



# **STS-127 / ISS-2JA MOD Flight Readiness Review**

---

***JSC Mission Operations Directorate  
Flight Director Office***

***DA8/H. Ridings, P. Dye, B. Lunney, C. McMillan  
May 5, 2009***

***Agenda Item 3***

# Agenda



- **DA8 COFR Requirements/Endorsements**
  - COFR Requirements/Endorsements Summary
  - New Operations – A/E Topics, SMG, MCC, Flight Techniques & Joint Operations Panels
  - Safety Status Review
  - Flight Rules (Generic Volumes A, B, C, D; STS-127/2JA Annex)
  - FDF/ODF/SODF
  - Mission Staffing: Training/Certification/Work Guidelines Compliance
  - Non-Critical Processors/Applications (backup)
  - Emergency Mission Control Center (EMCC)/Backup Control Center (BCC)
  - Command Procedures (backup)
  - Contingency Shuttle Crew Support/Rescue Flight: STS-127 (LON vehicle)
  - Level II Actions
- **Standard Open Work (backup)**
- **Non-Standard Open Work**
- **Exceptions**
- **Flight Readiness Statement**



# DA8 COFR

## Requirements/Endorsements



REQUIREMENT (SHUTTLE)	FD	PI	Safety	SPAN	SMG	Team 4
Non-Crit Processors/Applications	G				G	
EMCC	G				G	G
Certified Flight Controllers	G			G	G	G
Flight Rules	G					
FDF	G	G*				
FTP - New Ops	G					
Flight Anomaly Resolution	Y			G		
Anomaly - Procedure	G					
Exceptions/Action Items From Prior Readiness Reviews	G	G	G	G	G	G
CIL/Hazards	G		G			
No Constraints	G	G				
Level II (Program) Actions	G	G				
Mission Requirements	G					
Exception/Resolution	G	G				
Command Procedures	G					
Flt Prep Process Plan Requirements Met		G				
Contractor Process Insight		G				



Ready to Support Flight/Only Standard Open work



Non Standard Open work with expected resolution prior to flight.



Open work without expected resolution without assistance, prior to flight, or unavoidable constraint violation.



N/A

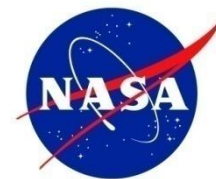
\* FCOH



Mission Operations Directorate  
Flight Director Office

# DA8 COFR

## Req'ts/Endorsements (cont.)



REQUIREMENT (STATION)	Flight Director	Program Integration	Ops Safety	SPAN	Team 4
Non-Crit Processors/Applications	G				
BCC	G				G
Certified Flight Controllers	G			G	G
Flight Rules	G				
ODF/SODF	G				
JOP - New Ops	Y				
Flight Anomaly Resolution	G			G	
Anomaly - Procedure	G				
Exceptions/Action Items From Prior Readiness Reviews	G	G	G	G	G
CIL/Hazards	G		Y		
No Constraints	G	G			
Level II (Program) Actions	G	G			
Flight/Increment Planning (Mission Requirements)	G				
Exception/Resolution	G	G			
Command Procedures	G				
Contractor Process Insight		G			

**G** Ready to Support Flight/Only Standard Open work

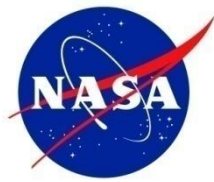
**Y** Non Standard Open work with expected resolution prior to flight.

**R** Open work without expected resolution without assistance, prior to flight, or unavoidable constraint violation.

**N/A**



# Ascent/Entry Topics (1)



Preliminary Launch Window Times for STS-127/2JA

KSC Day Window Open	KSC Date	RNDZ Day	ET Photo Umbilical	ET Photo Handheld	Open (EDT)	Open (GMT)	In-Plane (GMT)	FD3 Close (GMT)	FD4 Close (GMT)
Saturday	13-Jun	FD3	Light	Light	7:12:08	11:12:08	11:17:08	11:22:08	
Sunday	14-Jun	FD3/FD4	Light	Light	6:46:26	10:46:26	10:51:26	10:56:26	10:59:40
Monday	15-Jun	FD3	Light	Light	6:23:54	10:23:54	10:28:54	10:33:54	
Tuesday	16-Jun	FD3/FD4	Light	Light	5:58:12	9:58:12	10:03:12	10:08:12	10:11:26
Wednesday	17-Jun	FD3	Light	Light	5:35:41	9:35:41	9:40:41	9:45:41	
Thursday	18-Jun	FD3/FD4	Light	Light	5:10:47	9:10:47	9:14:59	9:19:59	9:23:12
Friday	19-Jun	FD3	Light	Light	4:47:27	8:47:27	8:52:27	8:57:27	
Saturday	20-Jun	FD3/FD4	Light	Light	4:24:48	8:24:48	8:26:45	8:31:45	8:34:58
Sunday	21-Jun	FD3	Light	Light	3:59:13	7:59:13	8:04:13	8:09:13	
Monday	22-Jun	FD3/FD4	Light	Light	3:33:31	7:33:31	7:38:31	7:43:31	7:46:44

## NOTES:

- 1) Launch period Jun 13 - Jun 19. Beta cutout (Beta > 60 deg) begins on June 20 for 16+0+2 day mission.
- 2) Assumes an 0.0 m/s placeholder ISS reboost on 6/3
- 3) Night launch from June 16 through the June 22
- 4) Optimal ET Umbilical lighting occurs between Jun 1 and June 21
- 5) Optimal ET Handheld lighting occurs between June 1 and June 25
- 6) FD3/FD4 are days where both a FD3 and a FD4 pane may be utilized to extend the launch window.
- 7) Jun 18 and Jun 20 window open is constrained by phase angle
- 8) Jun 22 launch opportunity near FD3 phase limits. Trajectory options could be used to provide partial FD3 window.



# Ascent/Entry Topics (2)



## **119 FDO Workstation & pre-launch Abort command via H/W push button**

- Inadvertent Abort Light Command sent from MCC FDO console to the vehicle, at approx. L-5:35.
  - Button not actuated by FDO or TRAJ.
  - Standard pre-launch FDO and Flight Director abort light command checks to the Orbiter had been successfully performed ~ 4 hours earlier.
  - Root cause has not been determined.
  - No record of previous inadvertent abort light commands from MCC consoles.
- The MCC abort light command illuminates the cockpit abort light and DOES NOT command abort initiation.
- Per Flight Rule A2-58, Abort Light, the crew requires 2 cues before initiating an abort. The abort light in the cockpit can be one of those cues.
- The STS-127/2JA Crew has been briefed on this anomaly.
- Other MCC command push buttons that could be affected if a generic failure exists with these PBI's.
  - GNC Controllability light – requires confirmation from MCC in addition to the light command for action to be taken by the ROCC.
  - INCO command panel – critical commands are two stage.



# Ascent/Entry Topics (3)



- MPS Inventory Update
  - 12 of 14 dispersion parameters that are used to derive the Flight Performance Reserve (FPR) were modified
    - Two parameters, Overboard Mixture Ratio (OBMR) and SRB Burn Rate, were responsible for the majority of FPR increase
    - The remaining ten parameters shifted as a result of adding additional flights to the database, but had no significant trends.
  - Results in 275# increase in FPR
  - Even with this impact, APM margins are still sufficient
- sMIA status
  - Only MDM FA3 has sMIA cards (others are micro-MIAs)
    - FA3 diodes are not from suspected lot dates
  - Only Engine Interface Unit #2 ports 2 and 3 have diodes from suspected lot dates
    - EIU Ports 2 and 3 are not a concern since they do not transmit to GPC
    - Remaining EIUs do have similar diodes, but from different lots



# Spaceflight Meteorology Group



- All forecasters required to support STS-127 meet requirements listed in SMG Training & Certification plan.
- Planned System Changes:
  - **AWIPS: None.**
  - **MIDDS: None.**
  - **No satellite eclipse conflicts during mission.**

The undersigned certifies that the Spaceflight Meteorology Group is ready to support the STS-127 flight.

/s/ Frank C. Brody

Frank C. Brody

Chief, Spaceflight Meteorology Group

**Mission Operations Directorate**  
**Flight Director Office**





# New Operations: DRAGONSAT



## Dual RF Autonomous GPS On-Orbit Navigator Satellite

- Deploy 2 Picosats
  - AggieSat (Texas A&M)
  - Paradigm (University of Texas)
- Retrograde Deploy
- Picosats separate from one another via spring
- No Orbiter Sep burn required
- Requires OBSS MPMs to be rolled-out.
- Will study autonomous RNDZ & docking and GPS technology.



# New Operations: ICU / ANDE-2



## Internal Cargo Unit/Atmospheric Neutral Density Experiment

- Deploy 2 micro-satellites within the ICU
  - ANDE Active (AA) spacecraft (Castor)
  - ANDE Passive (AP) spacecraft (Pollux)
  - The satellite-pair separates from the ICU 27 Seconds after deploy
- Retrograde deploy
- Orbiter Sep burn required
- Requires OBSS MPMs to be rolled-out.
- Will study atmosphere density and composition



# New Operations: Shuttle



- **Orbiter will be above 60° beta between July 3 – 13**
  - If launch on or after 6/16, Passive Thermal Control may be required prior to deorbit
    - Typically, 10 hours of PTC is required prior to D/O Prep
    - Flight specific thermal analysis in work to verify 10 hours
    - June 19 is last available launch day that can support nominal mission duration and maintain docked beta < 60°
      - Atmospheric affects or timeline changes may enable a launch on June 20



# New Operations: ISS



- **Berthing of Japanese Exposed Facility (JEF) to the Japanese Pressurized Module (JPM)**
  - Berthing occurs using the SSRMS and mating to a one of a kind JAXA mechanism, the Exposed Facility Berthing Mechanism (EFBM)
  - The command interfaces for the mechanism (EFBM) are all zero fault tolerant
    - Backup berthing method is to berth manually using the EV crew - EV contingency would nominally occur on EVA2 due to timeline
  - EFBM command interface is standalone for the crew, no command from ground or telemetry to ground.
- **Operational Items of Interest for JEF Berthing**
  - Checkout of components occurs prior to unberth
  - EVA1 extension to PET 7 hr 30 min, dependant on LiOH availability post STS-125
  - EVA, OSO teams and ISS/SSP crew trained in EFBM mechanism, and have worked malfunction development with OSO/KIBOTT team. EVA crib sheet developed.
  - Flight Rules for success criteria and when to go EVA will be utilized.
  - Based on discussions at the 2JA TIM last August, JAXA built and is flying a contingency power cable and a contingency data cable for the EFBM.
- **Operational Change**
  - Waste dump from Shuttle unavailable after JEF berthing



# New Operations: ISS



Active EFBM on JPM



Crew Command Interface - BCDU

QuickTime™ and a decompressor are needed to see this picture.

QuickTime™ and a decompressor are needed to see this picture.



# New Operations: ISS



- **Remove and Replace of P6 Batteries**
  - Batteries R&R'ed using two EVAs, nominally EVAs 3 and 4
  - MT translation occurs with the SSRMS holding the ICC-VLD from WS7 to WS8
  - Plan assumes capability for PSARJ rotation with MT at WS8 (see Non-Standard open work)
  - For actual R&R's, SSRMS moves past SARJ interface so SARJ parking is required.
  - Significant interaction between Robotics for GCA of ICC-VLD and EV crew
- **Operational Items of Interest for P6 Battery R&R**
  - 2B power channel nominally goes offline after EVA1 on FD4
    - Batteries reach required pressure and voltage with margin; Safety Paperwork pending, FR CRs submitted
  - 2B power channel re-activated on FD11 after EVA4 is complete on FD10
  - Batteries will be conditioned earlier as available in pairs i.e. nominally 4 batteries R&R'ed on EVA3 and will be conditioned after that EVA.



# New Operations: ISS



- **Loaded JEMRMS Operations for JAXA Payload Transfer**
  - JAXA payloads, MAXI, ICS-EF, and SEDA-AP will be transferred from the JLE to the JEF using the JEMRMS
  - First loaded operation of the JEMRMS
  - Several components of the JEM RWS and the mechanical joints of the JEM RMS are zero fault tolerant.
  - For a JEM RWS failure, the Back-up Drive System (BDS) can be utilized but significantly increases task time.
  - For a JEMRMS joint failure, loads analysis was performed for all significant events including undocking and collision hazard
    - Results documented in CR submitted for Docked Loads Flight Rule
- **Operational Items of Interest for JEMRMS**
  - JAXA team has practiced trajectories on-orbit with the JEMRMS
  - Mechanisms for berthing to JEF (Exposed Facility Unit: EFU) checked out prior to transfer
  - SSP and ISS crew trained for payload transfers
    - Allows 3 transfers to occur during 1 flight day with rotating operators



# New Operations: ISS



- **13 Crewmembers on ISS**

- Most significant change is waste management
- Original plan was 6 Shuttle crewmembers using the ISS WHC to minimize liquid waste in Shuttle toilet
- Liquid waste must be minimized because dump capability unavailable from after JEF berthing on FD4 through undock
- UPA issue has required work on a contingency plan (See Non-Standard Open Work)
- Available LiOH impacted by 13 crew
  - ISSP decision was made to not manifest enough LiOH to cover a CDRA failure.
  - Reduction in mission capability documented in a 2JA Annex FR
  - Decision to not manifest LiOH on 2JA (in favor of food for 6 person crew) also results in the ISS stockpile going below redline. This is a violation of flight rules which was accepted at the SSPCB on 2/10/09 and will be noted at SORR.





# Item of Interest: ISS



- **MLI Jettison**

- Up to 6 pieces of MLI will be jettisoned on EVAs 1-3
  - EVA1 - 1 MLI (Active EFBM contamination cover)
  - EVA2 - 2 MLI (Vision Equipment Camera), will bag if ahead of timeline,
  - EVA3 - 3 MLI (ICS-EF)
- Recommended by the JOP and approved by the Shuttle IPT and SSPCB
- FR CR in Workflow
- Crew is trained on MLI jettison and a protocol has been established with the FCT
- FDO/TOPO have communicated with Stratcom about the planned jettisons.
- Initiated communication with MCC-M



# Flight Rules



- **All required generic volume A, B, C, and D flight rules have been developed, reviewed, and approved by the appropriate Flight Techniques Panels, Joint Operations Panels, and the Flight Rules Control Board**
- **The following generic publications are applicable for STS-127/ISS-2JA**
  - Volume A (STS), Final, PCN-9 dated 1/22/08, PCN targeted for 5/21/09
  - Volume B (ISS), Final, PCN-8 dated 4/23/09, PCN targeted for 5/12/09
  - Volume C (Joint), Final, PCN-4 dated 5/5/08
  - Volume D (Soyuz/Progress), Final, PCN-5, dated 9/10/08
- **STS-127/ISS-2JA flight rules annex**
  - Final, approved at JPRCB on 4/27/09
  - Final, Rev A targeted for JPRCB approval on 6/01/09
  - PCN-1 will be required due to late changes to mission objectives and late analysis



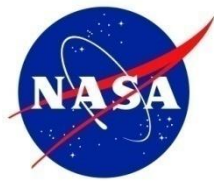
# FDF/ODF/SODF



- **DA8 has participated in FDF/ODF/SODF processes and procedure reviews as required**
- **FDF/ODF will be ready to support STS-127/ISS-2JA**
- **New US procedures are primarily for:**
  - Robotics, EVA Tasks, and JAXA Objectives



# Flight Director Mission Staffing



- All STS-127/ISS-2JA Flight Directors are certified per Flight Director Certification Guide (DA8-00010), Final, dated October 24, 2008
- Additional certified Flight Directors are available to support Team 4, EMCC, and STS-128/LON flight, as required
- MOD Work Guidelines are met: Due to the expected mission duration, ISS O1 and O3 and Shuttle Orbit 2 and Planning Teams are augmented
- Flight-specific certifications are expected to be complete by May 30, 2009

Shuttle Flight Directors		ISS Flight Directors	
Paul Dye	Lead/Orbit 1	Brian Smith	Orbit 1
Kwatsi Alibaruho	Orbit 2	Holly Ridings	Lead/Orbit 2
Gary Horlacher	Planning	Derek Hassmann	Orbit 3
Bryan Lunney	Ascent/Entry	Royce Renfrew	Orbit 4
Mike Sarafin	Orbit 4		



# EMCC/BCC



- **No changes to EMCC procedures since STS-124/1J**
  - Personnel are identified to support EMCC, if required
- **Backup Control Center (BCC)**
  - BCC-HOSC is prime for BCC/BAT.
  - Facilities and personnel are ready to support.
  - Checkout is targeted for June 1, 2009 and will involve all Partner Control Centers.
    - BCC updates to provide cmd/tlm connectivity to MCC-M, COL-CC and SSIPC targeted for completion in May 2009.



# Non-Standard Open Work



- **WS8 Pre-flight Checkout**
  - Port CETA stop interferes with the MT translation to WS8
  - Unable to meet the L-60 day checkout requirement, last time at WS8 was 10A
  - CETA stop will be moved prior to translation to WS8 (FN7) on 2JA.
  - Issue discovered on 4/27 and may result in additional operational constraints. Discussion at 2JA JOP on 5/6/09 to understand these constraints.
  - ECD 5/11/09 for 2JA SORR for additional operational constraints
- **SARJ Rotation at WS8**
  - The 2JA timeline is built assuming the SARJ can rotate while MT is at WS8 between EVAs 3 and 4.
    - Additional Robotics and SARJ locking events to move back to WS7 if unable to rotate.
    - However, procedures built for MT translations and preliminary power analysis indicates this could be accommodated in June. At higher betas (July launch window), this additional time may result in negative power margin.
  - Photogrammetry analysis required prior to rotation in current CETA–MT–CETA config
    - On-orbit ops planned for May 7-8. ECD for analysis results 5/15/09.
  - Reconfiguration of MT brake handles and translational foot restraint required on 2JA EVA prior to go for rotation.



# Non-Standard Open Work

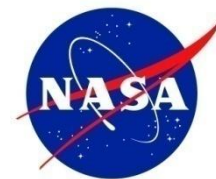


- **Waste Plan with WHC Unavailable**

- 6 Shuttle crewmembers must use Shuttle toilet instead of pre-flight plan of WHC
- Results in requirement to offload Orbiter waste tank into CWCs, unable to perform a waste dump after JEF berthing
- Estimated CWCs, 3 condensate and 2 waste
- Can currently accommodate 1 condensate CWC on FD12 dump and 2 CWCs on EOM-1 dump
- Open work to develop plan for 2 remaining CWCs
  - Discussion planned for 2JA JOP on 5/6/09
- ECD 5/11/09 for 2JA SORR, but several options require further discussion with Moscow which will take longer than 5/11/09.



# Non-Standard Open Work - Ops Safety Issue



- **Positive Plasma**

- EVAs need to be assessed for Positive Plasma risks

- Current NCR approved by ISS program for 15A only
- Level of risk for 2JA very similar to 15A
  - Space weather remains close to solar minimum
- Long-term concern remains
  - XA assessments to electrically isolate MWS from EMU did not identify any near-term viable options of significant benefit
- Updated NCR ECD is late May





# Non-Standard Open Work - Safety



- **Non-standard open safety paperwork**
  - JEMRMS hazard reports (deletion of Region Check) – ECD TBD
    - SRP technically concurred with approach (3/24/09)
    - Updated reports received 4/30 – SRP review in work
  - Battery R&R NCR and hazard reports – ECD 5/6
    - All expected operational constraints have been communicated informally
  - Stranded robotic payload transfer NCR – ECD TBD
    - Still assessing ability for ISS to sustain undocking plume loads after rescuing a stranded payload from a failed SRMS
  - JEMRMS docked loads constraints
    - Negotiating OCAD rewrite (for stage) to reflect intent to close JEM hatch if DAM needed after JEMRMS failure – ECD 5/21



# NON-STANDARD OPEN WORK (cont)



- **Non-standard open safety paperwork (continued)**
  - JLE/EFU berthing SSRMS brakes-on loads
    - Existing EBIT analysis utilized incorrect stiffness model
      - EBIT re-analysis ECD – 5/7
      - If re-analysis results negative, believe partial derigidization technique will be sufficient to mitigate loads
        - » NCR would be written since re-analysis with partial derigidization cannot be completed in time
  - Battery to FSE bolt jam – ECD TBD
    - Community acceptance of leaving battery tied-down on ISS
  - WHC hygiene – ECD TBD
    - Boeing Safety actions currently not on target to support 19S
    - Not a constraint to launch
  - Drag-thru cable NCRs – ECD TBD
    - Do not expect this to impact nominal planning
    - Not a constraint to launch



# Exceptions



- **Shuttle/Soyuz Undock**

- Exception taken at 19S SORR
- Issue is to define the groundrules and constraints for the last step in the Emergency procedure which undocks the visiting vehicles
- Currently, no documented constraints for multiple Soyuz undock and multiple Soyuz undock with Shuttle undock
- Draft protocol established for review at RJOP discussion on 5/6/09
- Follow-up 2JA JOP discussion on 5/6/09
- Preliminary data will be presented at 2JA SORR on 5/11/09



# Flight Readiness Statement



- **Pending completion of all standard and non-standard open work, the Flight Director Office and Space Flight Meteorology Group are ready to support the STS-127/ISS-2JA mission and ISS-2JA stage**
- **All standard/non-standard open work will be closed out or have a closure plan prior to SSP FRR (5/28/09) with no exceptions**
- **ISSP SORR will be conducted on 5/11/09; closeout for non-standard open work will be reported to ISSP prior to Level 1 FRR (6/5/09)**



# BACKUP



# Remaining STS-127/2JA Integrated Simulations



- **5/6 – Post Insertion**
- **5/8 – Ascent #3**
- **5/19 – S0044 (MOD participation is TBD due to STS-125)**
- **6/2 – TCDT**
- **6/4 – Entry #3**
- **6/8 – Ascent #4**



# Ascent/Entry Flight Techniques Panel



- **Two Ascent/Entry Flight Techniques Panel (A/E FTPs) were held with topics supporting STS-127/2JA**
  - A/E FTP #246
    - NH3 Flight Rule Loss Definition Changes
    - FDF Changes for Freon Flow Low
  - A/E FTP #247
    - STS-119 Post-flight Review
    - Single Non-universal I/O Error Safing Actions



# Standard Open Work



- **STS-127/ISS-2JA Flight Rules Annex**
  - Final, Rev A targeting JPRCB 06/01/09
  - PCN-1 targeting IMMT/MMT at L-2 on 06/11/09
- **FDF/SODF**
  - Final crew review 5/27/09
  - Final errata, L-2 days
- **Training**
  - Completed STS-127/ISS-2JA Orbit Flight Specific simulations (4/28/09)
  - Complete STS-127/ISS-2JA Ascent/Entry simulations (L-6 days)
  - Complete Flight Director flight specific certifications (ECD 5/27/09)





# Standard Open Work



- **CDRA Blower Speed vs LiOH**
  - Analysis in work to determine if raising the blower speed conserves LiOH. ECD 5/6/09 at 2JA JOP
- **Water Transfer Plan**
  - Waiting on clear requirements from the ISSP, have reviewed flight plan for our estimate of worst case and can accommodate that requirement.
- **Pressure profile**
  - Complete coordination of pressure management plan with MCC-M (ECD L-1wk)
- **Finalize solar array constraints and power profile plan for docked mission**
  - Initial analysis shows objectives are supportable for the June launch window by jumpering the CDRA and completing standard heater powerdowns and DDCU share ratios.
  - Preliminary analysis suggests no impact to planned US, ESA, or JAXA payload ops
  - SACM (L-30 days)
  - Power Analysis (ECD L-1 wk)
- **UCCAS Deployment Plan**
  - In work with UCCAS team, plan is to fly a special tool for freeing the UCCAS from the detents
  - 2JA EV crew is involved in tool development and incorporating information from the UCCAS team into NBL training as available.



# Standard Open Work



- **Complete “Road To” Items and Prepack**
  - Uplink 2JA MSS Recon Files (5/28 - 5/29)
  - Uplink 2JA SODF to IPV (L – 4 wk)
  - EVA Hardware / Tool Config (L – 1 wk)
  - Jumper CDRA from 2B to 1A/4A power channel
  - Complete CETA/SARJ Photogrammetry (5/7-5/8)
  - Misc systems configuration and maintenance (eg CCAA swap, EPS ORU pre-fresh)



# Standard Open Work: Safety



- INDEPENDENT SAFETY VERIFICATION REVIEW
  - SHUTTLE ISVR REPORT (ECD: L-2 wk)
  - ISS ISVR REPORT (ECD: L-2 wk)



# OPEN NASA OCADs

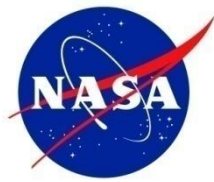


- **EVA (31)**
  - NASDA-0010: Safe Return configuration (2)
  - NASDA-0011: Prevent inadvertent mechanical release (6)
  - NASDA-0012: Avoid moving equipment (2)
  - NASDA-0019: Pinch points (7)
  - NASDA-0027: Avoid excess RF (1)
  - SEDA-AP payload constraints (4)
  - CAPE payload constraints (1)
  - Tether inspection (1)
  - SGANT bolting constraints (4)
  - ICC demate inhibits (1)
  - Battery fin KOZ (1)
  - FRAM contingency mating constraints (1)
  - [Battery R&R active tool management](#) \*
  - [EF LTA demate inhibit](#) \*
  - [JEMRMS \(delete Region Check\) updates](#) \*
- **Crew Systems (9+)**
  - [WHC Hygiene constraints \(TBD\)](#) \*
- **BME (2)**
  - Hot/cold pack constraints
- **P/TV (1)**
  - Battery charger constraint
- **ROBO (2)**
  - [Allowable misalignments for EFU/EFBM](#) \*

•\* OCAD not yet submitted



# STS-127/2JA JOP Special Topics



- **Joint Operations Panel Summary**

- Determined the P6 Battery worksite could be reached without SPDM and removed use of SPDM from the baseline mission
- Baselined operational order of mission objectives to minimize Robotics; batteries on EVAs 3 and 4, lower priority spares on EVA 2.
- Concluded 16 day mission is required to meet mission objectives. Specifically, SCSC for crew off duty is violated with 15 days and 5 EVAs.
- Decided to nominally timeline Focused Inspection because of Robotic complexity
- Approved jettison on EVAs 1-3 based on FDO/TOPO analysis.
- Streamlined EVA1 and FD4 Robotics timeline to protect for JEF berthing issues.
- Agreed to a change in operational philosophy of the JEMRMS. Payloads will be transferred using manual operations similar to the SRMS.



# Russian Integration



- **STS-127/ISS-2JA Briefings to Russian Teams**
  - ECD of L-1 Week



# SPAN Staffing



- ISS SPAN Support: Staffing provided by USA CAF Personnel
- ISS SPAN Systems: Staffing provided by DI plus support from DA8 and DA7 if required
- SSP SPAN Systems: Staffing provided by DS plus support from DA8 and DA7 if required
- SPAN DO: Staffing provided by DO
- SPAN DM: Staffing provided by DM
- SPAN DX: Staffing provided by DX
- SPAN Managers: Staffing provided by DM, DO, DX. Additional ad hoc support from DA8, DA7, DS, and DI



# MCC Applications: Non-critical Processors



- **No changes to Flight Director applications for STS-127/ ISS-2JA**





# Command Procedures



- **Personnel are prepared and ready to execute the command procedures as documented per MOD Command Policy/Flight Rules**



# Contingency Shuttle Crew Support/STS-128/LON



- **Contingency Shuttle Crew Support (CSCS) /Rescue Flight Resource Book is located at [http://mod.jsc.nasa.gov/da8/rules/CSCS\\_Rescue\\_Flight\\_Resource\\_Book/cover.htm](http://mod.jsc.nasa.gov/da8/rules/CSCS_Rescue_Flight_Resource_Book/cover.htm)**
- **STS-127 Ascent/Entry Team will support STS-128/LON mission**
- **Personnel are available to support Orbit Operations as required**



# ISS OPEN HAZARD REPORTS



- C&T-1103
- COL-1002
- EPS-0309
- EPS-0505
- EVA-0301
- ICC-2JA-F-003
- ISS-Battery IA-MECH-109
- MCH-0109
- MCH-0113
- NASDA-0012-1J/A&1J
- NASDA-0012-BDS
- STR-0907
- STR-0108
- TBD (potable water - integrated)
- TBD (metabolic waste - integrated)

- \* Pre-verified



# ISS OPEN NCRs



- **NCR-ISS-232 Lack of Two-fault Tolerance to EVA Crew Shock in the Low Earth Orbit Plasma Environment**
- **NCR-ISS-235 NiH2 Battery ORU Non-Compliance**
- **NCR-ISS-xxx Loss of ISS Robotic Capability to Remove 2J/A Payload from SRMS**
- **NCR-ISS-215, NCR-ISS-218 Ungrounded Floating Connector Interfaces**
- **NCR-ISS-229 US Lab Integrated Acoustic Non-Compliance**
- **NCR-ISS-xxx Negative EFBM structural margins for SSRMS brakes-on failure**



# GFE Open Hazard Reports



- **None**
  - EVA
  - STS
  - ISS



# Payload Open Hazard Reports



- **STS**
  - CAPE/ICU/ANDE-2: ECD 5/8/09
- **ISS**
  - none

