♦ The sample center is located in the middle of the integration time.

♦ 51 samples per channels and 3 samples for cold sky for each channels during scan.

♦ The acquired geometry sample is dynamic, following satellite attitude variation.

♦ Data are processed per scan line. Nevertheless, some calibration parameters are calculated using a few consecutive scan lines.

♦ In fact, the location of the 51 measured radiances values will be calculated at the top of the atmosphere : 20km above the surface and also at the surface.

6.1.3.1   Content of L1A SCARAB File

The content is described in the following document :
See excel document ProductDefinition_SCARAB _L1A-1-1-2-3-B_HDFMGTStructure_13rev2.xls

6.2   GENERAL DEFINITION OF L1 A2 PRODUCTS

♦ This product L1A2 consists in generating brightness temperature of pixels for MADRAS and SAPHIR radiometers. Pixels are defined as non overlapping synthetic footprints covering the scan swath. (Refer to section 3).

♦ For each instrument, using the instrument radiometric samples (L1A data), re-sampling of L1A data along the scan is performed to generate pixels.

♦ Pixels are provided in the instrument geometry.

♦ Data are time tagged and geo-located.

♦ Data are processed independently for each instrument

♦ The product will be available as standard product and NRT product.

6.2.1   Definition of MADRAS L1A2 product

♦ Data are processed independently per scan line.

♦ The re-sampling of L1A data is performed in order to provide on each scan line, collocated pixels for all the channels taking as a reference the actual position of MADRAS 89Ghz pixels. MADRAS other channels data pixel centers shall be located at the exact location of 89GHz MADRAS pixels centers.

♦ The 89GHz pixels acquired geometry is taken as a reference and is a dynamic acquired geometry following scan and satellite attitude variations (instrument geometry). The 157 GHz and 18/23/36 GHz L1A samples are interpolated to generated pixel size data centered on each 89GHz pixel center.

♦ Consequently, every 10km across track (distance between two 89GHz pixel centre), brightness temperatures of collocated 89 GHz, 157GHz and LF (18/23/36GHz) pixels are calculated.

♦ It could be noted that 157GHz pixels are not continuous as pixels across size dimension is about 6km.

♦ Approximate dimensions of the pixels are given in *Table 6.1-1: MADRAS footprint*.

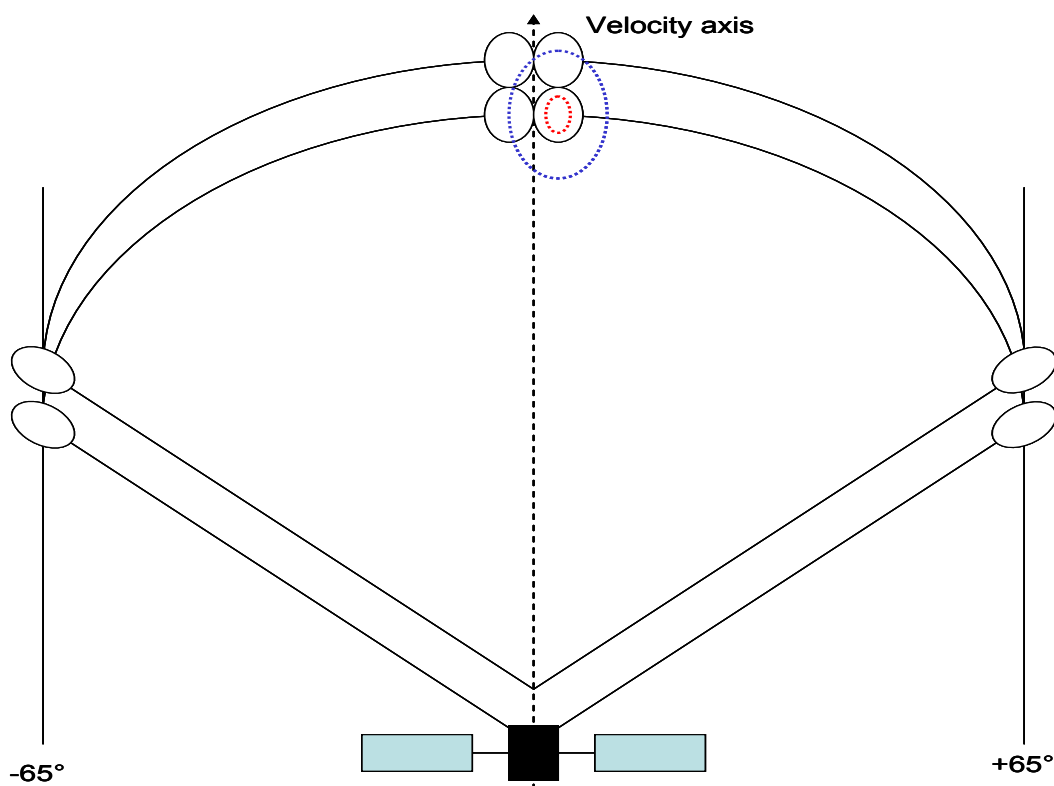♦ Datation of pixels for all the channels is calculated using the formula given in 4.3.3.10.

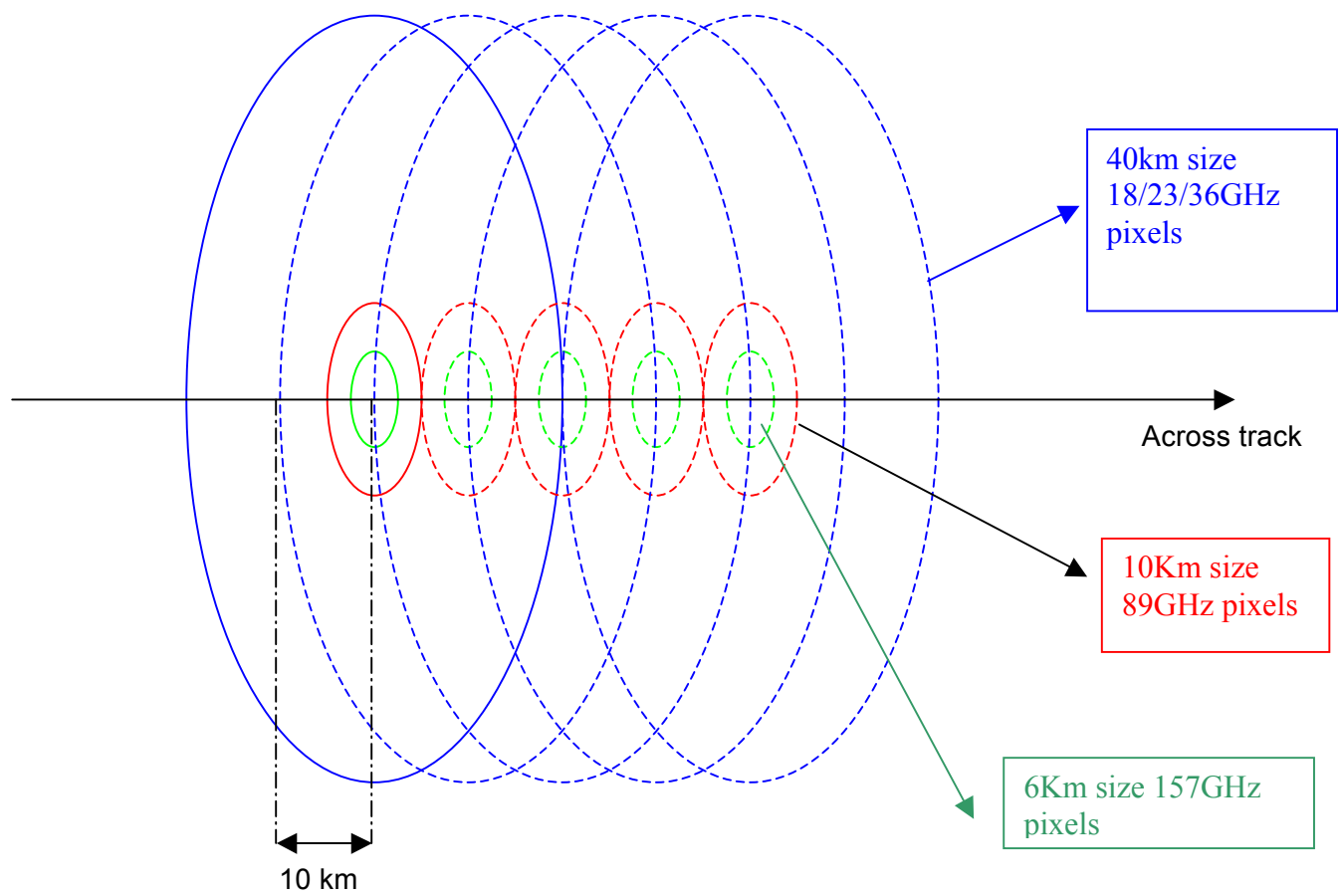*Figure 6.2-1: Pixel representation on the ground of MADRAS*

Figure 6.2-2: Pixel resolution on the ground of MADRAS

6.2.1.1   Content of MADRAS L1A2 file

♦   The following information will be included in the L1A2 file:
See exel document ProductDefinition_MADRAS_L1A-1-1-2-3-B_HDFMGTStructure_13rev2.xls

6.2.2   Definition of SAPHIR L1A2 product

♦   The re-sampling of L1A data (182 samples) is performed in order to provide on each scan line 130 pixels for all the channels as defined in the hereafter specified geometry.

♦   Data will be processed independently per channel.

♦   Data are processed independently per scan line.

♦   The brightness temperature of each pixel is obtained by averaging brightness temperature of neighbored samples of the same scan line.

♦   Example (the figure doesn't represent the exact SAPHIR configuration):
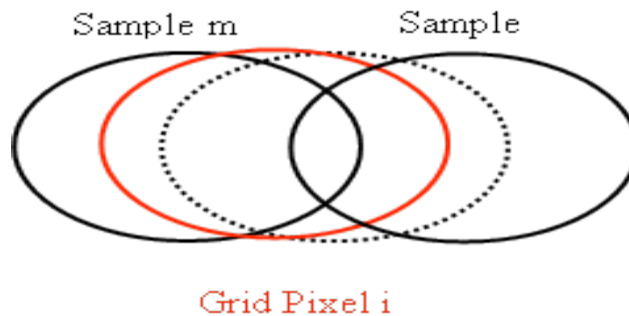

Figure 6.2-3: Example of re-sampling of SAPHIR

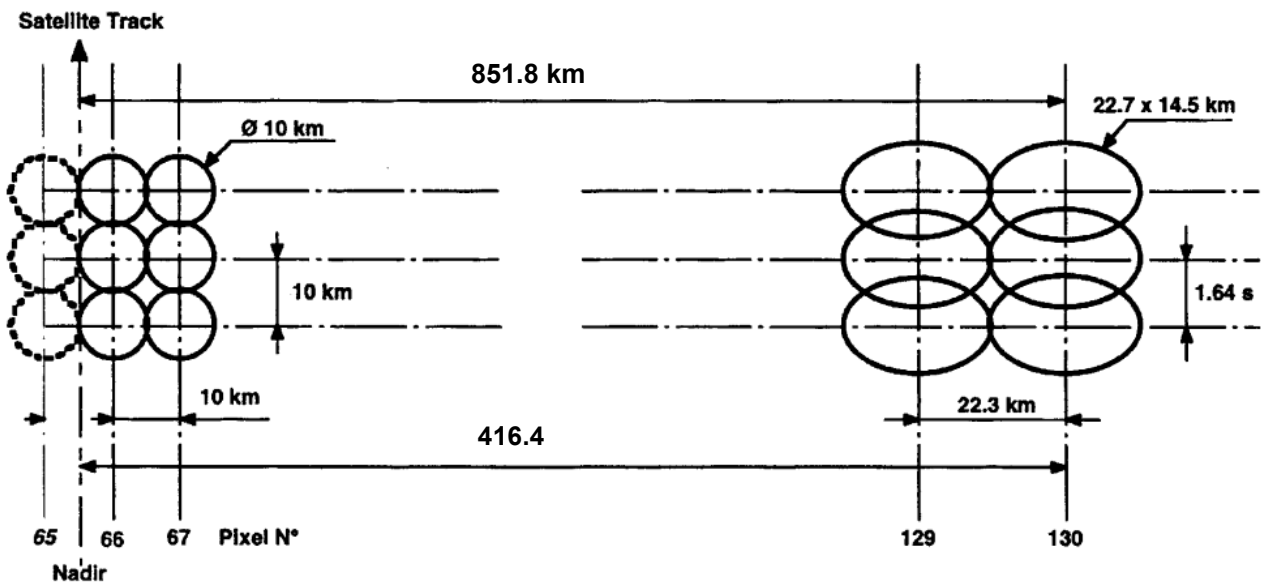♦   The proposed pixel grid is a dynamic grid following actual satellite attitude variations.

Figure 6.2-4: Pixel representation on the ground of SAPHIR

♦ It can be noted that pixels are contiguous across track, and also along track at Nadir. Due to the definition of pixels (antenna IFOV), pixels across track are contiguous but some overlap exist in the along track direction.

♦ The pixels sizes are varying along the swath as presented in *Table 6.1-2: SAPHIR footprint*.

6.2.2.1 Content of SAPHIR L1A2 file

♦ The following information will be included in the L1A2 file:

See excel document ProductDefinition_SAPHIR_L1A-1-1-2-3-B_HDFMGTStructure_13rev2.xls

6.2.3   Definition of Scarab L1A2 products

The L1A2 product for Scarab is identical to L1A except that some algorithm optimisation is proposed to improve the registration of channels.

6.2.4   Content of SCARAB L1A2 file

See excel document ProductDefinition_SCARAB _L1A-1-1-2-3-B_HDFMGTStructure_13rev2.xls