Automated Transfer Vehicle - 3 (ATV-3) Mission Status Update

09/11/12

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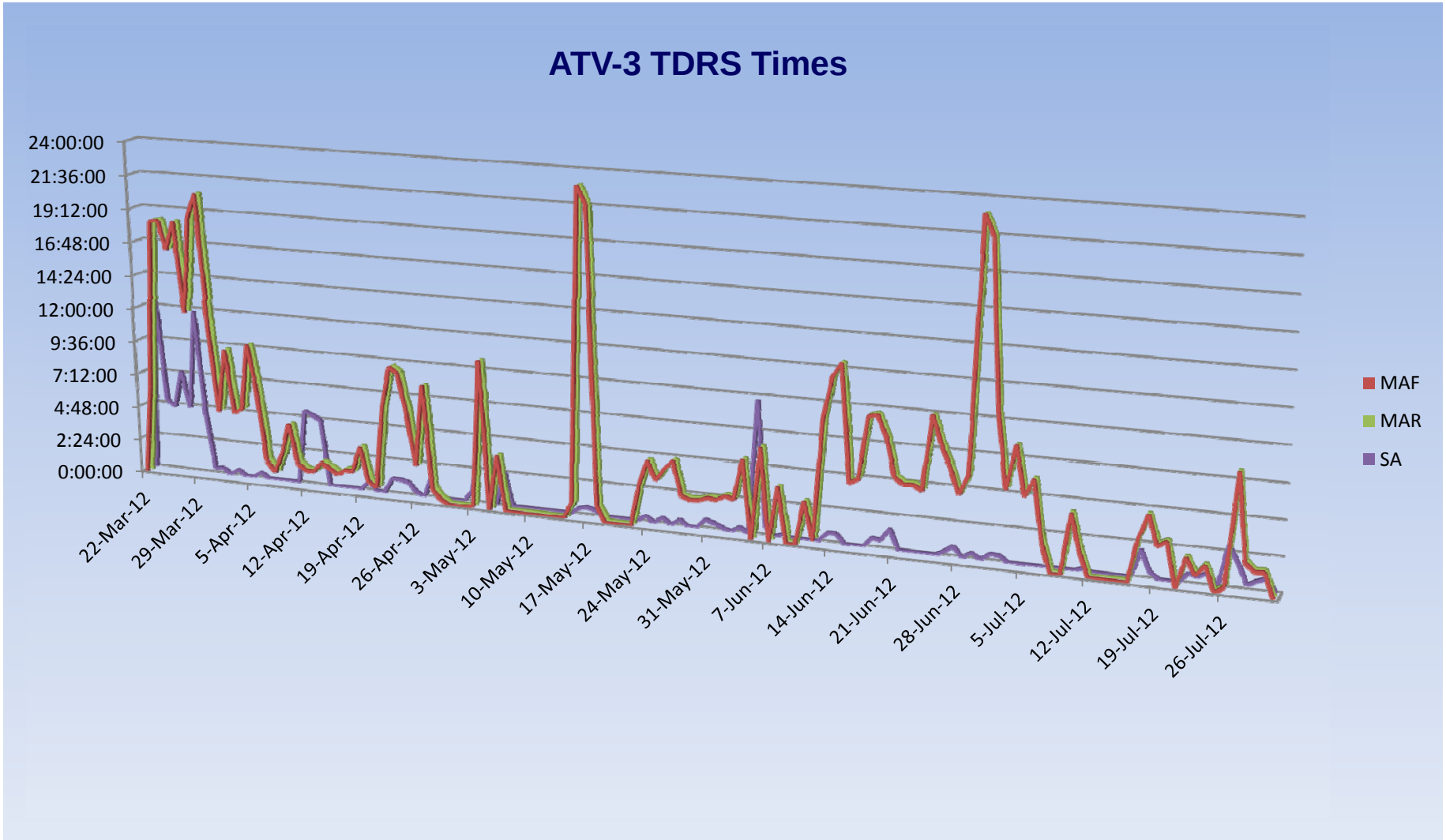
Agenda

- Mission Status
- TDRS usage
- Undocking support
- Open Work
- Open Discussion
- Backup slides

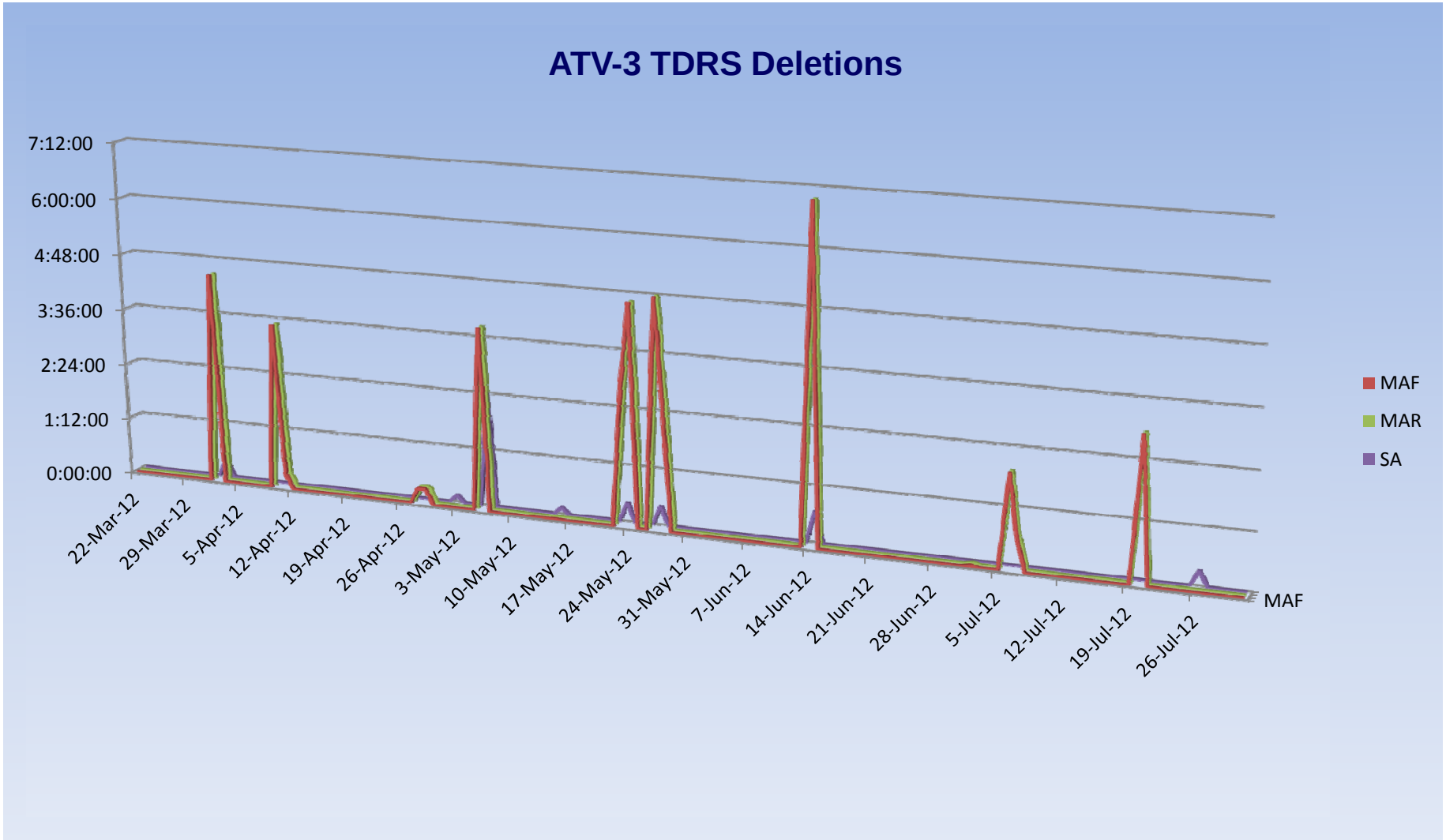
Mission Status

- Launch occurred on 03/23/12 DOY 083/0434:05 GMT with ATV-3 spacecraft separation at 0538 GMT
- Docking was on 03/28/12 DOY 088/2231:17 GMT
- The Space Network (SN) has supported over 75 Critical periods for various activities and 6 Super Critical periods (for Rendezvous/docking)
  - Critical periods also included 9 ATV/ISS Reboosts (to date)
    - The reboost on 08/15/12 experienced an anomaly. The planned 31 minute burn only lasted 22 minutes due to a temperature difference limit on one of the ATV-3 thrusters. Reboost on 08/22/12 was successful
- There are currently no open SN Discrepancy Reports (DRs)

TDRS Usage

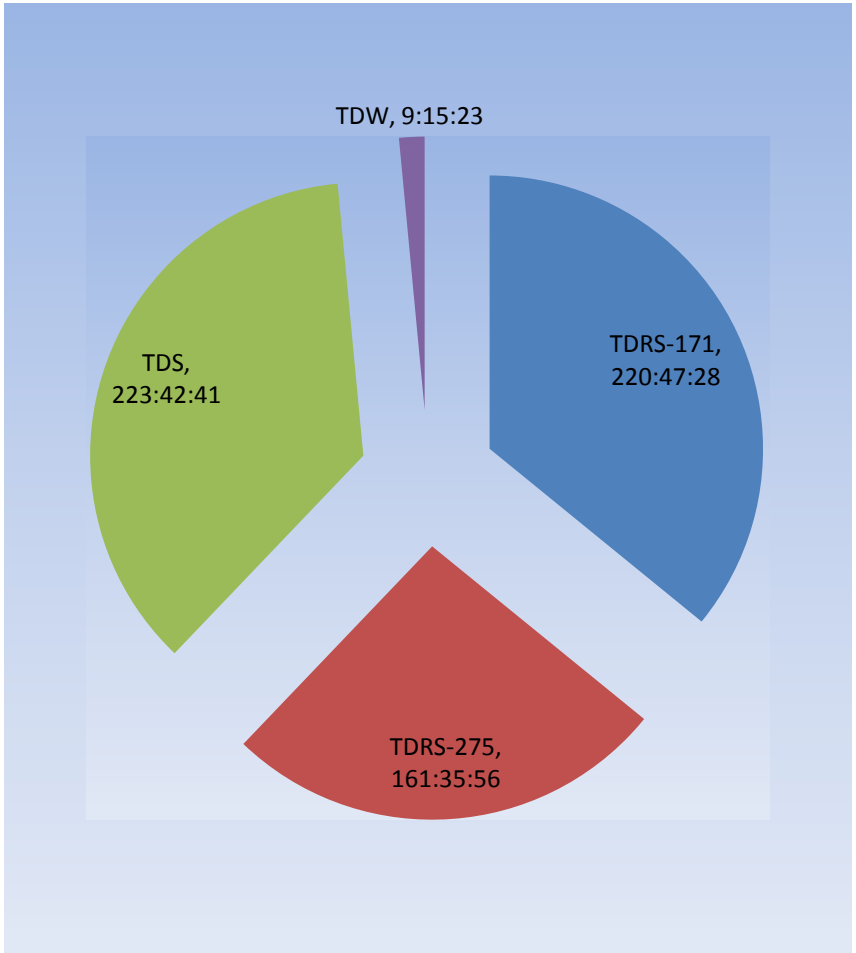

ATV-3 TDRS Times
24:00:00
21:36:00
19:12:00
16:48:00
14:24:00
12:00:00
9:36:00
7:12:00
4:48:00
2:24:00
0:00:00
22-Mar-12
29-Mar-12
5-Apr-12
12-Apr-12
19-Apr-12
26-Apr-12
3-May-12
10-May-12
17-May-12
24-May-12
31-May-12
7-Jun-12
14-Jun-12
21-Jun-12
28-Jun-12
5-Jul-12
12-Jul-12
19-Jul-12
26-Jul-12
MAF
MAR
SA

TDRS Usage (cont'd)

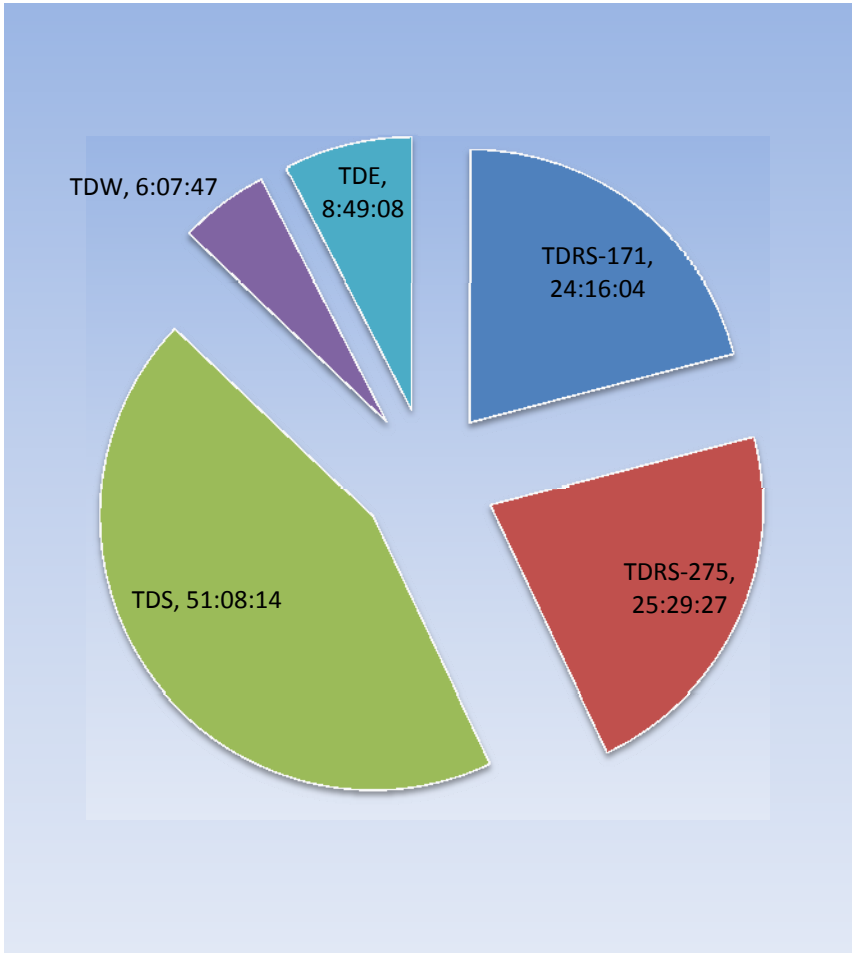


TDRS Usage (cont'd)

MAF/MAR TDRS Utilization



SA TDRS Utilization



Undocking Support

- Undocking planned for 09/25/12 DOY 269 between 2204-2218 GMT
- Destructive re-entry planned for 09/26/12 DOY 270/TBD GMT
- The SMM will support from L-4 hours of Critical Period start through Reentry/loss of TDRS telemetry
  - WSC TO&A will staff at L-1 hour prior to start of Undocking and Re-entry Critical Periods
  - FDF will staff approximately 30 minutes prior to first undock maneuver, then for all subsequent maneuvers and additional SN acquisition updates, as required, through re-entry
  - CSO/NISN is staffed 24/7

Undocking Support (con't)

- SMM will issue the following :
  - Undocking/re-entry count
  - WSC Auto-throughput Management ISI
  - Critical/Super Critical Periods ISI
  - Network post-undocking/re-entry report
  - Mission Termination ISI
  - SN Media Hold request
- FDF will be required to provide orbit determination
  - Provide No Later Than (NLT) 2 hours before the first de-orbit burn, a state vector based off TDRS coherent mode tracking
  - Provide NLT 2 hours after the first de-orbit burn, a second state vector based on TDRS coherent mode tracking based on orbit determination after the first de-orbit burn
  - JSC to provide times of coherent events for after undocking

Open Work

- SMM unable to access Electronic Flight Notes (EFNs)
  - SMM worked with JSC and now have access via AutoCAR
- Difference in documentation for Planning Products delivery dates to the IN
  - Review operational documentation (MCC-H ATV OIP and applicable PRDs) to try and get the planning products (Trajectory and TDRSS schedule) delivery dates by L-30 days. Necessary for IN requirements
    - FDF advised L-30 to L-25 days for FDF products
    - WSC Forecast scheduling requirement is L-28 days for planning products/schedules
    - JSC recommends revising the OIP E8.2.12
    - Awaiting JSC GC response from ATV-CC

Open Discussion

Backup slides

Discrepancy Reports (SN)

Impact (Y/N)	DR#	TDRS event	Problem Description	Comments	Current Status	Projected Closure Date
Y	64230	136/2241:40-2301:40z SSA-1 coherent 64kb	Failed to acquire lock using the High Rate return data rate (64kb)	Multiple GCMR's transmitted, lock not achieved. No WSC equipment anomalies. ATV loss of telemetry as a result of errors on the users Remote TDRS Tele-command Front End Equipment (RTTFEE). User reset their equipment to correct problem. ATV telemetry received at JSC and via ARTEMIS was observed as nominal	Closed	
Y	64232	137/0931:50-1007:05z MAF/R 8kb	Loss of telemetry from 0951:48-0953:07z which appeared to be caused by an interruption in telemetry	MAR-5 looses lock at 0951:50z. At 0952:02z forward data from ATV is lost. At 0953:31z forward data present from ATV. Problem and resolution unknown but no further action required from the SN	Closed	
Y	64302	146/2348:30-147/0026:47z MAF/R 8kb	Momentary loss of receiver lock due to out of limits condition on MAR-4 IRS modem	Alert received for EPHM Protocol Error. Closed to DR# 63001. This is a known issue with the MA IRS CIP S/W	Closed	
Y	64422	166/1007:32-1027:00z MAF/R 8kb	ATV MOCC reported MA return dropout	ATV MOCC reported an on-board time tag mis-configuration	Closed	

Discrepancy Reports (cont'd)

Impact (Y/N)	DR#	TDRS event	Problem Description	Comments	Current Status	Projected Closure Date
N	64507	181/0330-0350z , 181/0510-0530z MAF/R 8kb	SGLT-5 AGIPA-6 faulted, measurand out of limits. AGIPA failover thru backup buss, but no user data effected	AGIPA interface and channel processor cards reseated	Closed	
Y	64736	208/1519:33-1534:27z SSA-2 coherent 64kb	Negative lock during entire event	Event received at 1501z as real-time event. WSC observed negative lock after AOS. H-GC transmitted multiple GCMR's, all negative. Approaching LOS, it was noted that ATV was not in TDRS view	Closed	
Y	64922	235/0709:32-0745:00z MAF/R 8kb	Severe weather caused inability to support users	Severe weather caused GRGT to transition the TDRS communications from K-band to S-band. Services restored to normal operations after severe weather cleared	Closed	

Critical Periods to date

ISI NR.066 M8003MS ESA/ATV-3
Critical Mission Period Restrictions

		Launch Time (GMT)							
		DOY		TIME (Z)					
		83		4:34					
	ATV-3	MET Start		MET End		GMT Start		GMT End	
	Event	DAY	HH:MM:SS	DAY	HH:MM:SS	DOY	HH:MM:SS	DOY	HH:MM:SS
A	Launch and Early Orbit Phasing (LEOP)	0	0:47:20	0	7:02:20	83	5:22:00	83	11:37:00
B	Transfer to Phasing Orbit (TPO)	0	7:02:20	0	11:22:20	83	11:37:00	83	15:57:00
C	MC1 Maneuvers	1	23:08:20	2	2:23:20	85	3:43:00	85	6:58:00
D	MC2 Maneuvers	3	13:44:20	3	16:59:20	86	18:19:00	86	21:34:00
E	TIV1 Maneuvers	4	13:55:20	4	18:42:20	87	18:30:00	87	23:17:00
F	TIV2 Maneuvers	4	21:31:20	5	2:20:20	88	2:06:00	88	6:55:00
G	TIV3 Maneuvers/Rendezvous/Docking	5	5:10:20	5	23:59:20	88	9:45:00	89	4:34:00
H	Super Critical - 1	5	12:18:39	5	12:34:42	88	16:53:19	88	17:09:22
I	Super Critical - 2	5	13:59:02	5	14:16:00	88	18:33:42	88	18:50:40
J	Super Critical - 3	5	15:41:32	5	15:54:06	88	20:16:12	88	20:28:46
K	Super Critical - 4	5	17:22:39	5	17:32:47	88	21:57:19	88	22:07:27
L	Super Critical - 5	5	19:00:36	5	19:08:11	88	23:35:16	88	23:42:51
M	Super Critical - 6	5	20:38:26	5	20:43:30	89	1:13:06	89	1:18:10
N	ATV Spacecraft Power Troubleshooting	7	11:02:20	7	17:02:20	90	15:37:00	90	21:37:00
O	ATV Physical Electrical connection to ISS	8	11:25:20	8	13:30:20	91	16:00:00	91	18:05:00
P	ATV Buffer Dump/Prep/ISS AC/Reconfig	8	13:30:20	8	19:45:20	91	18:05:00	92	0:20:00
Q	Buffer Dump for ISS Reboost Phase	13	10:30:20	13	10:55:20	96	15:05:00	96	15:30:00
R	ATV Prep/ISS Reboost/ATV Reconfig	13	10:55:20	13	17:25:20	96	15:30:00	96	22:00:00
S	Prox link validation First Test	19	13:25:20	19	19:55:20	102	18:00:00	103	0:30:00
T	Prox link validation Second Test	20	12:40:20	20	17:25:20	103	17:15:00	103	22:00:00
U	Prox link validation Third Test	21	11:40:20	21	16:35:20	104	16:15:00	104	21:10:00
V	CPF2 Re-integration	31	9:05:20	31	11:47:20	114	13:40:00	114	16:22:00
W	ATV Buffer Dump	33	3:40:20	33	10:15:20	116	8:15:00	116	14:50:00
X	RECS1 part-1 re-integration	41	2:40:20	41	7:40:20	124	7:15:00	124	12:15:00
Y	ATV Buffer Dump	42	0:20:20	42	0:45:20	125	4:55:00	125	5:20:00
Z	ATV Prep/ISS Reboost/ATV Reconfig	42	0:45:20	42	6:45:20	125	5:20:00	125	11:20:00
AA	RECS1 part-2 re-integration	42	13:25:20	42	17:25:20	125	18:00:00	125	22:00:00
BB	ATV Buffer Dump	44	23:10:20	44	23:35:20	128	3:45:00	128	4:10:00
CC	ATV Prep/ISS Reboost/ATV Reconfig	44	23:35:20	45	5:40:20	128	4:10:00	128	10:15:00
DD	ATV Buffer Dump	53	18:01:20	53	18:26:20	136	22:36:00	136	23:01:00
EE	ATV Prep/ISS Attitude control/ATV Reconfig	53	18:26:20	54	0:10:20	136	23:01:00	137	4:45:00
FF	ATV Buffer Dump Complex	55	14:46:20	55	15:11:20	138	19:21:00	138	19:46:00
GG	ATV Prep/ISS Attitude control/ATV Reconfig	55	15:11:20	55	20:56:20	138	19:46:00	139	1:31:00
HH	ATV Buffer dump/Prep/ISS Reboost b/up/ATV Reconfig	63	15:55:20	64	0:25:20	146	20:30:00	147	5:00:00
II	ATV electrical isolation	68	0:15:20	68	1:55:20	151	4:50:00	151	6:30:00
JJ	ATV electrical reconnection	68	7:25:20	68	8:55:20	151	12:00:00	151	13:30:00
KK	ATV electrical isolation	69	0:15:20	69	1:55:20	152	4:50:00	152	6:30:00
LL	ATV electrical reconnection	69	7:25:20	69	8:55:20	152	12:00:00	152	13:30:00
MM	ATV electrical isolation	70	0:15:20	70	1:55:20	153	4:50:00	153	6:30:00
NN	ATV electrical reconnection	70	7:25:20	70	8:55:20	153	12:00:00	153	13:30:00
OO	ATV electrical isolation	71	0:15:20	71	1:55:20	154	4:50:00	154	6:30:00

Legend

ATV-3 Critical
Super-critical
*Denotes changes
A strike through denotes- DELETE

Critical Periods to date (cont'd)

ISI NR.066 M8003MS ESA/ATV-3
Critical Mission Period Restrictions

		Launch Time (GMT)							
		DOY		TIME (Z)					
		83		4:34					
	ATV-3	MET Start		MET End		GMT Start		GMT End	
	Event	DAY	HH:MM:SS	DAY	HH:MM:SS	DOY	HH:MM:SS	DOY	HH:MM:SS
PP	ATV electrical reconnection	71	7:25:20	71	8:55:20	154	12:00:00	154	13:30:00
QQ	ATV electrical isolation	72	0:15:20	72	1:55:20	155	4:50:00	155	6:30:00
RR	ATV electrical reconnection	72	7:25:20	72	8:55:20	155	12:00:00	155	13:30:00
SS	Potok measurement/ ATV reconnect	73	8:15:20	73	13:55:20	156	12:50:00	156	18:30:00
TT	RECS1 re-integration activities	74	0:25:20	74	10:25:20	157	5:00:00	157	15:00:00
UU	ATV electrical isolation	75	0:15:20	75	1:55:20	158	4:50:00	158	6:30:00
VV	ATV electrical reconnection	75	7:25:20	75	8:55:20	158	12:00:00	158	13:30:00
WW	RECS/RFS check-out	82	3:25:20	82	10:25:20	165	8:00:00	165	15:00:00
XX	Refueling leak check	84	2:55:20	84	13:15:20	167	7:30:00	167	17:50:00
YY	RFS pressurization	87	1:45:20	87	8:10:20	170	6:20:00	170	12:45:00
ZZ	Propellant transfer	88	3:20:20	88	9:55:20	171	7:55:00	171	14:30:00
AAA	ATV buffer dump	89	5:25:20	89	5:50:20	172	10:00:00	172	10:25:00
BBB	ATV Prep, ISS Reboost #5, ATV Reconfig	89	5:50:20	89	11:45:20	172	10:25:00	172	16:20:00
CCC	Refueling line purging	93	22:43:20	94	6:19:20	177	3:18:00	177	10:54:00
DDD	ATV buffer dump,preps,ISS att.control, ATV reconfig	98	18:03:20	99	0:05:20	181	22:38:00	182	4:40:00
EEE	ATV buffer dump,preps,ISS att.control, ATV reconfig	100	16:20:20	100	22:20:20	183	20:55:00	184	2:55:00
FFF	ATV FAN test	103	7:25:20	103	11:25:20	186	12:00:00	186	16:00:00
GGG	ATV buffer dump	116	19:00:20	116	19:25:20	199	23:35:00	200	0:00:00
HHH	ATV Prep, ISS Reboost #6, ATV Reconfig	116	19:25:20	117	1:10:20	200	0:00:00	200	5:45:00
III	ATV buffer dump	126	2:15:20	126	2:45:20	209	6:50:00	209	7:20:00
JJJ	ATV Prep, ISS Attitude Control, ATV Reconfig	126	2:45:20	126	10:05:20	209	7:20:00	209	14:40:00
KKK	ATV buffer dump	126	5:00:20	126	5:25:20	214	9:35:00	214	10:00:00
LLL	ATV Prep, ISS Attitude Control, ATV Reconfig	126	5:25:20	126	10:05:20	214	10:00:00	214	15:20:00
MMM	ATV buffer dump	126	21:20:20	126	21:45:20	215	1:55:00	215	2:20:00
NNN	ATV Prep, ISS Attitude Control, ATV Reconfig	126	21:45:20	126	10:05:20	215	2:20:00	215	7:40:00
OOO	ATV buffer dump	145	7:45:20	145	7:50:20	228	12:20:00	228	12:25:00
PPP	ATV buffer dump	145	7:50:20	145	8:10:20	228	12:25:00	228	12:45:00
QQQ	ATV Prep, ISS Reboost #7, ATV Reconfig	145	8:10:20	145	14:15:20	228	12:45:00	228	18:50:00
RRR	ATV buffer dump (b/up day)	147	6:05:20	147	6:10:20	230	10:40:00	230	10:45:00
SSS	ATV/ISS mid mission isolation: Hatch Closure	149	11:00:20	149	18:35:20	232	15:35:00	232	23:10:00
TTT	ATV/ISS mid mission isolation: Hatch re-Opening	151	6:25:20	151	10:10:20	234	11:00:00	234	14:45:00
UUU	ATV buffer dump	152	1:10:20	152	1:35:20	235	5:45:00	235	6:10:00
VVV	ATV Prep, ISS Reboost #8, ATV Reconfig	152	1:35:20	152	11:35:20	235	6:10:00	235	16:10:00
WWW	ATV waste liquid transfer monitoring	157	10:23:20	157	11:31:20	240	14:58:00	240	16:06:00
XXX	ATV Buffer Dump	167	6:40:20	167	7:05:20	250	11:15:00	250	11:40:00
YYY	ATV Prep, ISS Attitude Control, ATV Reconfig	167	7:05:20	167	13:55:20	250	11:40:00	250	18:30:00
ZZZ	ATV Buffer Dump for Reboost #9	172	19:15:20	172	19:40:20	255	23:50:00	256	0:15:00
AAAA	ATV Prep, ISS Att. Control, ATV Reconfig for ATV-3 reboost #9	172	19:40:20	173	1:05:20	256	0:15:00	256	5:40:00
BBBB	ATV Buffer Dump for Reboost #9 (b/up)	174	19:15:20	174	19:40:20	257	23:50:00	258	0:15:00
CCCC	ATV Prep, ISS Att. Control, ATV Reconfig ATV-3 reboost #9 (b/up)	174	19:40:20	175	1:05:20	258	0:15:00	258	5:40:00

Legend
ATV-3 Critical
Super-critical
*Denotes changes
A strike through denotes- DELETE