



Superior Solar Conjunction Planning

May 8, 2014

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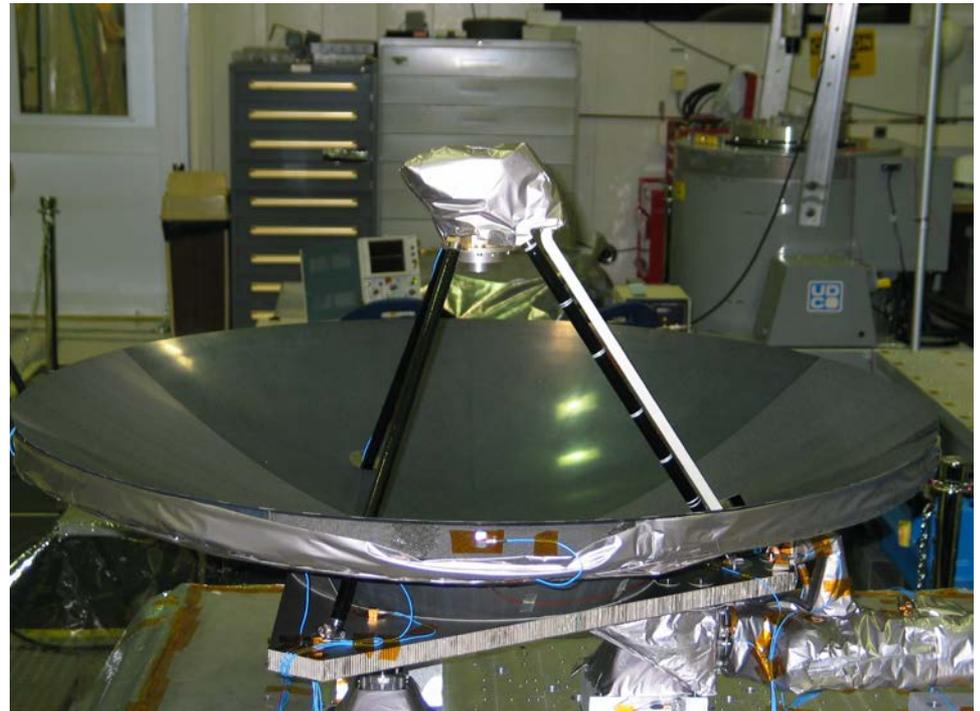
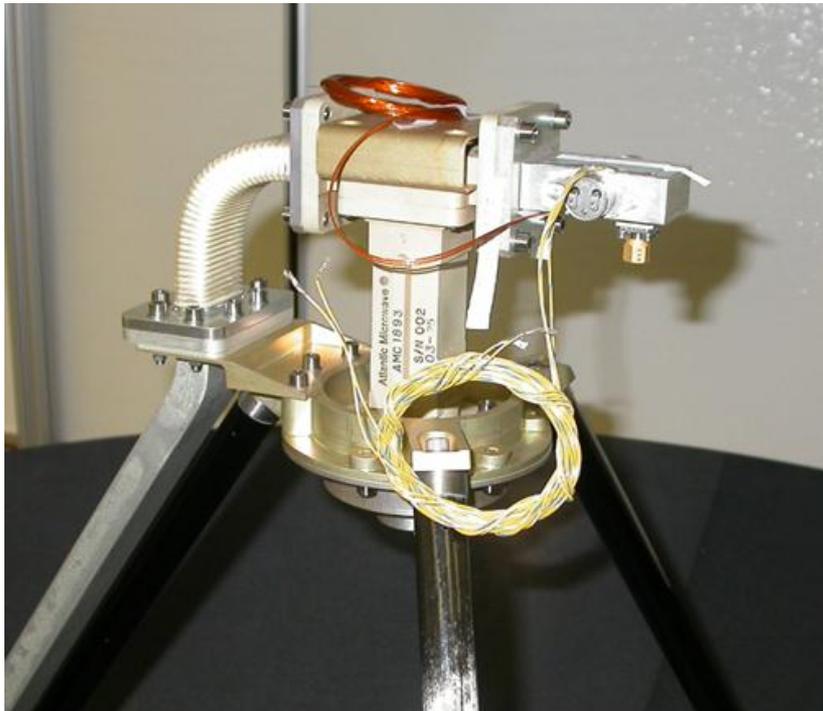
Agenda

- **HGA Feed Temperature Constraint**
- **Schedule**
- **Key Dates**

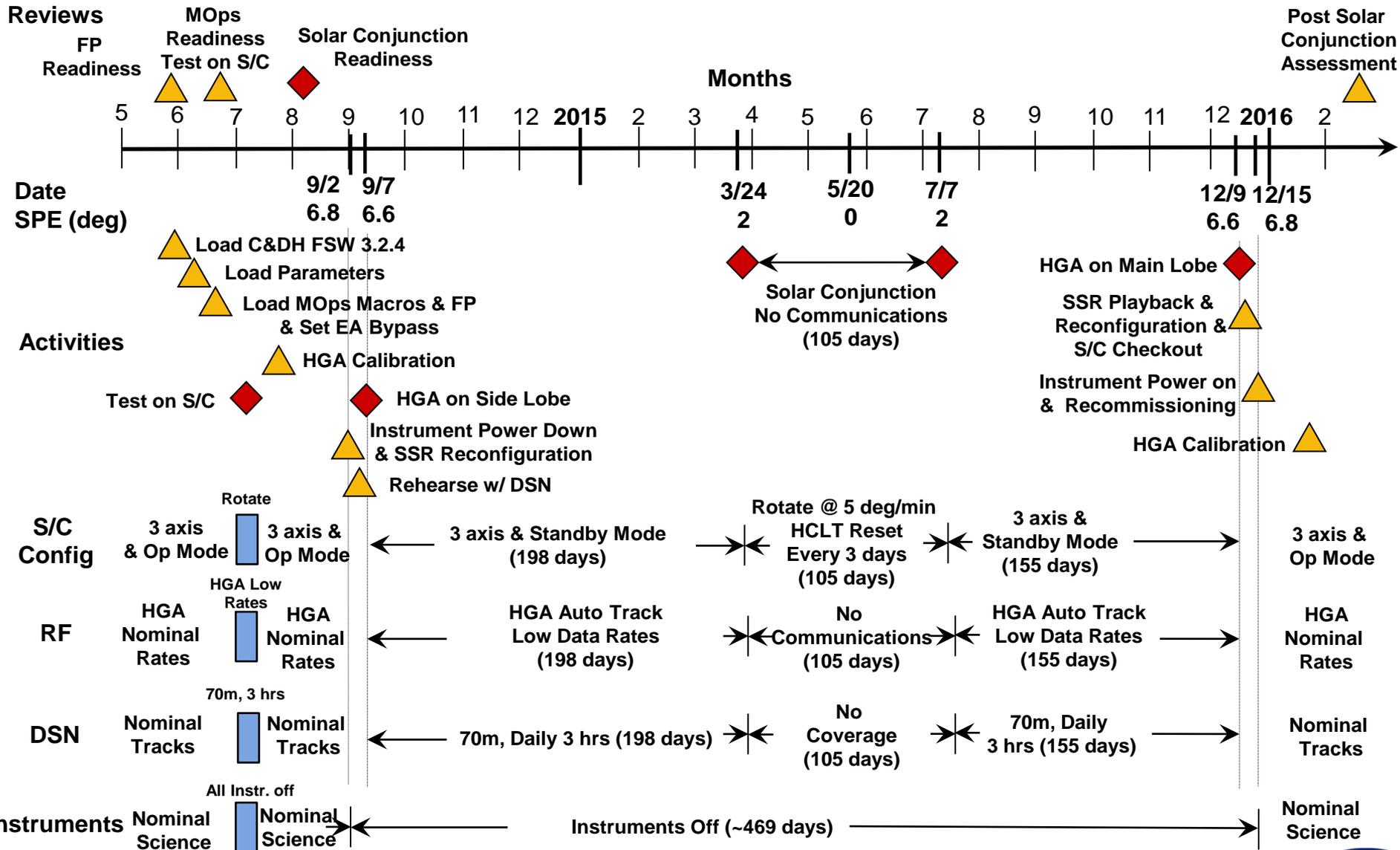
HGA Feed Temperature Constraint

- **HGA feed will increase in temperature beyond acceptable limits with SPE angle below 6.5 degrees.**
 - If SPE angle exceeded, damage to the feed assembly will render the HGA unusable.
 - Thermal modeling and analysis in progress
 - Results due by the end of May
 - Not done before launch as the mission was only two years.
- **Off point HGA to prevent excessive heating**
 - Keep feed temperature below 125 deg C
 - Temperature sensor limit = 136 deg C
 - Damage starts @ 150 deg C (adhesives)
 - **AHEAD** – September 2014 through December 2015
 - **BEHIND** – November 2014 through January 2016
 - At this time, anticipating instruments will off for these durations due to low data rates
- **Investigating HGA side lobe for low data rate communications**
 - Testing on May 10th (**AHEAD**) and May 17th (**BEHIND**)

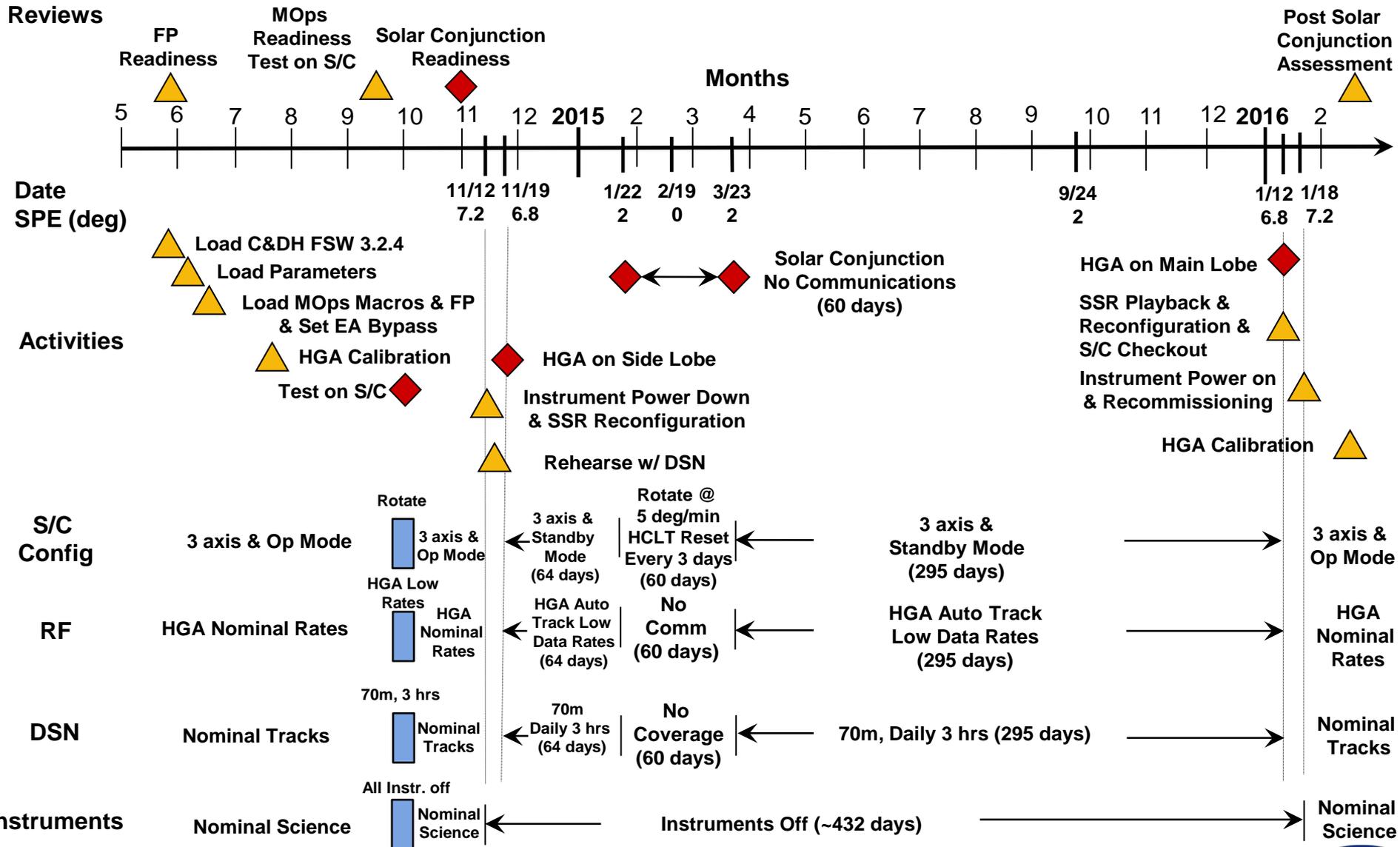
HGA Feed Assembly



STEREO AHEAD Timeline Schedule - DRAFT



STEREO BEHIND Timeline Schedule - DRAFT



Key Dates

Event	AHEAD	BEHIND
HGA side lobe test	5/10/14	5/17/14
LGA calibration test	6/8/14	5/23/14
Load C&DH 3.2.4 FSW to EEPROM Copy 1	5/20/14	5/20/14
Load G&C and C&DH parameters to EEPROM	5/28/14	5/28/14
Load MOps macros & FP releases to EEPROM	6/10/14	6/10/14
MOps Readiness for S/C Testing Review	6/19/14	9/18/14
S/C Testing – Instruments off/on	7/7 thru 7/15/14	9/29 thru 10/6/14
HGA Calibration – Pre-conjunction	7/23/14	7/23/14
Load C&DH 3.2.4 FSW to EEPROM Copy 2	7/28/14	7/28/14
Solar Conjunction Readiness Review	8/14/14	10/23/14
Instrument Power Down & SSR Reconfiguration	9/2/14	11/14/14
Rehearse with DSN	9/5/14	11/16/14
HGA on Side Lobe	9/7/14	11/19/14
Superior Solar Conjunction	3/24 thru 7/7/15	1/22 thru 3/23/15
HGA on Main Lobe	12/9/15	1/12/16
SSR Playback & Reconfiguration & S/C Checkout	12/10/15	1/13/16
Instrument Power on & Recommissioning	12/15/15	1/18/16
HGA Calibration – Post-conjunction	1/27/16	1/27/16
Post Solar Conjunction Assessment Review	3/16	3/16



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Three Laws of STEREO Solar Conjunction

1. Take all reasonable precautions to keep the observatory safe.

Of course, “reasonable” is subject to interpretation and judgment. We will be guided by the usual risk assessment methodology of weighing both probability and impact, which is, after all, the implicit thinking behind “engineering judgment.”

2. Return to normal science operations as soon as reasonably possible. In cases where this law conflicts with the First Law, the First Law takes precedence.

There’s that word “reasonably” again. We do not have infinite time and manpower to prepare for conjunction. So, some management judgment is required.

3. Conduct science operations during conjunction, if reasonably feasible. In cases where this law conflicts with the first two, the first two laws take precedence.

We do not have infinite time and manpower.