

Detailed functional tests for DAS/CCD3 software

File format / all CCD's

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 13/11 – 2009, Comments by AiC.

Test number	1
Test name	File format
Test document	01-test-file-format
Depends on test	2, FITS header (basic by CCD3) 3, FITS header (TCS, instrument spec., by external FITS information module) 4, FITS header (WCS, by external FITS information module)
Requirements	The image file shall be written on the disk in Multi Extension FITS format (MEF format) and the image pixels from the individual amplifiers (or readout windows if there are more than one) shall be written to their correct image extensions (for specification of what is correct, see “Criteria’s”)
Circumstances	<ul style="list-style-type: none"> – The CCD3 system shall be running, connected to a detector controller, controlling a CCD. – A test pattern sufficient to identify pixels from everywhere on the CCD shall be used for th exposures. – There shall be a network connection available for the external FITS information module to access the NOT “Operations” database.
Test descriptions	<p><u>Subtest 1.1 (format for amplifier A, amplifier data in separate extentions)</u></p> <ul style="list-style-type: none"> – The setup option to select each amplifier in <u>its own</u> separate image extension shall be selected. – Amplifier A (or 1) shall be selected using the “ampl A” command. – An normal exposure (shutter operated, detector precleared before exposure, detector read out after ended exposure) of the test pattern shall be made using the “exp n” command (where “n” is dictated by the correct illumination level of the test pattern). <p><u>Subtest 1.2 (format for amplifier B, amplifier data in separate extentions)</u></p> <p>As for subtest 1.1, but amplifier B (or 2) shall be selected using the “ampl B” command.</p> <p><u>Subtest 1.3 (format for amplifier A+B, amplifier data in separate extentions)</u></p> <p>As for subtest 1.1, but amplifier A and B (or 1 and 2) shall be selected using the “ampl AB” command.</p> <p><u>Subtest 1.4 (format for amplifier A, amplifier data in same (one) extension).</u></p> <p><u>Not a requirement for the NOT</u></p>

- The setup option to select each amplifier in the same image extension shall be selected.
- Amplifier A (or 1) shall be selected using the “ampl A” command.
- An normal exposure (shutter operated, detector precleared before exposure, detector read out after ended exposure) of the test pattern shall be made using the “exp n” command (where “n” is dictated by the correct illumination level of the test pattern).

Subtest 1.5 (format for amplifier B, amplifier data in same (one) extension).

Not a requirement for the NOT

As for subtest 1.4, but amplifier B (or 2) shall be selected using the “ampl B” command.

Subtest 1.6 (format for amplifier A+B, amplifier data in same (one) extension).

Not a requirement for the NOT

As for subtest 1.4, but amplifier A and B (or 1 and 2) shall be selected using the “ampl AB” command.

Subtest 1.7 (format for multiple readout windows)

- The setup option to select each amplifier in its own separate image extension shall be selected.
- The commands needed to set up multiple windows (not defined at this date of writing) shall be executed.
- A normal exposure (shutter operated, detector precleared before exposure, detector read out after ended exposure) of the test pattern shall be made using the “exp n” command (where “n” is dictated by the correct illumination level of the test pattern).

Criteria

The result is acceptable and thus the test is PASSED when

Common:

- 1) The image file is in multi extension FITS format (MEF format) according to chapter 3 in ref.5 of the ODF-TEST document.
- 2) The image data pixels are stored so that the image X and Y axis correspond the the image orientation (flip) configured in the setup file, using the keyword(s) “FLIPX” and “FLIPY”.

For subtest 1.1 (format for amplifier A, amplifier data in separate extensions):

- 1) The correct FITS header associated with the pixel data (see ref.6 of the ODF-TEST document, tests 2, 3 and 4) is stored in the first image extension.
- 2) The image data pixels from amplifier A (or 1) are stored in the data array in the first image extension.

For subtest 1.2 (format for amplifier B, amplifier data in separate extensions):

- 1) The correct FIES header associated with the pixel data (see ref.6 of the ODF-TEST document, tests 2, 3 and 4) is stored in the first image extension.
- 2) The image data pixels from amplifier B (or 2) are stored in the data array in the first image extension.

For subtest 1.3 (format for amplifier A+B, amplifier data in separate extensions):

- 1) The correct FITS headers associated with the pixel data (see ref.6 of the ODF-TEST document, tests 2, 3 and 4) is stored in the first and second image extensions.
- 2) The image data pixels from amplifier A (or 1) are stored in the data array of the first image extension and the image pixels from amplifier B (or 2) are stored in the data array of the second image extension.

For subtest 1.4 (format for amplifier A, amplifier data in same (one) extension) (not applicable for the NOT):

- 1) The correct FITS headers associated with the pixel data (see ref.6 of the ODF-TEST document, tests 2,3 and 4) is stored in the FITS header.
- 2) The image data pixels from amplifier A (or 1) are stored in the data array of the primary HDU.

For subtest 1.5 (format for amplifier B, amplifier data in same (one) extension) (not applicable for the NOT):

As for test 1.4, but pixel data from amplifier B (or 2).

For subtest 1.6 (format for amplifier A+B, amplifier data in same (one) extension) (not applicable for the NOT)

As for test 1.4, but pixel data from amplifier A and B (or 1 and 2).

For subtest 1.7 (format for multiple readout windows):

- 1) The correct FITS headers associated with the pixel data (see ref.2, test 2, 3 and 4) is stored in the image extensions containing the pixel data from the different windows.
- 2) The image data pixels from the windows are stored in the data arrays of separate image extensions, one for each window. The top left window on the detector (as defined by the pixel coordinate system) shall be written in the first image extension, the top right window in the second image extension etc. etc.

Result

Test PASSED. Tested by _____ on ____ / ____ 20____ Signed

Notes