



Evaluation of CDCOM version 1.6





Problem description

- CDCOM version 1.5.2:
As a first approximation of the position of the gold discs the gridlines of the phantom are used
- Variations in gridline position led to an inaccurate estimation.
- Combined with the size of the search area this led to incorrect scores for some specific phantom images.



Problem description

Example of a phantom image with incorrect score in CDCOM debug mode:






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- CDCOM version 1.6.0:

A template of the phantom with all disc positions is translated, rotated and skewed for an optimal fit using the clearly visible discs on the images.

- For this estimate of the position of the discs a relatively large search area is used
 - For the actual detection a similar search area compared to version 1.5.2. is used to get similar detection results
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- Internally two new CDCOM versions have been made with different methods to estimate the position of the gold discs
- This data was compared to CDCOM version 1.5.2
- Debug CDCOM versions have been made in which each step in the programme could be checked





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- A CDMAM phantom was made with only thick discs
- Using subsets of the visible discs the methods to determine the position of the search area could be evaluated
- The three CDCOM versions (1.5.2 and two new versions) were compared to each other using numerous CDMAM series
- Partly in debug mode



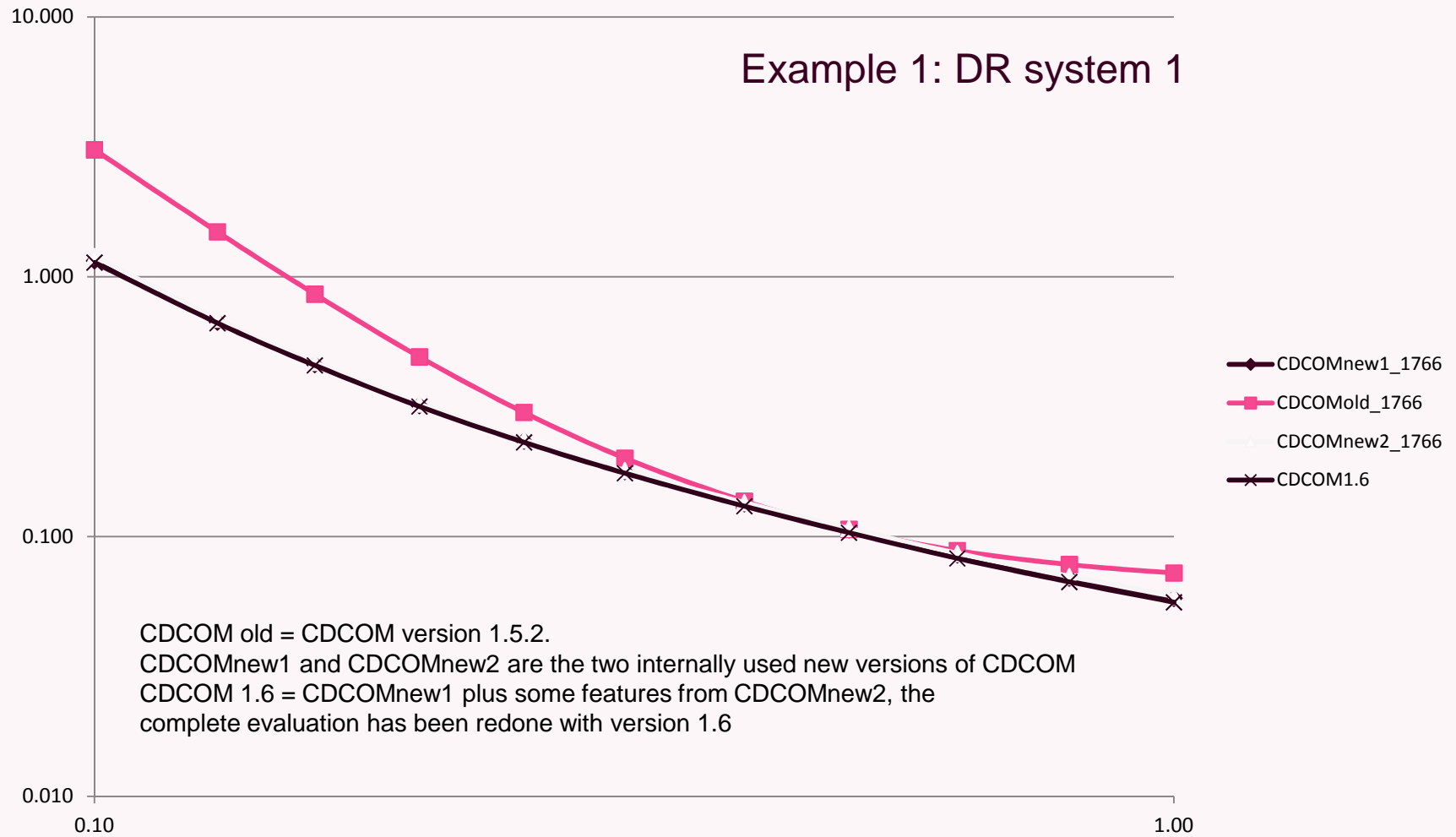


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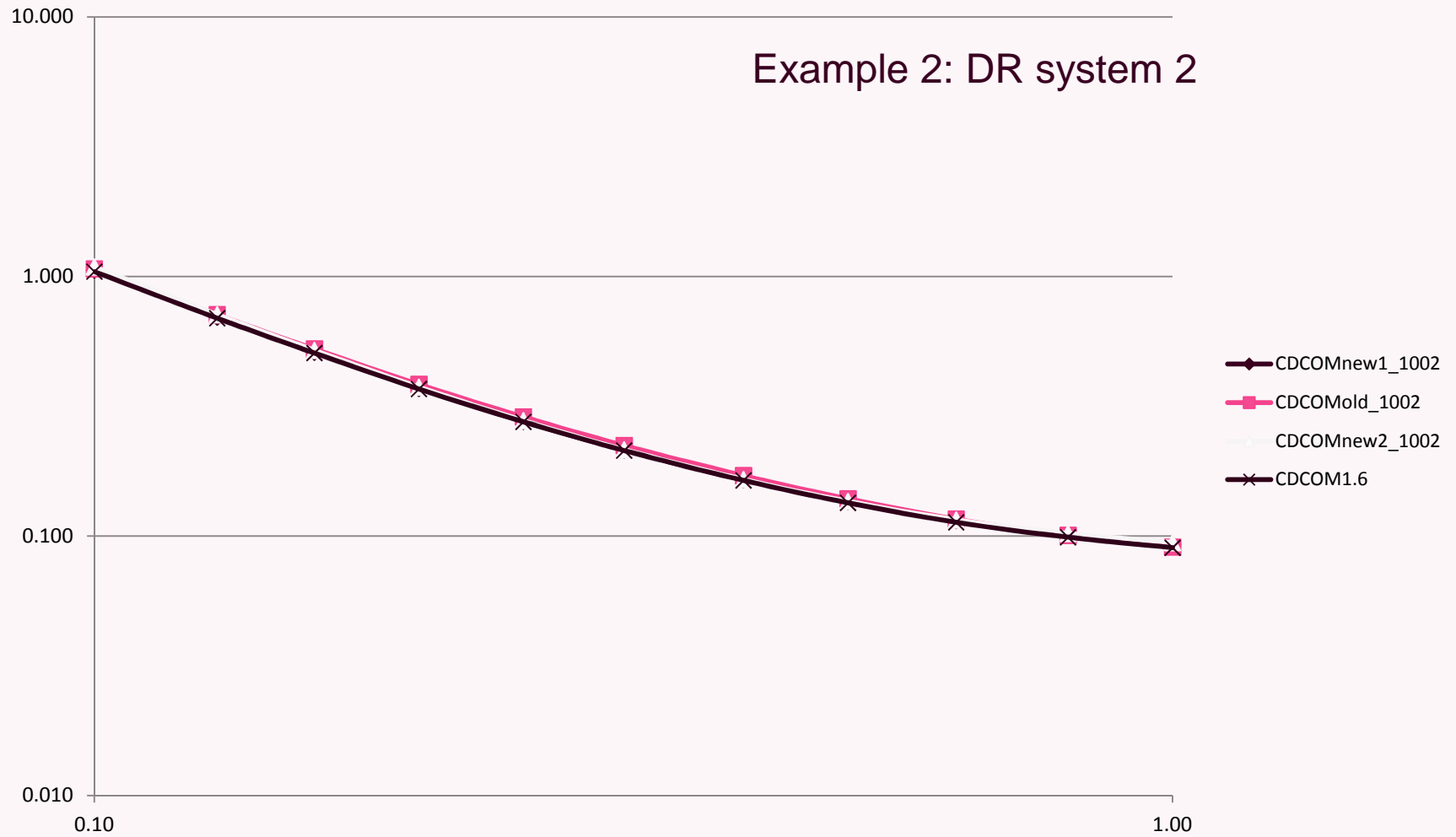
- Series of images from **each** manufacturer have been used to evaluate CDCOM 1.6 (between 8 to 164 images per series)
- Data from 13 phantom comparisons have been used (each of these comparisons incorporated 2 to 26 phantoms)
- In total images from approximately 90 CDMAM phantoms have been obtained and used in the evaluation



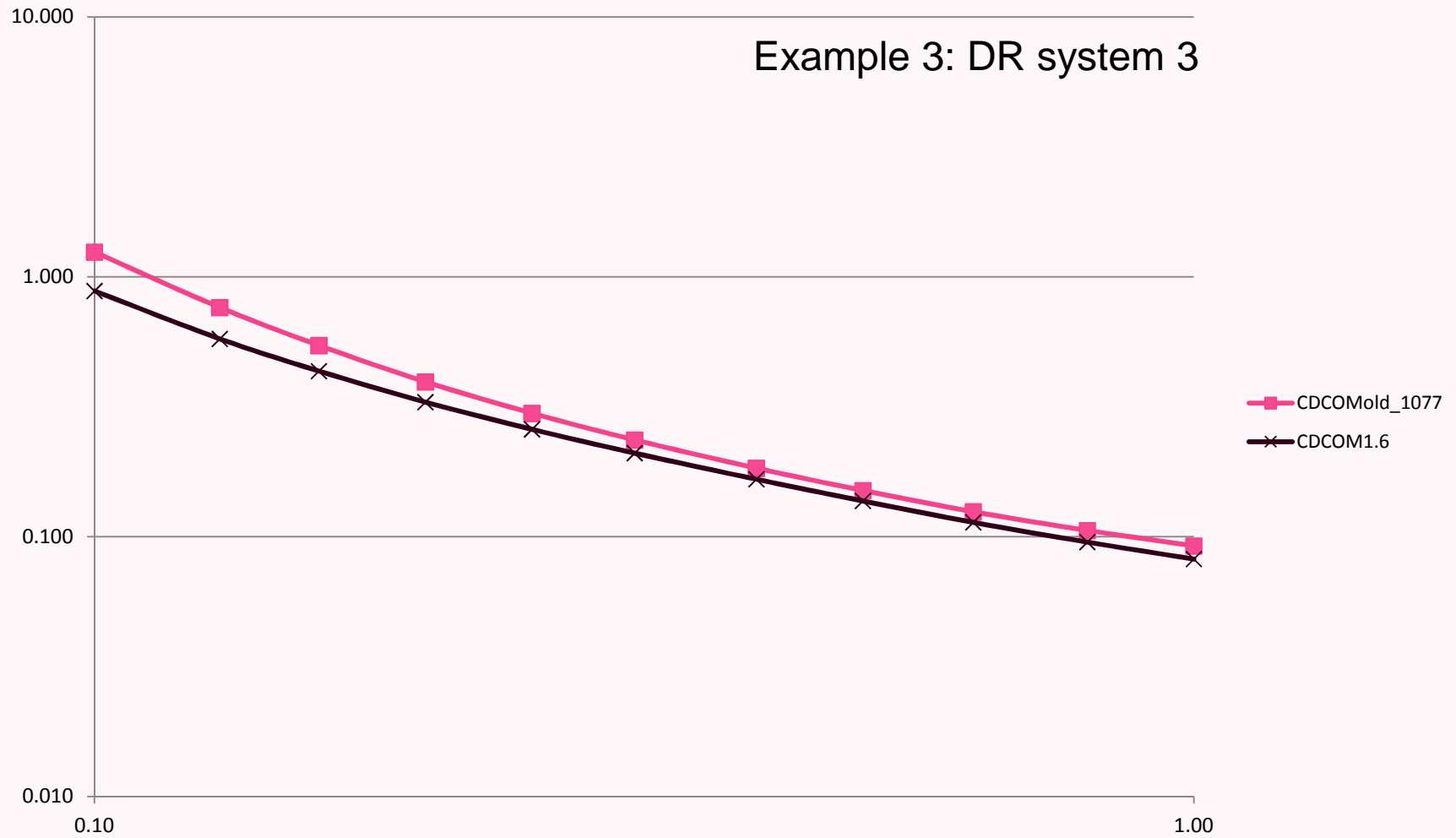
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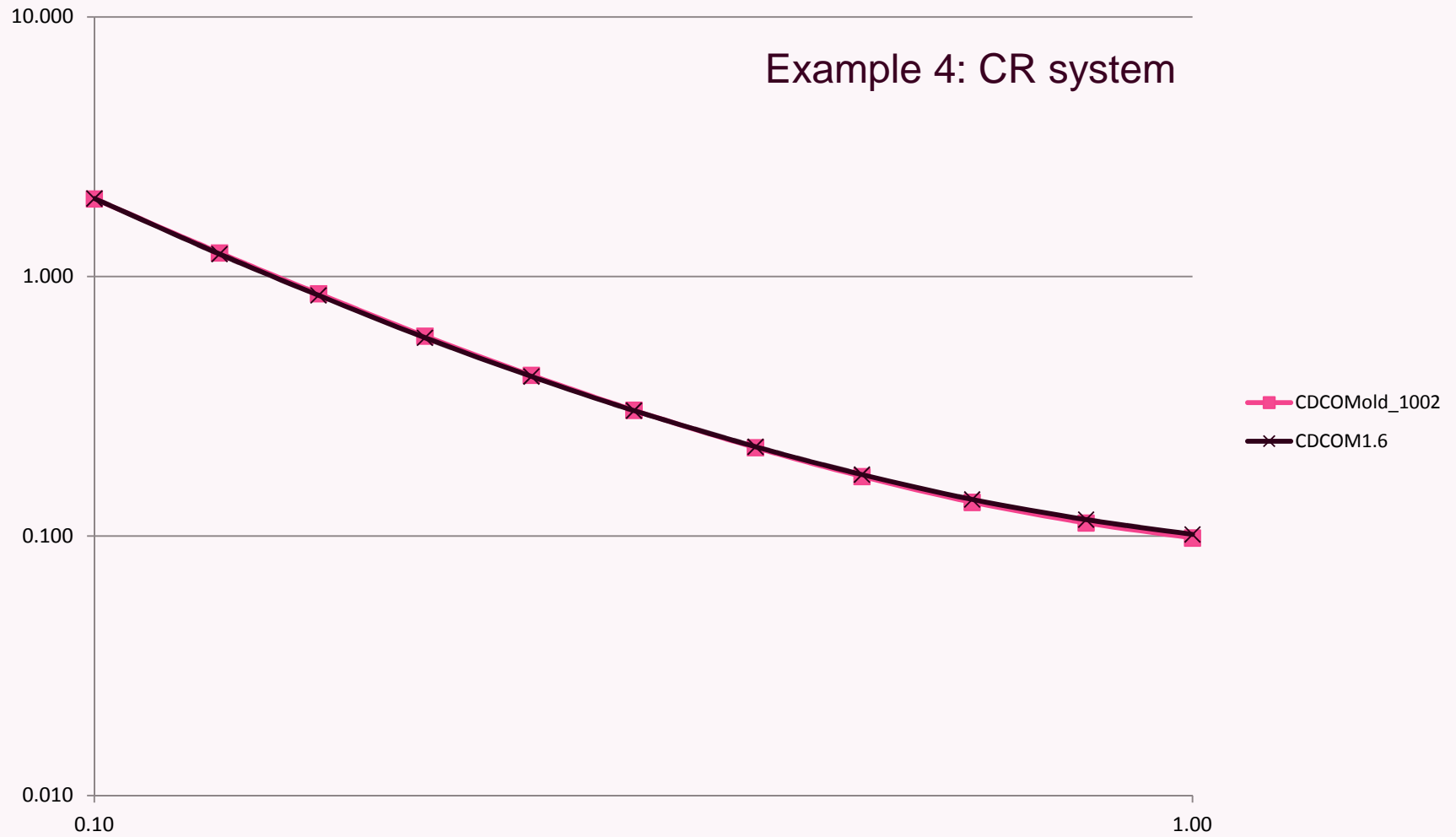
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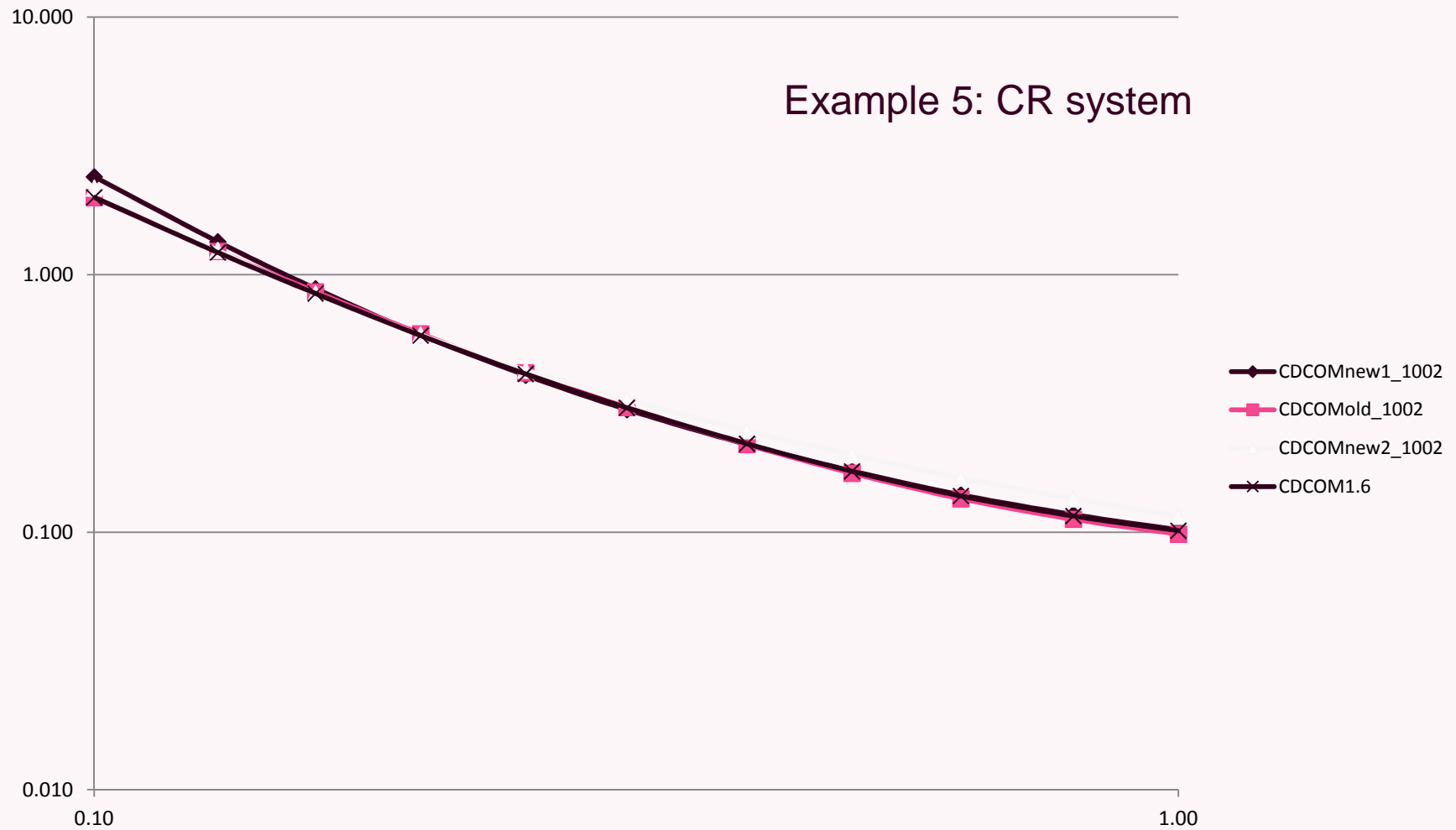
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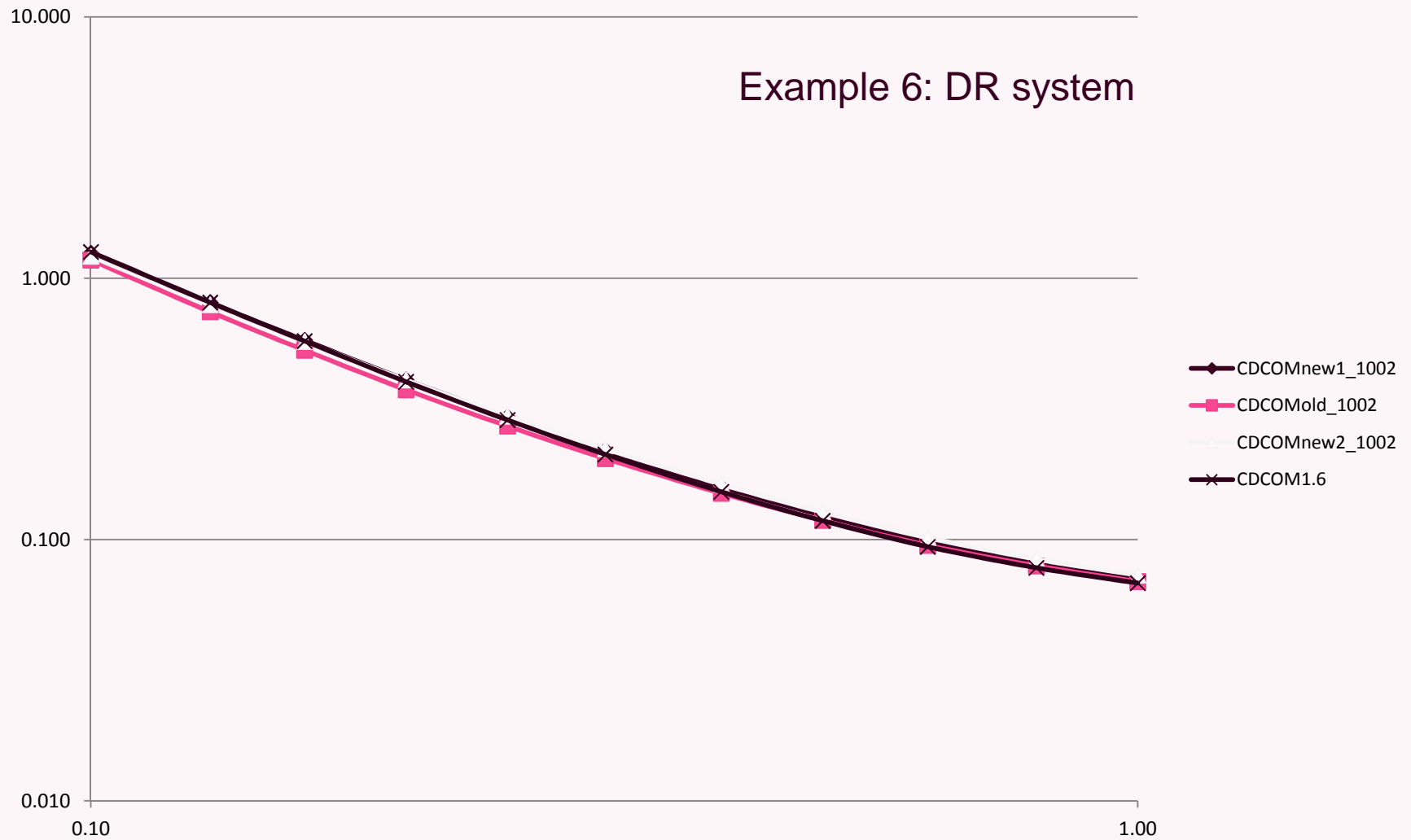
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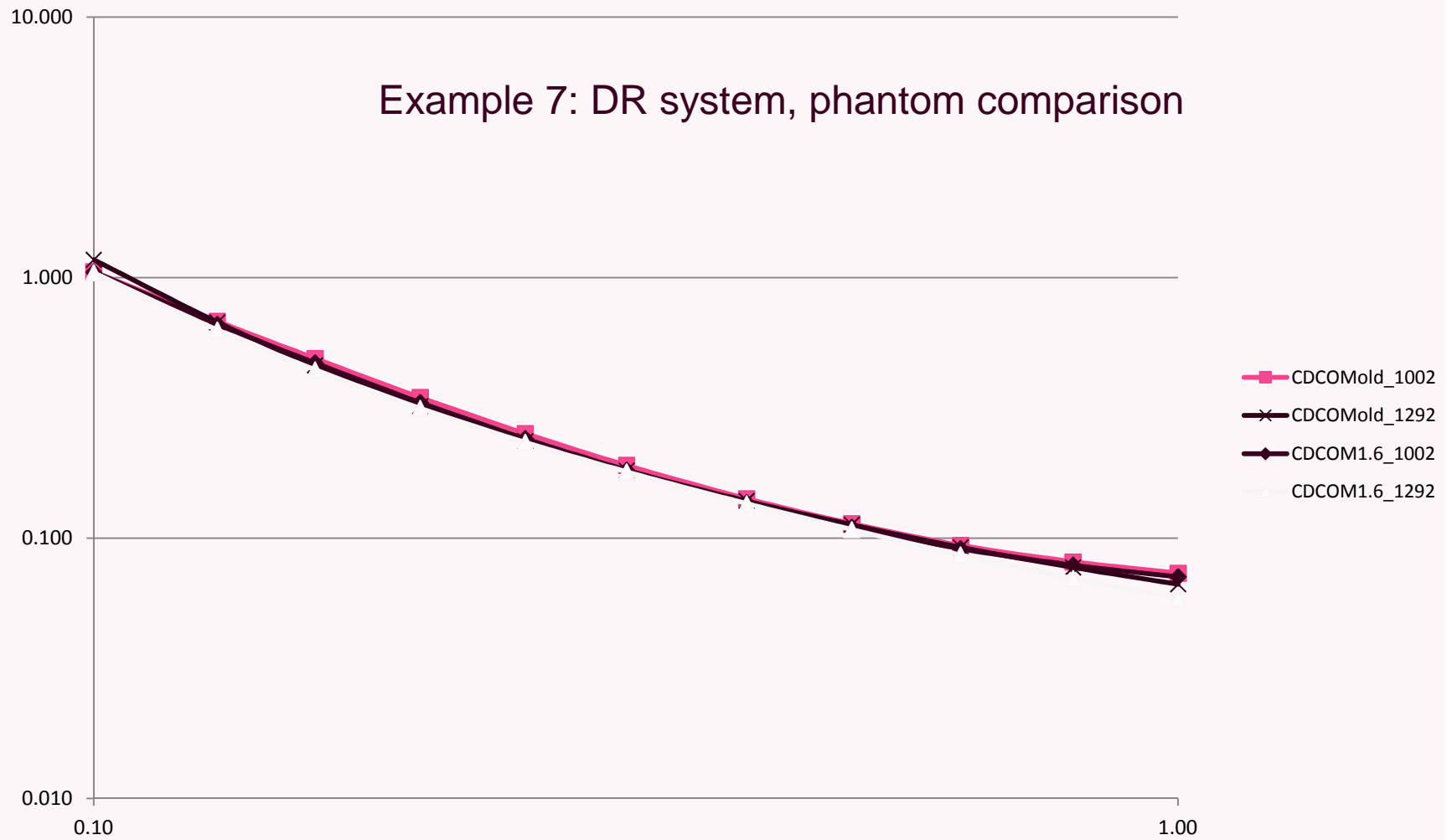
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- CDCOM has been evaluated extensively using data from all available systems and phantom comparisons from EUREF, Artinis and several third parties
- The search area is in the correct position in CDCOM version 1.6



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- CDCOM version 1.6 was released as beta-version in September 2011
 - Potential feedback would be used to improve the programme
 - No feedback with incorrect scores or other bugs have been reported
 - Since January 1st 2012: CDCOM version 1.6-beta has been released as 'official' version (version 1.6)
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