Warm Optics/Interface to Telescope Assembly [4]

Window/IR Filter

Cold Optics

VACUUM RF ASSEMBLY

4K STAGE

80K STAGE

1218-1492 GHz, 5 uV LO1

2-4 GHz IF

HEB

LSB

USB

x3

x3

x3

x3

x2

WARM RF ASSEMBLY

VCO LO1 DRIVER

To Digital Rack

ANALOG ELECTRONICS RACK

LO1 POWER/M&C

IF LNA BIAS

HEB BIAS

TEMP/VACUUM SENSORS

POWER DISTRIBUTION

LO1 REFERENCE

DIGITAL ELECTRONICS RACK

From Warm RF Assembly

ADC

FPGA

4 GS/s

SCIENCE INSTRUMENT COMPUTER AND SOFTWARE

AC Power from SOFIA PI Patch Panel [1]

To SOFIA MCCS (Mission Command and Control System) Commands to Aircraft and Telescope, Retrieval of Housekeeping Data [2]

To SOFIA DSC (Data Cycle System) FITS Raw & Reduced Data for Storage [3]

[1] See SDF-AR-ICD-SE03-2029
    ICD: Principal Investigator Patch Panel to Principal Investigator Equipment Rack
    (http://sofia.arc.nasa.gov/SOFIA/PDF_FILES/mccs_si_05_SDF-AR-ICD-SE03-2029.pdf)
[2] See SDF-DA-ICD-SE03-052
    ICD: MCCS to Science Instrument Software Interface (functional)
    (http://sofia.arc.nasa.gov/SOFIA/PDF_FILES/SDF-DA-ICD-SE03-052_Rev-B.pdf)
[3] See SCI-US-ICD-SE03-2023
    ICD for the Data Cycle System (DCS) of the SOFIA Project, DCS-SI-01
    (http://sofia.arc.nasa.gov/SOFIA/PDF_FILES/dcss01SCI-US-ICD-SE03-2023-0.pdf)
[4] See SDF-DA-ICD-SE03-037
    Telescope Assembly to Science Instrument Mounting Interface
    (http://sofia.arc.nasa.gov/SOFIA/PDF_FILES/tasi02SDF-DA-ICD-SE03-037A-0.pdf)
[5] See SDF-AR-SPE-SE01-2028
    Science Instrument System Specification
    (http://sofia.arc.nasa.gov/SOFIA/PDF_FILES/SDF-AR-SPE-SE01-2028-SISystemSpecDRAFT20110110.pdf)

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April 21, 2011
SOFIA 1200-1500 GHz 4-Pixel HEB Receiver
Top-Level Block Diagram
Rev. A1