

Questions for Hart

1. Does Hart have a specification for the image needed to assure ballots can be read by the combination scanner and Hart software? Resolution? Contrast? Orthogonally? Other?
2. Should the county be giving the printer C4 TIFF files instead of the Hart software output (postscript)?
3. Is the option box created by Hart converted to a TTF and then added or assigned an existing Font #? Could the county have the names and origins of the barcode and text fonts?
4. How are the voting areas identified in the Hart Software? We have heard that the scanner / software finds the barcodes, establishes x,y coordinates, scales x and y, and distorts from Orthogonal to a best fit? What part of the barcode represents the datum?
5. Are the barcodes' position part of the "flagging" of damaged ballots? Is the distance between barcodes a figure of merit for accepting a ballot at the scanner?
6. How far off from the expected position can the barcodes exist and still be interpreted? How clean does a bar code edge need to be to be interpreted.
7. How far off from the expected position can the vote squares exist and still be recognized? If the area of the ballot away from the barcodes is damaged or deformed, would the integrated scanner/software know this prior to capture? Does Hart have experience in discovery of printing distortions other than in the margins?
8. Has Hart characterized the stability, bias, linearity, repeatability and reproducibility scanner to scanner, time to time for the system software/hardware combination? Has this been done through the expected operating dimensions and distortions anticipated in the ballot environment? Has this been published? May we see the data? How does this vary with the size of the ballot?
9. Does Hart distribute Kodak scanners? Do they represent any other scanner manufacturer? Why were Kodak technicians on hand during the tally process?

Software

1. Can Hart prepare software to allow a prescreen at the printer contractor? All ballots should return an under vote.
2. Are the barcodes interpreted at the scanner or in the NT computer? How much of the process is resident at the scanner and how much is in the tallying computer? Could you prepare a flow chart to explain it?
3. Can the software be modified to look for marks outside the squares in an under vote interpretation, perhaps in a donut around the option box?
4. Can additional fiducials be added nearer the option boxes to allow a second interpretation of a scan when an avocado (damaged race) is indicated on the first interpretation? Can a

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cross or other fiducial be used nearer the option boxes instead of using the perimeter bar codes as location devices?

5. Can the ballots be sorted during the scanning process - countable ballots in one pile and ballots requiring resolution in a second pile? The reason to ask this is to use a high speed process to interpret all ballots that can be interpreted quickly and take those requiring resolution off line to a "rework process" which is slower. As it is now, the scanner is idle as soon as a batch of ballots has damaged ballots identified. What hardware/software changes would be necessary to accomplish this mission? Is a reject tray available?
6. Can the ballots be interpreted out of order? Missing pages?
7. Can the Hart software allow a batch of ballots (say a stack of 500 in a scanner) be pulled for a hand count audit? In order for this to have validity, could a printed count (or data base record) for that stack be produced for comparison? Can an individual custom report be prepared?