SPIRE Channel Time Offset Calibration Product
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1.1 Reference Documents

Calibration Products for SPIRE Data Processing	SPIRE-RAL-DOC-002261
SPIRE DCU Design Document, Issue 1.0	SPIRE-SAP-PRJ-001243

1.2 Introduction

This product contains the time offsets for individual pixel data relative to the overall 'frame time' that is recorded with the data. These offsets are due to the time difference between reading out the data from each pixel. The offset depends on whether each array was read out individually or all together. These time offsets are assumed constant through the mission. The format of the product is described in the document, *Calibration Products for SPIRE Data Processing*.

1.3 The Data

These data are derived from the *SPIRE DCU Design Document*, Issue 1, page 113. The spreadsheet corresponding to the two tables on that page was saved as a text file. Then the following algorithm was applied to extract the information from each line of the table and transfer it to the product on a detector by detector basis.

- Read the LIA and LIA-channel number from the names in the table (e.g. for `LIA_S1_ch12`, the LIA is 1 and the channel is 12)
- Calculate the full channel number using,
  $finalChannel = (lia-1)*32 + channel$ for the photometer
  $finalChannel = (lia-1)*24 + channel$ for the spectrometer
- Use this fullChannel to work out the detector name
- Read the times in *microseconds* from the columns marked "*Time: Relative to timestamps*". The values used to enter into the product column, `offsetFull`, were read from the columns in the table labelled, "*full spectrometer*" and "*full photometer*". The values used to enter into the product column, `offsetSingle`, for each array were read from the columns in the table labelled with the name of the array. The `offsetSingle` values for the PTC were read from the column labelled "*PMW*".
- All offsets were divided by 10^6 so that the values in the product were stored in seconds

Note: the times in this table are all negative. This reflects the fact that the readout times for a particular channel are earlier than the time recorded in the frame. The values recorded in the table should be added to the frame time.