range from 1 to 255, however, then it is unclear how the user is to interpret values of "0" that are frequently present in MMR DBZ. So that needs to be clarified in a comment.

Peter's input: "But their decision to have 0 mean missing and not have an offset means that signals above the MDS will be not saved, as you noted when comparing the dBZ and VEL fields." [Peter is referencing a previous evaluation of MMR data I did where I demonstrated coherent meteorological structures in the VEL field which all had 0 DBZ values attached ... that's not good for a research radar]

3) I'm interpreting their assigning -9999 to northward\_wind as an indication that the whole deal of getting that data to the MMR was unsuccessful. That's ok. Users of the MMR VEL data will just have to get the local wind data from another source (since it's required to QC the VEL data). Honestly, HRD's main interest is DBZ, so this isn't a huge deal for us. But we'll all make sure future radar systems have this info integrated into the radar files, as it is with the TDR.

Peter's input, and I would agree ... but it's up to ELTA what they want to do ... we have no specific request: "As for the Northward wind, etc. why include it if you can't measure it? Instead of wasting thousands of bins filled with -9999.9, just have a comment in the global attributes that the flight level winds at the aircraft are not included in the CfRadial and should be obtained from AOC's flight level data system."

Clarification:

To clarify my item "2)" below:

My understanding is that (using ELTA's language in their DBZ comment) Raw\_Reflectivity = DBZ\*scale\_factor + add\_offset. Solving for the integer value DBZ, that would yield DBZ = (Raw\_Reflectivity - add\_offset) / scale\_factor. So that should be a minus sign (not positive) and divide (not multiply) in their DBZ comment in the CfRadial.