



Strips on Al Plates

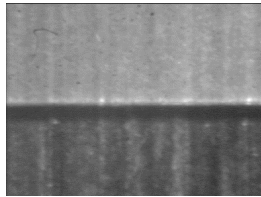


CMS BARREL MUON DT CHAMBERS

Measurement of Al and Mylar Strip Position on a Plate

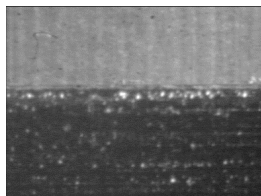
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H. Reithler, W. Reuter
020710*

- *With the measuring head measure the position of the right border of the **50 Mylar strips** of the plate. Rerun to measure the left border of the **50 Al strips** (use known width of 16 mm to convert to right border).*



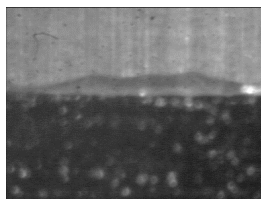
*Mylar strip
Al plate*

*Measurement of the **Mylar strip border**, which is clearly visible on this snapshot from the CCD camera. Inclined illumination from above; see some reflexion on the Mylar, near the border.*



*Mylar strip
Al strip*

*Measurement of the **Al strip border**, which is clearly visible. Illumination as above; see intense reflexion on the Al, near the border. On image at bottom, see glue emerging from the side of the Al strip. The presence of strong reflexions and of glue make a full automatic measurement difficult; need operator support.*

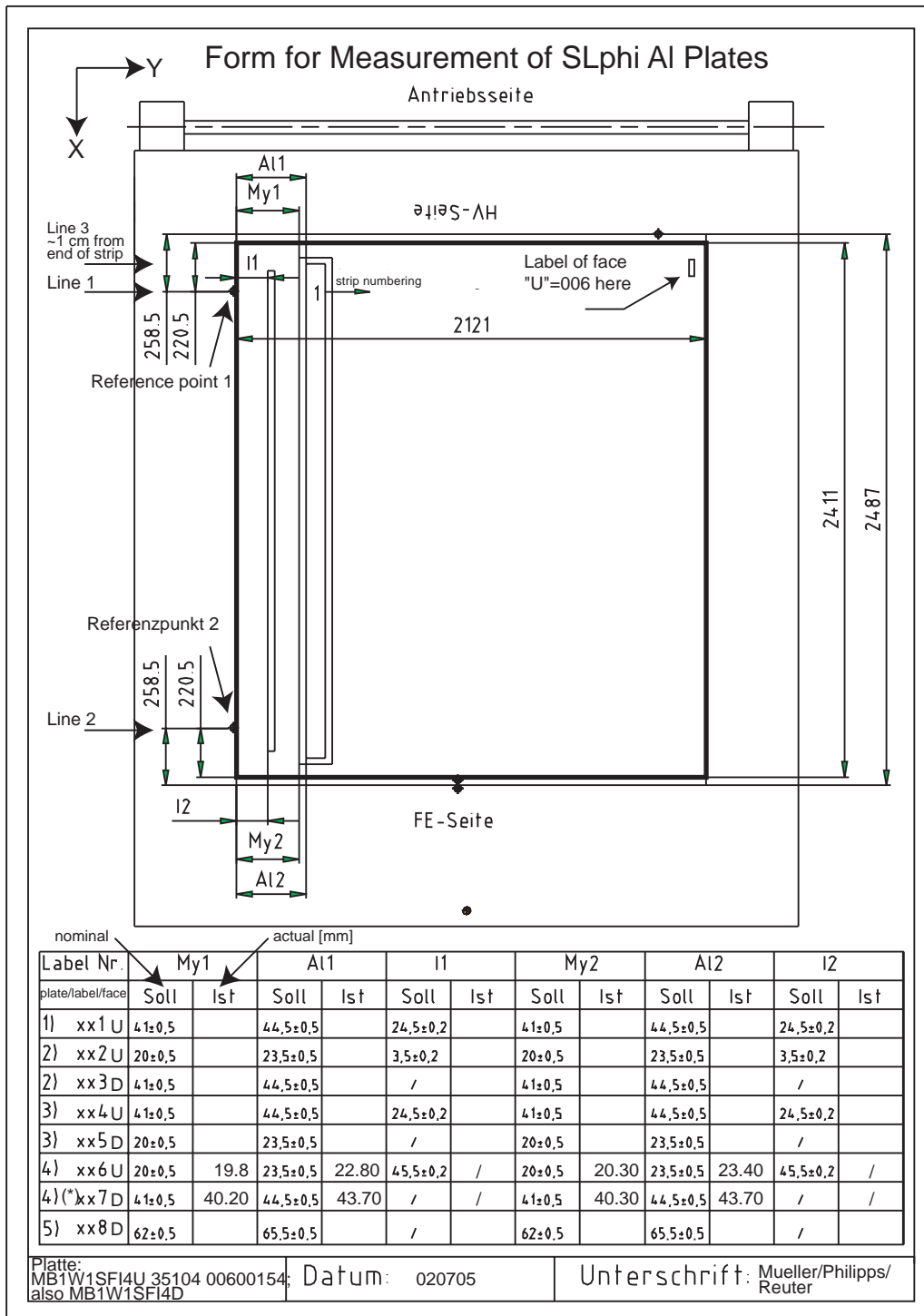


*Mylar strip
Al strip*

- *Since the border of the plate itself cannot be measured that way, use the **hand measured** position of the **first strip** to locate the measurements above (see these values on next page).*
- *Repeat the measurement at a couple of places on the plate. Have run the measurement along lines starting at the two lateral reference points and one starting about 1 cm from the begin of the strips (i.e. about 3 cm from the begin of the plate).*
- *Measurements done on plate 3510400600154, i.e. MB1W1SFI4U and on its rear face 510400700154, i.e. MB1W1SFI4D.*



QC Values



(*) Labels "1" and "2" are, also here, for plate with face "U" up.

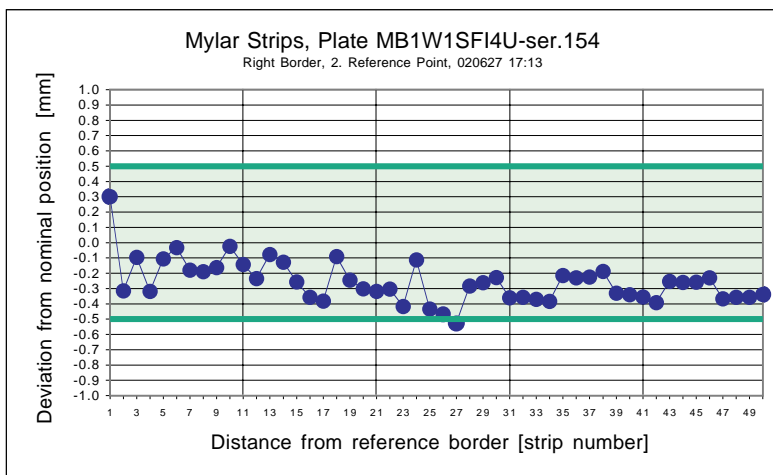
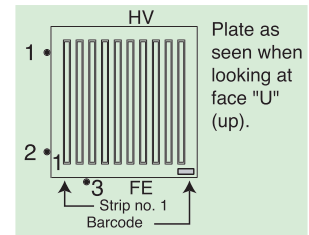
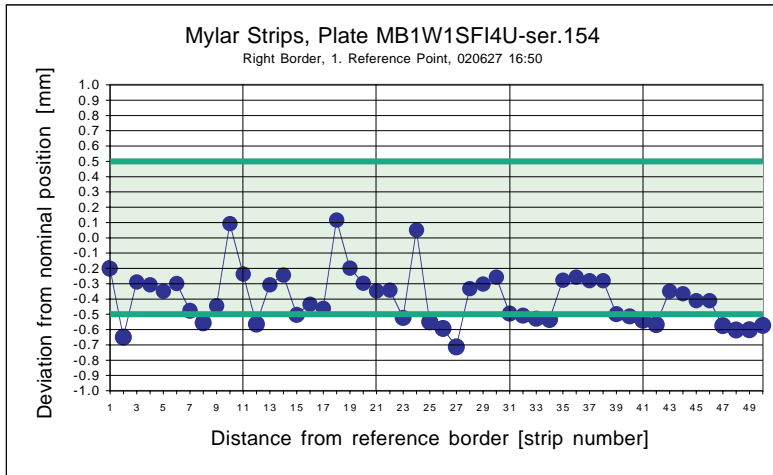
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QC values, of position of first strip, as measured for this plate. From the 8 values measured, 5 are 0.7 to 0.8 mm too low and thus are out of the QC tolerance of +/- 0.5 mm, but systematically by -0.2 to -0.3 mm. How to treat such cases - stick strictly to QC limit?



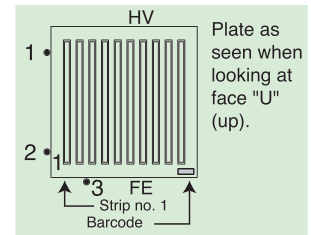
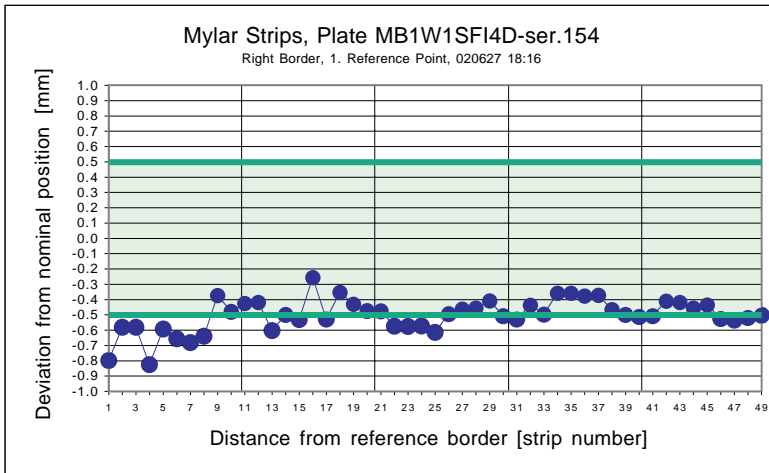
Mylar Strips; "Up"



All Mylar strips of face MB1W1SFI4U = 3510400600154

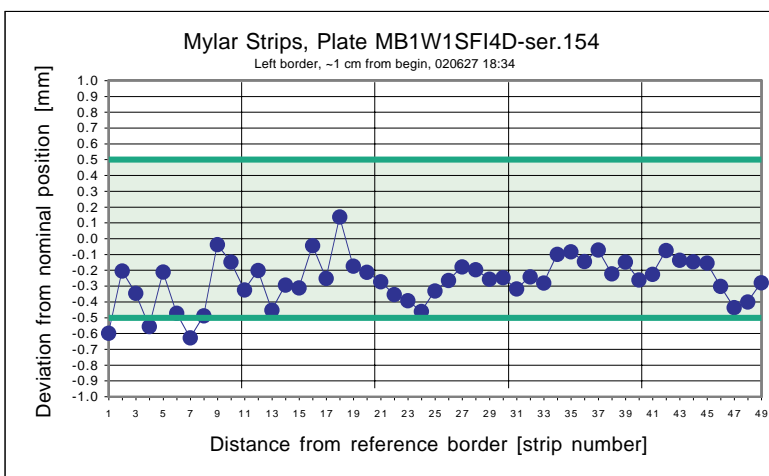
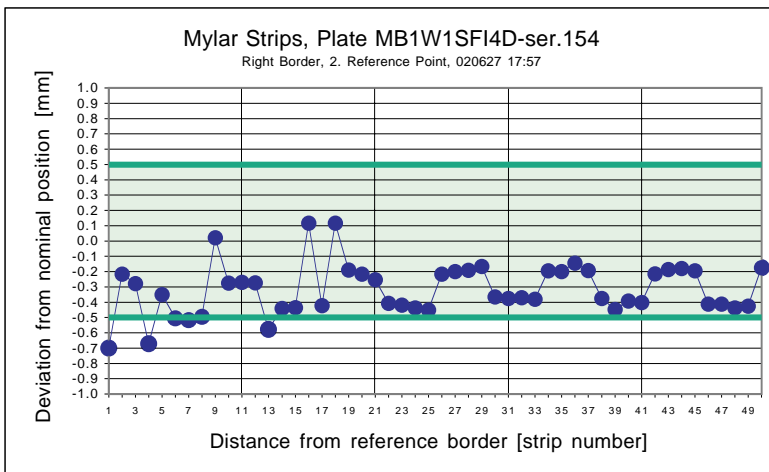


Mylar Strips; "Down"



Measurement on *DOWN* face of plate.

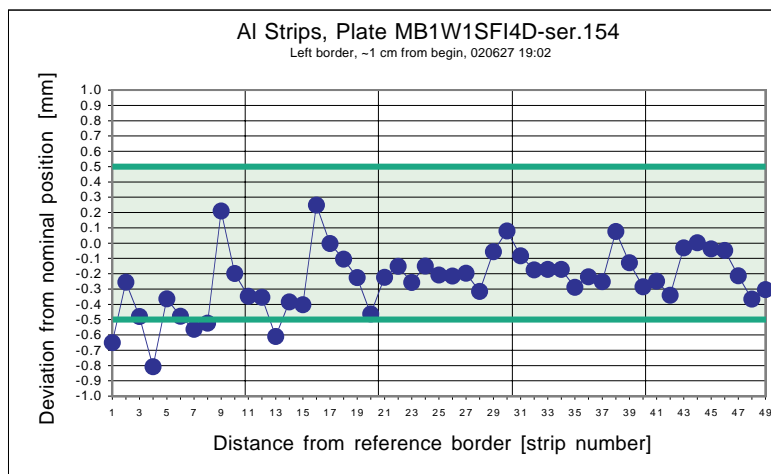
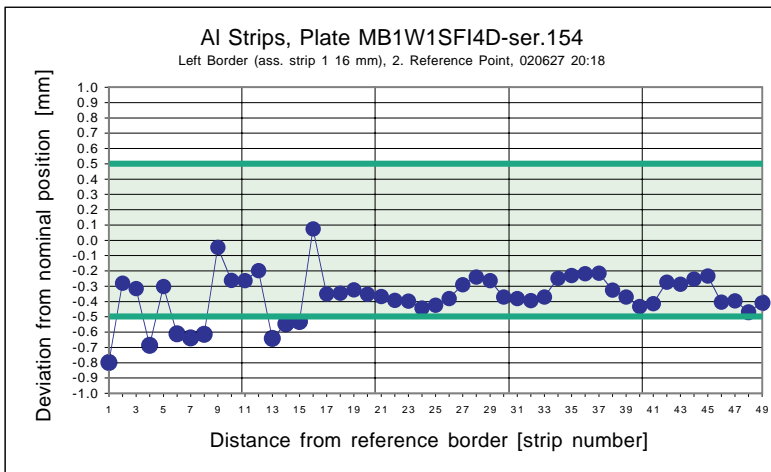
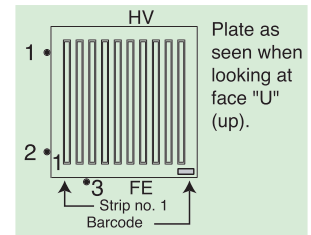
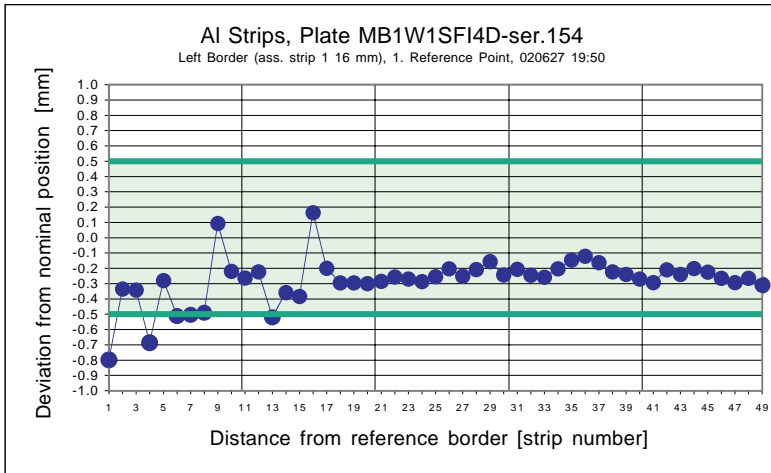
For ease of comparison with previous page, labels "1. Ref.", "2. Ref." for the *DOWN* face are also used as on sketch above, i.e. as seen when the face *UP* is visible.



All Mylar strips of face MB1W1SFI4D= 3510400700154



Al Strips; "Down"



All Aluminum strips of face MB1W1SFI4D= 3510400700154



Conclusions



- *With the illumination used and with some operator assistance, the existing measuring head is able to measure the position of Mylar and Al strips. (Some local bright reflexion may fool the software but is not a problem for the operator.)*
- *The **relative** positions of the strips fluctuate well **within** the (QC) tolerance range of ± 0.5 mm.*
- *The first strips (closest to the reference points) show larger and random fluctuations. Note that this observation also calls for a re-check of the corresponding systematics of the measurement system - to be done once the refurbishment of the hall at Aachen is finished.*
- *The overall strip positioning leads to **absolute** position of strips clearly **outside** the (QC) tolerance range of ± 0.5 mm.*
- *The fluctuations in relative strip position are large enough - especially for the first strip - to show that the QC check on the first strip is not necessarily valid for the rest of the strips.*
- *The new strip deposition head being installed at Dubna is expected to maintain all strips within tolerances and to monitor the tolerances achieved. Will need similar measurements again, for confirmation.*
- *Finally, the main question, in view of the present batch with a larger number of **nonconformities**, is **how to treat the plates: reject or use?***