

Double Harness Type II/III Sample Test

45 double harness Type II/III were tested:

- 9 EndCap Sector 9
- 8 EndCap Sector 7
- 6 Barrel Sector 7
- 16 EndCap Sector 3
- 6 Barrel Sector 3

MECHANICAL TEST

Lengths

Lengths were estimated by reading the first and last meter marks in each cable. This estimation is shorter than real because of distances before and after the marks.

Usually we read 1 meter less than nominal in Type II cables and 2 meters less in Type III. Real length was measured in one harness and matched the distance measured at the factory.

Note: in some harness we measured 2 meters disagreement in Type II cables, we suspect it is a bad measurement by missing one meter mark in the cable. This was the case in 2 cables that were remeasured.

Clamp shrink tubes in EndCap harnesses

The minimum distance between the 2 shrink tubes was measured. The specification is that it should be bigger than 11mm. Some cables were found to have a minimum distance lower than 11mm.

It has been checked with Patrick Werneke that the clamp width is 10mm, so these cables should be fine as they are. One of them is just 10,08mm. The specification should be remembered to the company.

Harness number 627 on Side A one of the two shrink tubes **not shrunk enough**, so it moves. It should be repaired at the company (by positioning it and heating it).

Strip back lengths

Strip back lengths of the barrel harnesses were inside agreed tolerances.

Some endcap harnesses have extra length in the strip back. This was already noticed by the company and the manufacture procedure has been changed. For this lot with extra length we think it is not a problem.

Splice Length

All splice lengths are inside tolerances (less than 300mm), the average length is 281,18mm.

Splice Diameter

Some splices have a thickness at the point which is maximum slightly greater than the agreed tolerance (12mm). We don't think it is a problem as it is kept near the specification.

Electrical ID/S Test

We used the tester connected to the harness (through a TPP) and the harness is connected to a PP1B. The ID/S test checks for conductivity of each line and the isolation to the others. The drain wire (and shield) is not tested.

All harnesses were tested correctly in all lines.

HV Test

Using the same configuration as above a 500V test on the HV line was done. All harnesses were good.