Conformal Tracking full -- hits in the transition region

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Attachments: nHits_check.pdf (139 KB)

Dear all,

yesterday I presented how the new version of the Conformal Tracking (full) does not pick up all the hits in the transition region barrel-endcap.

Hits are discarded due to the high deltaChi2 per hit in the z-s plane fit. The high value originates from the (too) small error in z in the inner and outer tracker endcaps.

In the barrel, the errorZ is the smearing in the digitizer, thus 300 um.
In the endcap, there is no smearing in z and the errorZ should only be due to position resolution and alignment.
The default value we had was a dummy value of 10^{-5} um, which turns out to be too small.

I've simulated 5k muons in the 30-50 theta region and reconstructed them with several values for errorZ, ranging from 100 um (perhaps reasonable) to 300 um (probably too large).
Results are in the first slide of the attachment.
In the second slide, you find the comparison with the MChits.

Thanks for having a look!
Cheers,
  Emilia