HST THIRD SERVICING MISSION INTEGRATED TIMELINE: SM3A LAUNCH UPDATE #7

TIME GMT: 350 / MET: -03	0050 / -24	0150 / -23	0250 / -22	0350 / -21	0450 / -20	0550 / -19	0650 / -18
ORBIT# (ascend node ∇)	∇	52563 ∇	52564 ∇	52565 ∇	52566		
DAY / NIGHT							
SAA							
HST ATTITUDE	HST +V3 SUNPOINT						
ORBITER ATT							
CREW SCHED							

ORBITER, CREW, SSE

FUNCTIONAL COMMAND DESCRIPTION

Δ REAL-TIME COMMAND

• COMMENT/ EVENT

© SPC

⊗HAZARDOUS

1 • STOCC/MCC INTERFACE CHECKOUT #1

• STOCC CONTROL ESTABLISH COMMUNICATION AND COMMAND/DATA CONFIGURATIONS WITH JSC AND SYNCHRONIZE MET CLOCKS [8 min]

2 • THERMAL PREPARATION FOR APPENDAGE OPS

2 ΔC504-EPS: ENABLE RTRV/DPLY HTRS [2min]

2 ΔC505-EPS: CHANGE OTA & MECHANISM THERMAL LIMITS [2min]

RESTRICTION: HTRS MUST BE ENABLED AT LEAST 8HRS BEFORE USE OF LATCHES AND HINGES

3 • LOAD AND VERIFY FORMAT "T"

3 ΔD500-DMS: LOAD FORMAT "T" [5min]

3 ΔD037-DMS: CHANGE TO FORMAT "T" [1min]

3 ΔD033-DMS: CHANGE TO FORMAT "A" [2min]

4 • VERIFY OCS IN RETRIEVAL MODE

4 ΔE200-OTA: OCS INITIALIZATION [1min]

4 ΔE205-OTA: OCE CONFIGURE [5min]

4 ΔE505-OTA: ENBL OCE & STOW COARSE WEDGE MECHANISM [15min]

INITIAL CONDITIONS FOR SIs:

FOC	SAFE
COSTAR	SAFE
WFPC-II	SAFE W/ HEAT PIPE HTR ON
STIS	SAFE
NICMOS	SAFE
NSSC-1	NORMAL FORMAT, SOFT SAFING CONFIGURED

NOTE: THE TIMELINE BEGINS AT LAUNCH - 96hrs

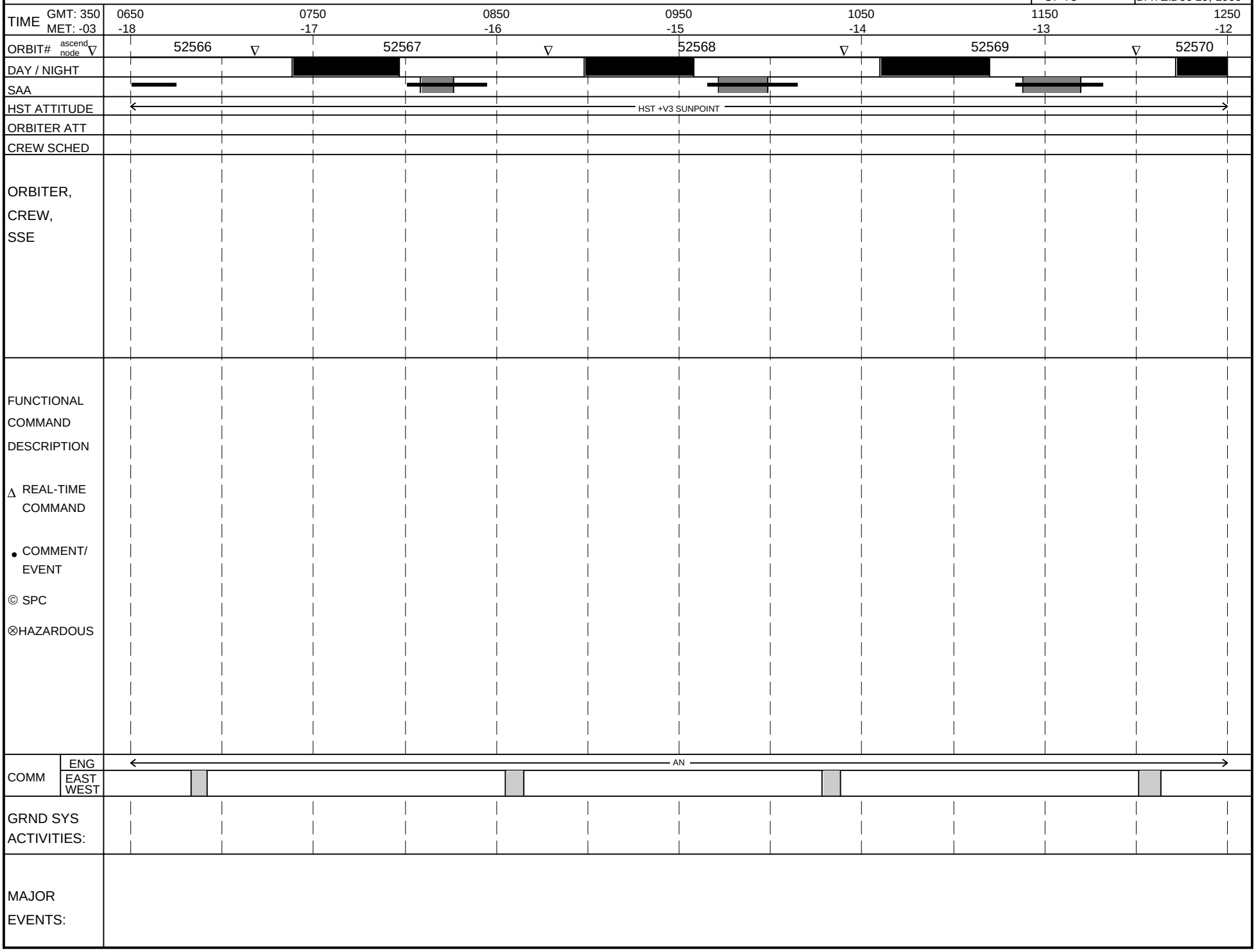
COMM

ENG	AN — TN — AN
EAST / WEST	

GRND SYS ACTIVITIES:

MAJOR EVENTS:

HST THIRD SERVICING MISSION INTEGRATED TIMELINE: SM3A LAUNCH UPDATE #7



HST THIRD SERVICING MISSION INTEGRATED TIMELINE: SM3A LAUNCH UPDATE #7

TIME GMT: 350 / MET: -03	1250 / -12	1350 / -11	1450 / -10	1550 / -9	1650 / -8	1750 / -7	1850 / -6
ORBIT# ascend node ∇	52570 ∇		52571 ∇		52572 ∇		52573 ∇
DAY / NIGHT							
SAA							
HST ATTITUDE	HST +V3 SUNPOINT						
ORBITER ATT							
CREW SCHED							
ORBITER, CREW, SSE							
FUNCTIONAL COMMAND DESCRIPTION			5 • STOCC/MCC INTERFACE CHECKOUT #2 • STOCC CONTROL INTERFACE CHECK WITH HOUSTON DATA FOR COMMANDING AND SYNCHRONIZE MET CLOCKS [3 min]				
COMM ENG	AN						
COMM EAST WEST							
GRND SYS ACTIVITIES:							
MAJOR EVENTS:							

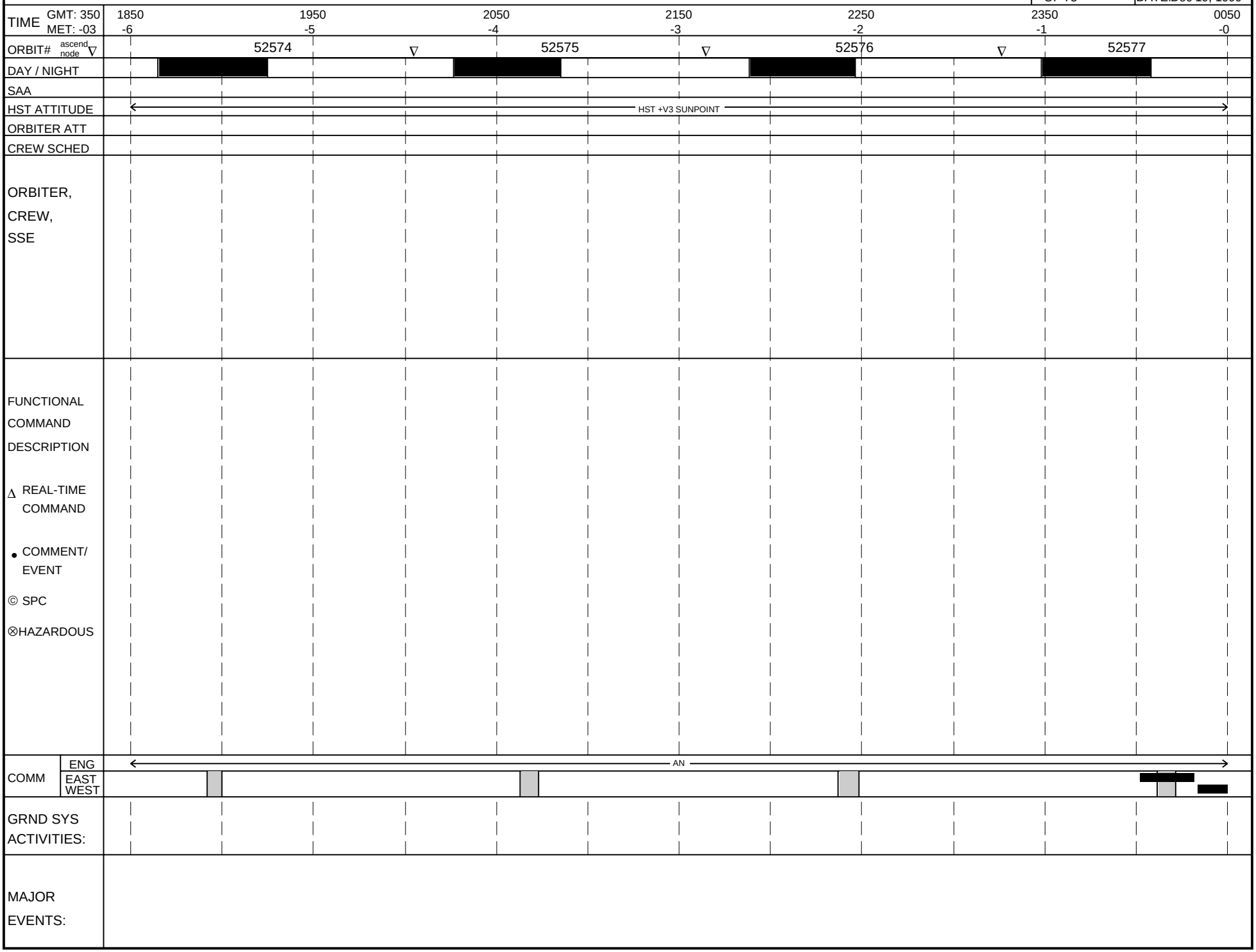
∆ REAL-TIME COMMAND

• COMMENT/ EVENT

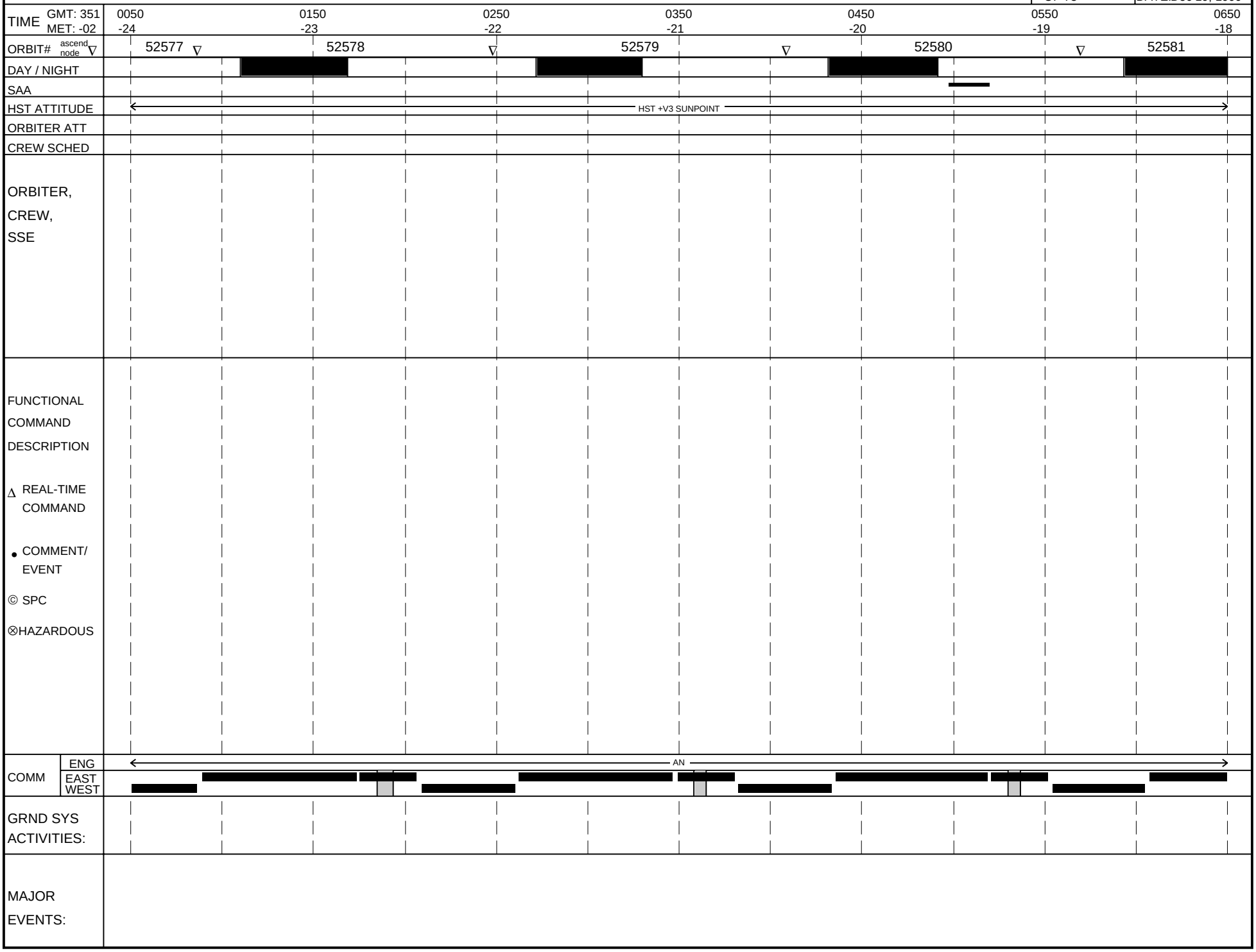
© SPC

⊗HAZARDOUS

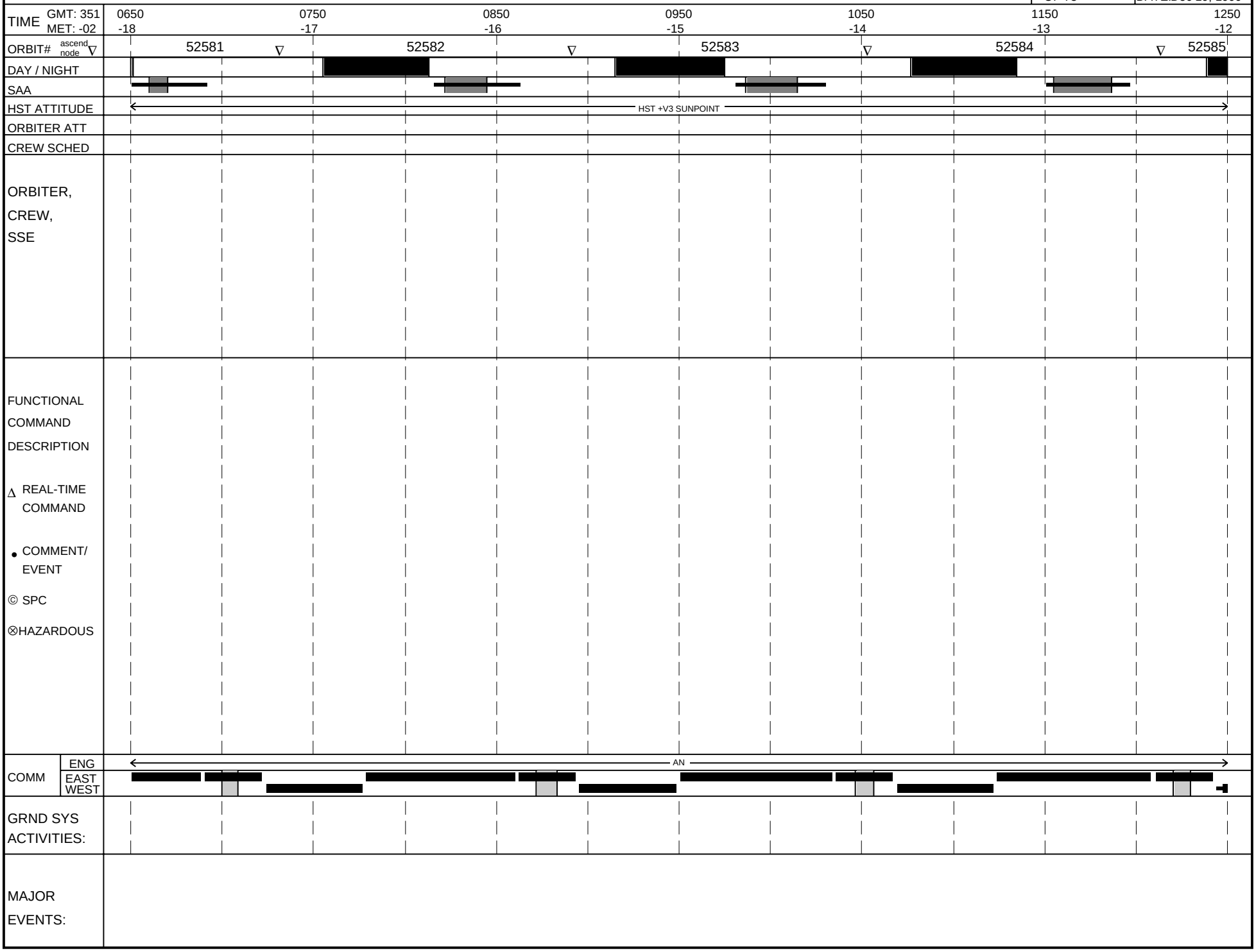
HST THIRD SERVICING MISSION INTEGRATED TIMELINE: SM3A LAUNCH UPDATE #7



HST THIRD SERVICING MISSION INTEGRATED TIMELINE: SM3A LAUNCH UPDATE #7



HST THIRD SERVICING MISSION INTEGRATED TIMELINE: SM3A LAUNCH UPDATE #7



HST THIRD SERVICING MISSION INTEGRATED TIMELINE: SM3A LAUNCH UPDATE #7

TIME GMT: 351 / MET: -02	1250 / -12	1350 / -11	1450 / -10	1550 / -9	1650 / -8	1750 / -7	1850 / -6
ORBIT# ascend node ∇	52585 ∇		52586 ∇		52587 ∇	52588	
DAY / NIGHT							
SAA							
HST ATTITUDE	HST +V3 SUNPOINT						
ORBITER ATT							
CREW SCHED							
ORBITER, CREW, SSE							
FUNCTIONAL COMMAND DESCRIPTION	5 • STOCC/MCC INTERFACE CHECKOUT #2 (REPEAT) • STOCC CONTROL INTERFACE CHECK WITH HOUSTON DATA FOR COMMANDING AND SYNCHRONIZE MET CLOCKS [3 min]						
COMM ENG	AN						
COMM EAST WEST							
GRND SYS ACTIVITIES:							
MAJOR EVENTS:							

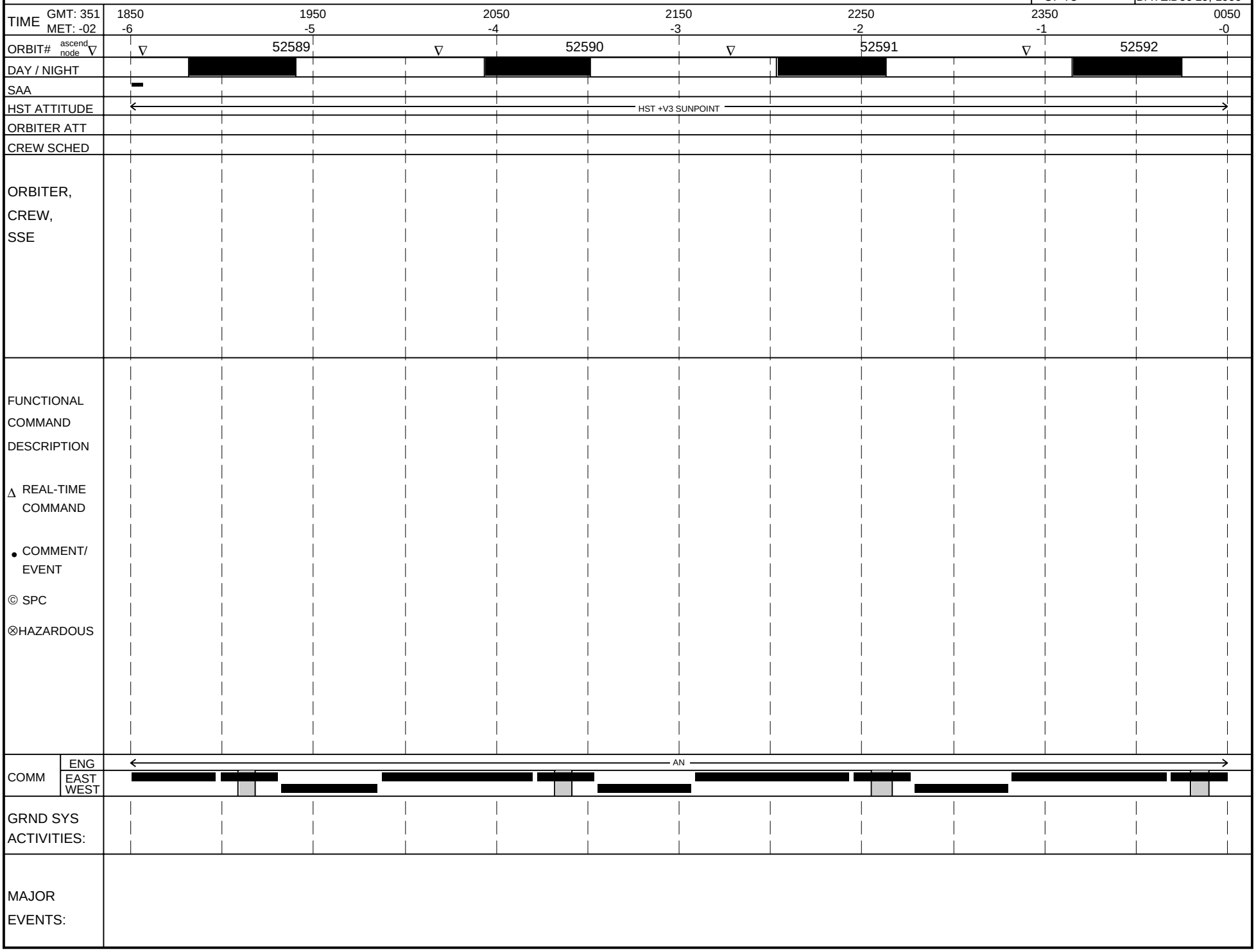
∆ REAL-TIME COMMAND

• COMMENT/ EVENT

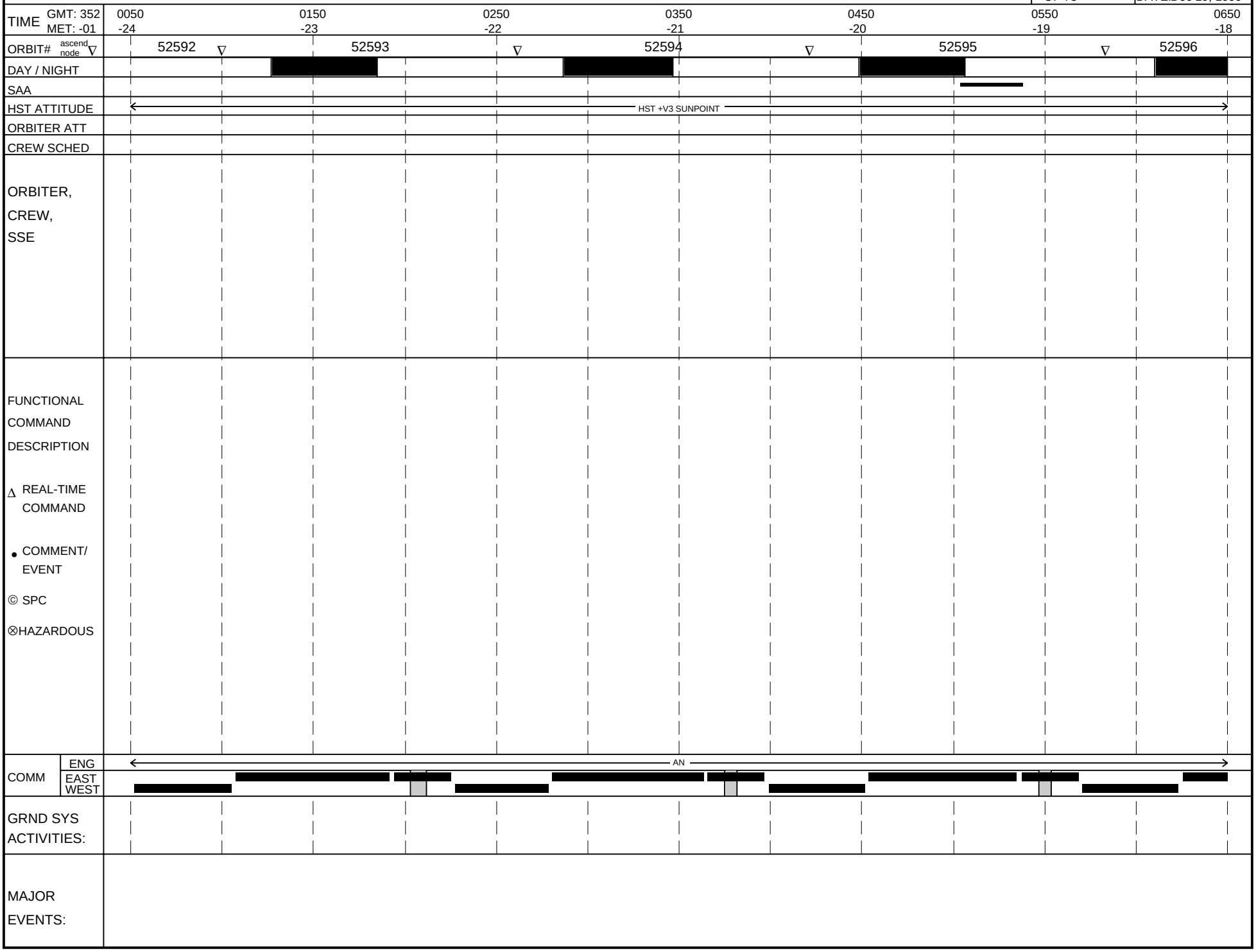
© SPC

⊗HAZARDOUS

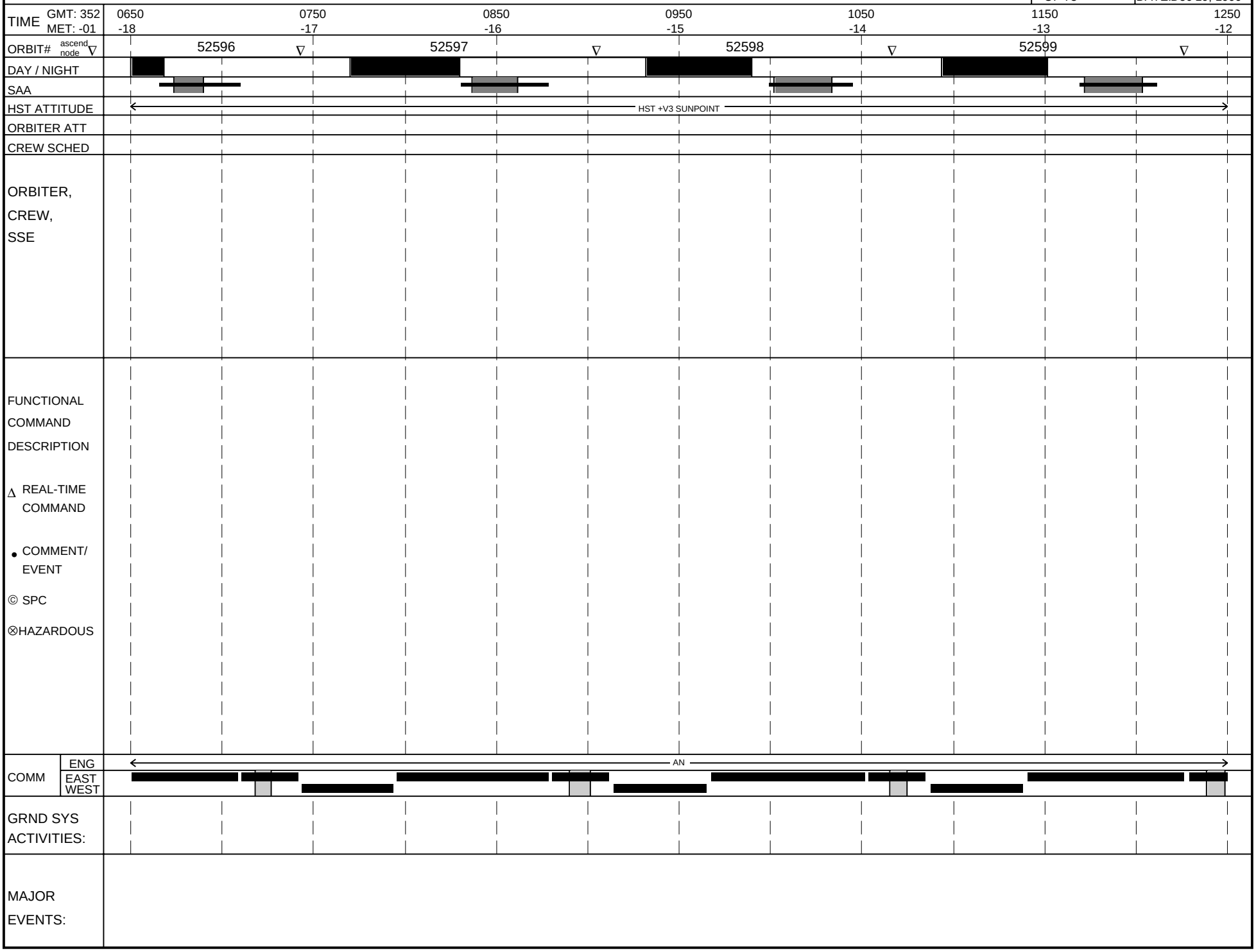
HST THIRD SERVICING MISSION INTEGRATED TIMELINE: SM3A LAUNCH UPDATE #7



HST THIRD SERVICING MISSION INTEGRATED TIMELINE: SM3A LAUNCH UPDATE #7



HST THIRD SERVICING MISSION INTEGRATED TIMELINE: SM3A LAUNCH UPDATE #7



HST THIRD SERVICING MISSION INTEGRATED TIMELINE: SM3A LAUNCH UPDATE #7

TIME	GMT: 352 MET: -01	1250 -12	1350 -11	1450 -10	1550 -9	1650 -8	1750 -7	1850 -6
ORBIT#	ascend node ∇	52600	∇	52601	∇	52602	∇	52603
DAY / NIGHT								
SAA								
HST ATTITUDE		HST +V3 SUNPOINT						
ORBITER ATT								
CREW SCHED								
ORBITER, CREW, SSE								
FUNCTIONAL COMMAND DESCRIPTION		5 • STOCC/MCC INTERFACE CHECKOUT #2 (REPEAT #2) • STOCC CONTROL INTERFACE CHECK WITH HOUSTON DATA FOR COMMANDING AND SYNCHRONIZE MET CLOCKS [3 min]						
COMM	ENG	AN						
	EAST WEST							
GRND SYS ACTIVITIES:								
MAJOR EVENTS:								

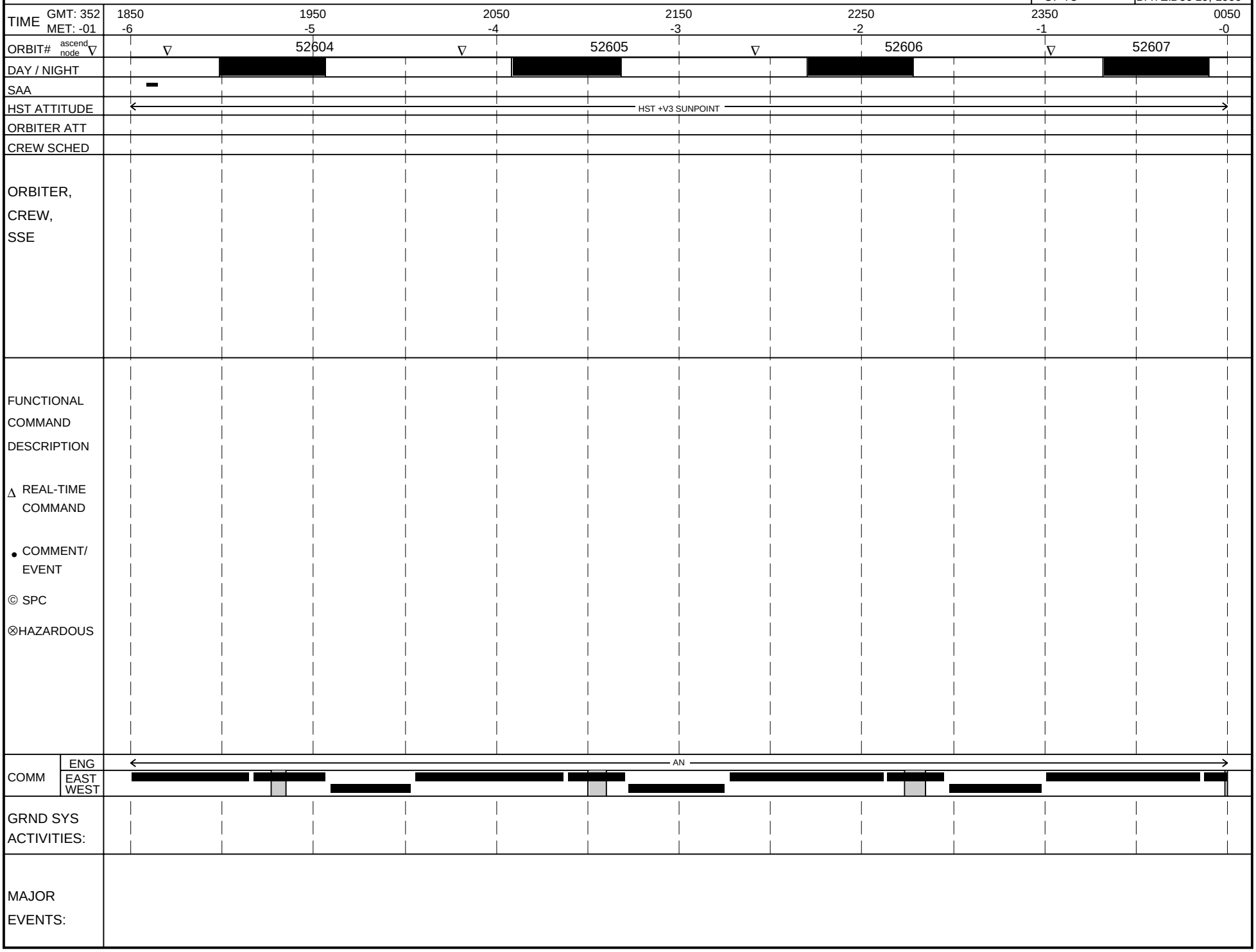
Δ REAL-TIME COMMAND

• COMMENT/ EVENT

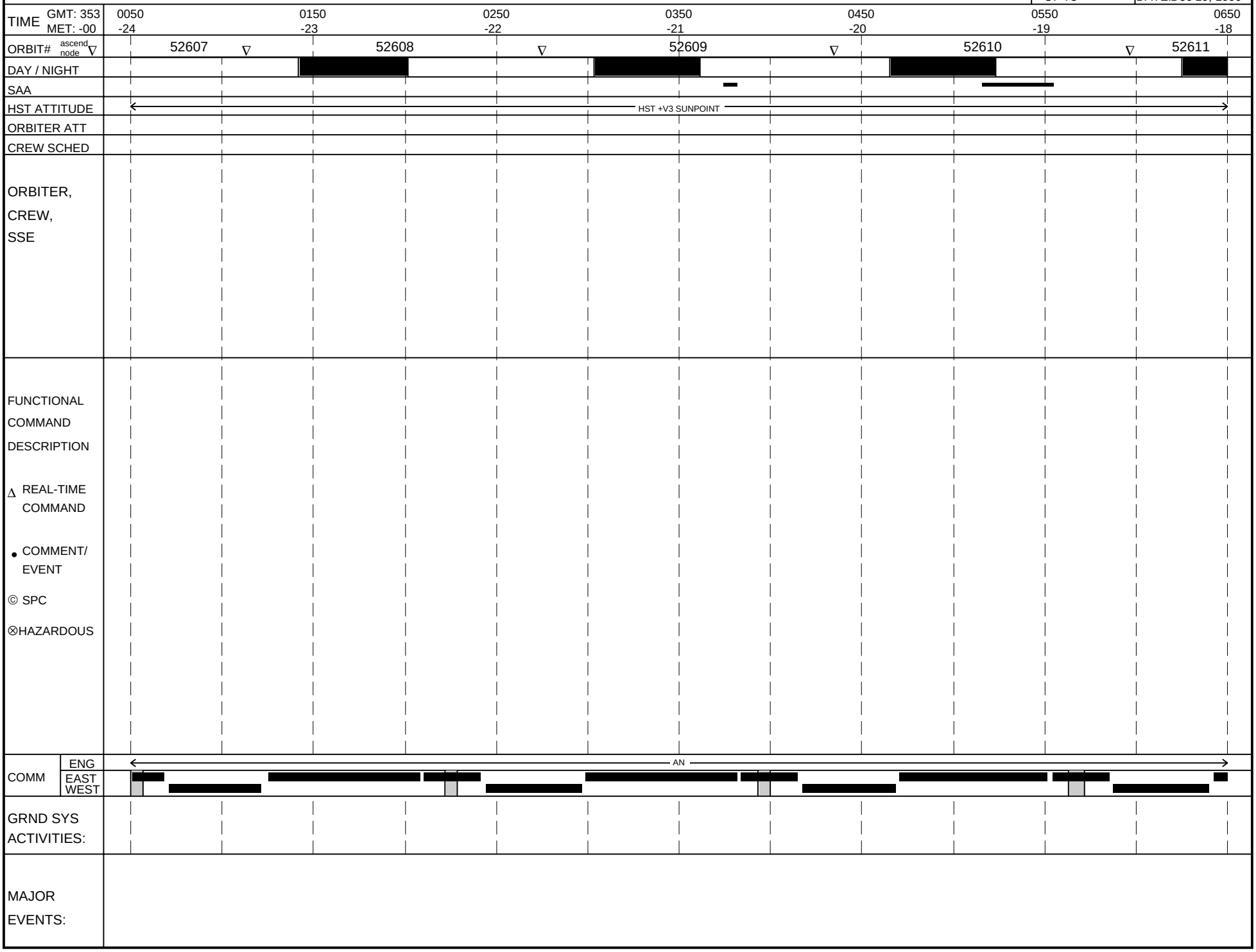
© SPC

⊗HAZARDOUS

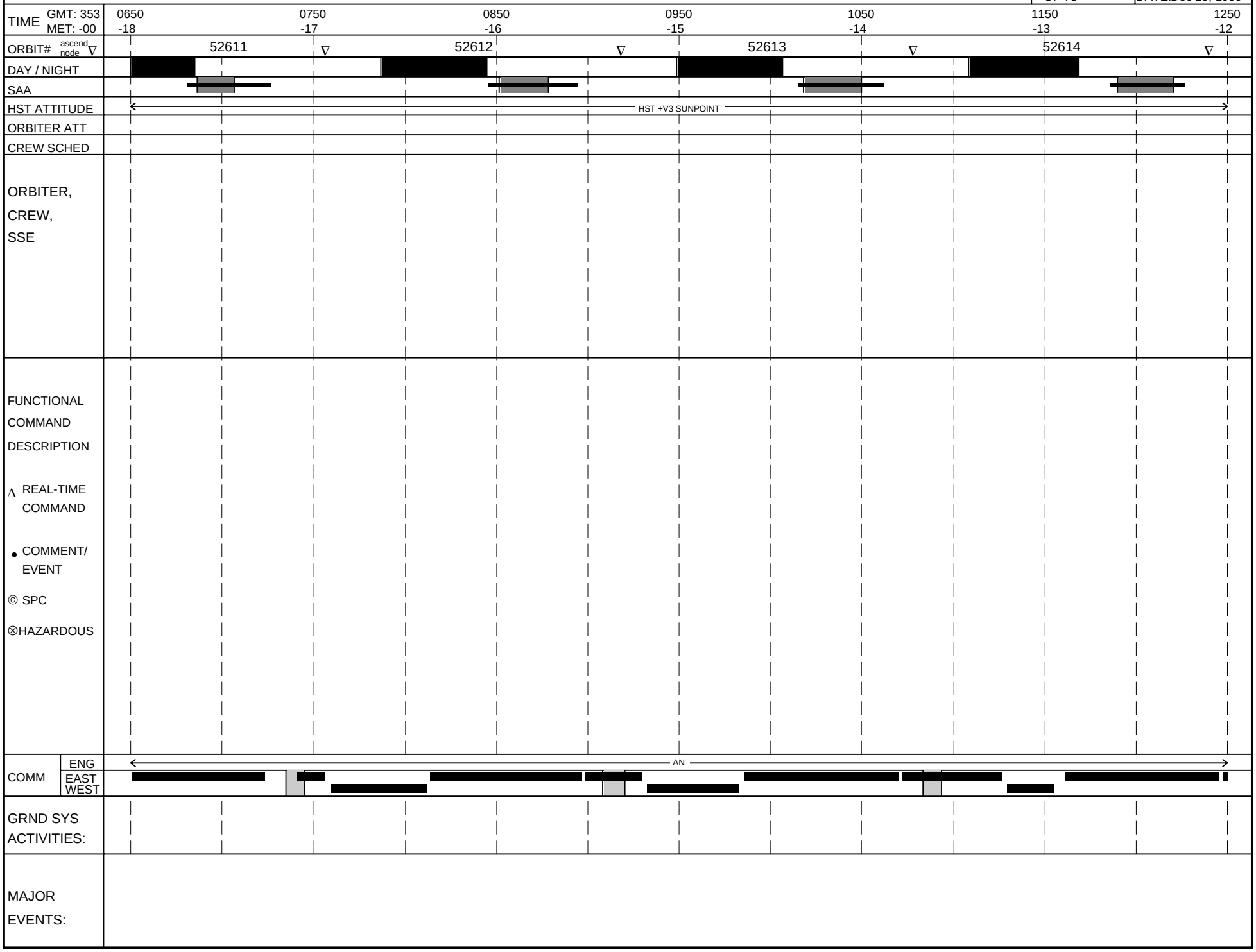
HST THIRD SERVICING MISSION INTEGRATED TIMELINE: SM3A LAUNCH UPDATE #7



HST THIRD SERVICING MISSION INTEGRATED TIMELINE: SM3A LAUNCH UPDATE #7



HST THIRD SERVICING MISSION INTEGRATED TIMELINE: SM3A LAUNCH UPDATE #7



HST THIRD SERVICING MISSION INTEGRATED TIMELINE: SM3A LAUNCH UPDATE #7

TIME GMT: 353 / MET: -00	1250 / -12	1350 / -11	1450 / -10	1550 / -9	1650 / -8	1750 / -7	1850 / -6
ORBIT# ascend node ∇	52615	∇	52616	∇	52617	∇	52618
DAY / NIGHT							
SAA							
HST ATTITUDE	HST +V3 SUNPOINT						
ORBITER ATT							
CREW SCHED							
ORBITER, CREW, SSE					• CREW WAKE UP • BEGIN FD1		
FUNCTIONAL COMMAND DESCRIPTION	5 • **STOCC/MCC INTERFACE CHECKOUT #2 (REPEAT #3)** • STOCC CONTROL INTERFACE CHECK WITH HOUSTON DATA FOR COMMANDING AND SYNCHRONIZE MET CLOCKS [3 min]						
COMM ENG	AN						
COMM EAST WEST							
GRND SYS ACTIVITIES:							
MAJOR EVENTS:							

Δ REAL-TIME COMMAND

• COMMENT/ EVENT

© SPC

⊗HAZARDOUS

HST THIRD SERVICING MISSION INTEGRATED TIMELINE: SM3A LAUNCH UPDATE #7

TIME GMT: 353 MET: -00	1850 -6	1950 -5	2050 -4	2150 -3	2250 -2	2350 -1	0050 -0
ORBIT# ascend node ∇	52618 ∇	52619 ∇	52620 ∇	52621 ∇	52622		
DAY / NIGHT							
SAA							
HST ATTITUDE	HST +V3 SUNPOINT						
ORBITER ATT							
CREW SCHED							
ORBITER, CREW, SSE							
FUNCTIONAL COMMAND DESCRIPTION			6 • STOCC/MCC INTERFACE CHECKOUT #3 • STOCC CONTROL INTERFACE CHECK WITH HOUSTON DATA FOR COMMANDING AND SYNCHRONIZE MET CLOCKS [3 min]		STOCC/MCC INTERFACE CHECKOUT #4 • 7 STOCC CONTROL INTERFACE CHECK WITH • HOUSTON DATA FOR COMMANDING AND SYNCHRONIZE MET CLOCKS [5 min] ALL CONSOLES VERIFY READINESS FOR T-9 "GO FOR LAUNCH" •		
COMM ENG	AN						
COMM EAST WEST							
GRND SYS ACTIVITIES:							
MAJOR EVENTS:			• (T-3hr) COUNT COMM LINE CHECKOUT			(T-9min) STOCC GO FOR LAUNCH • HST PROJECT GO FOR LAUNCH •	

Δ REAL-TIME COMMAND

• COMMENT/ EVENT

© SPC

⊗HAZARDOUS

HST THIRD SERVICING MISSION INTEGRATED TIMELINE: SM3A LAUNCH UPDATE #7

TIME — GMT: 354 / MET: 00 — 0050 (0), 0150 (1), 0250 (2), 0350 (3), 0450 (4), 0550 (5), 0650 (6)

ORBIT# (ascend node ∇): 52622, 52623, 52624, 52625, 52626

DAY / NIGHT

SAA

HST ATTITUDE: HST +V3 SUNPOINT

ORBITER ATT: ASCENT — -ZLV +YVV — NC1 — -ZLV -XVV

CREW SCHED: LAUNCH — PRE SLEEP

ORBITER, CREW, SSE

- ASCENT TO PHASING ORBIT
- PLBD OPEN
- **9 • SSE ACTIVATION [12 min]**

SSE HTRS MUST BE ON WITHIN 2 HRS AFTER PLBD OPEN

ORBITER ATTITUDES ARE AS FOLLOWS:
- -ZLV CARGO BAY TO EARTH
- +ZLV CARGO BAY TO DEEP SPACE
- -ZSI CARGO BAY TO SUN
- +YVV RIGHT WING INTO VELOCITY VECTOR
- +XVV NOSE INTO VELOCITY VECTOR

NOTE:
A DETAILED LISTING OF PAYLOAD SYSTEMS OPERATING PROCEDURES (PLSOPs) CAN BE FOUND IN THE PAYLOAD OPERATIONS CHECKLIST (PLOPS) AND THE DEPLOY CHECKLIST (HST DLY)

FUNCTIONAL COMMAND DESCRIPTION

Δ REAL-TIME COMMAND

• COMMENT/ EVENT

© SPC

⊗HAZARDOUS

8 • LOAD SPC ZEROs

8 ΔD666-DMS: LOAD SPC ZEROs [20min]
8 ΔD502-DMS: LOAD REDPLY SUPP SPCs [4min]
8 ΔD730-LOAD RWA SPEED MGMT MACRO [3min]
8 D504-DMS: FSW INIT CONFIG [3min]
8 ΔD008b-DMS: DF-224 MEM DUMP [25min]

10 • SERIAL RETRACTION OF HGAs

10 ΔA001c-S&M: CONF MCU-A PRI & RED PS / MTR CUR [1min]
10 ΔA004-S&M: RELEASE HGA LATCHES [4min]
⊗10 Δ D550-DMS:ENB/ACT SUPPORT SPC MACRO [2min]
10 © D515-DMS: MODIFY HGA LIMITS FOR STOW [1min]
10 © H506-I&C: SLEW HGAs TO STOW POSITION [7min]
⊗10 Δ A503a-S&M: RETRACT -V3 HGA MAST [3min]
⊗10 Δ D550a-ENBL/ACT SPC SUPPORT MACRO [2min]
10 © A503-RETRACT -V3 HGA MAST [10min]
⊗10 Δ A507a-RETRACT +V3 HGA MAST [3min]
⊗10 Δ D550b-DMS: ENBL/ACT SPC MACRO [2min]
10 © A507-DMS: RETRACT +V3 HGA MAST [11min]
10 ΔCOP740-CONFIG GND SYS LIMITS [5min]

NOTE: THE SERVICING MISSION PRD WILL BE LOADED PRIOR TO LAUNCH

COMM

ENG: AN

EAST / WEST

GRND SYS ACTIVITIES:

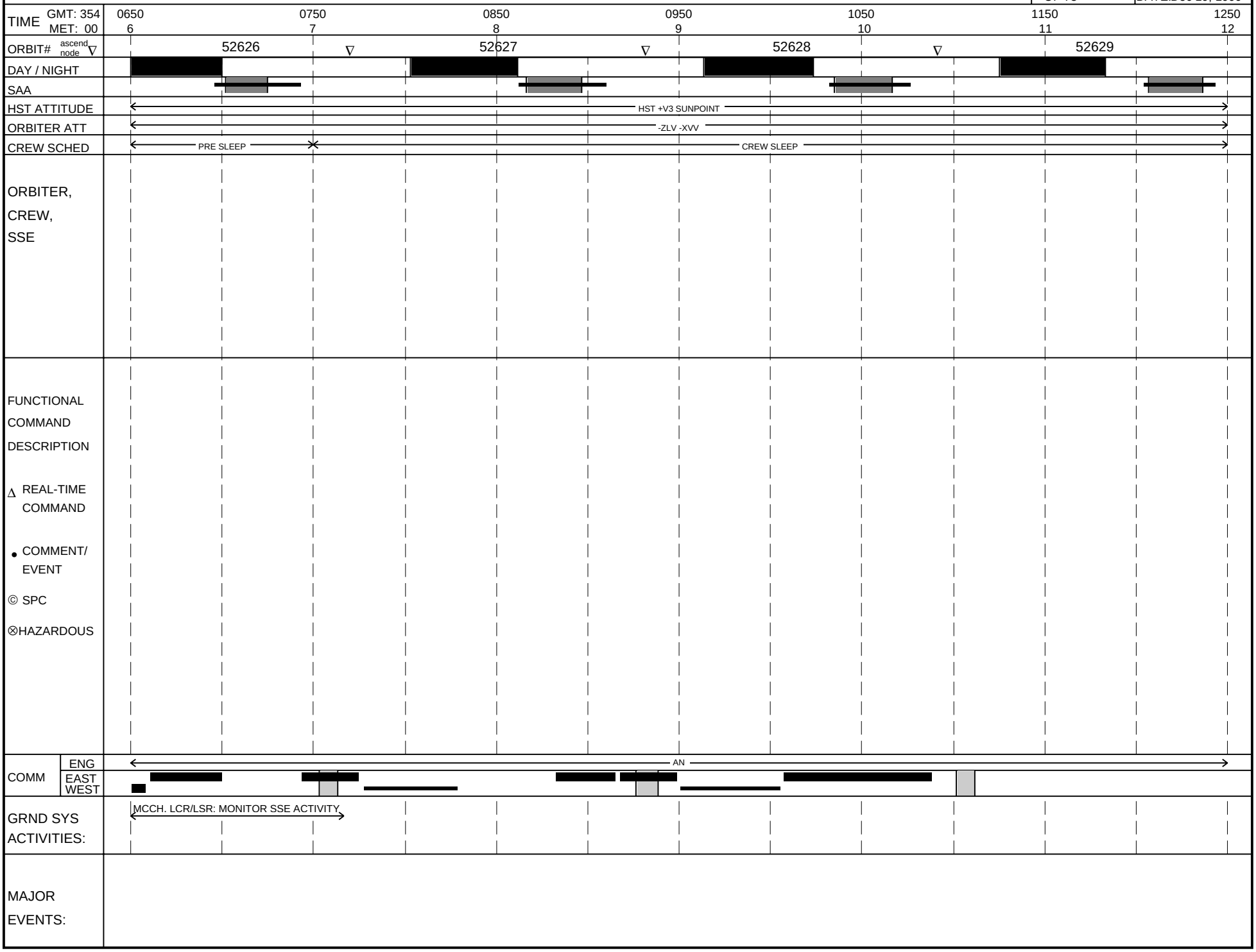
COLLECT/VERIFY DF-224 DUMP

MCCH, LCR/LSR: MONITOR SSE ACTIVITY

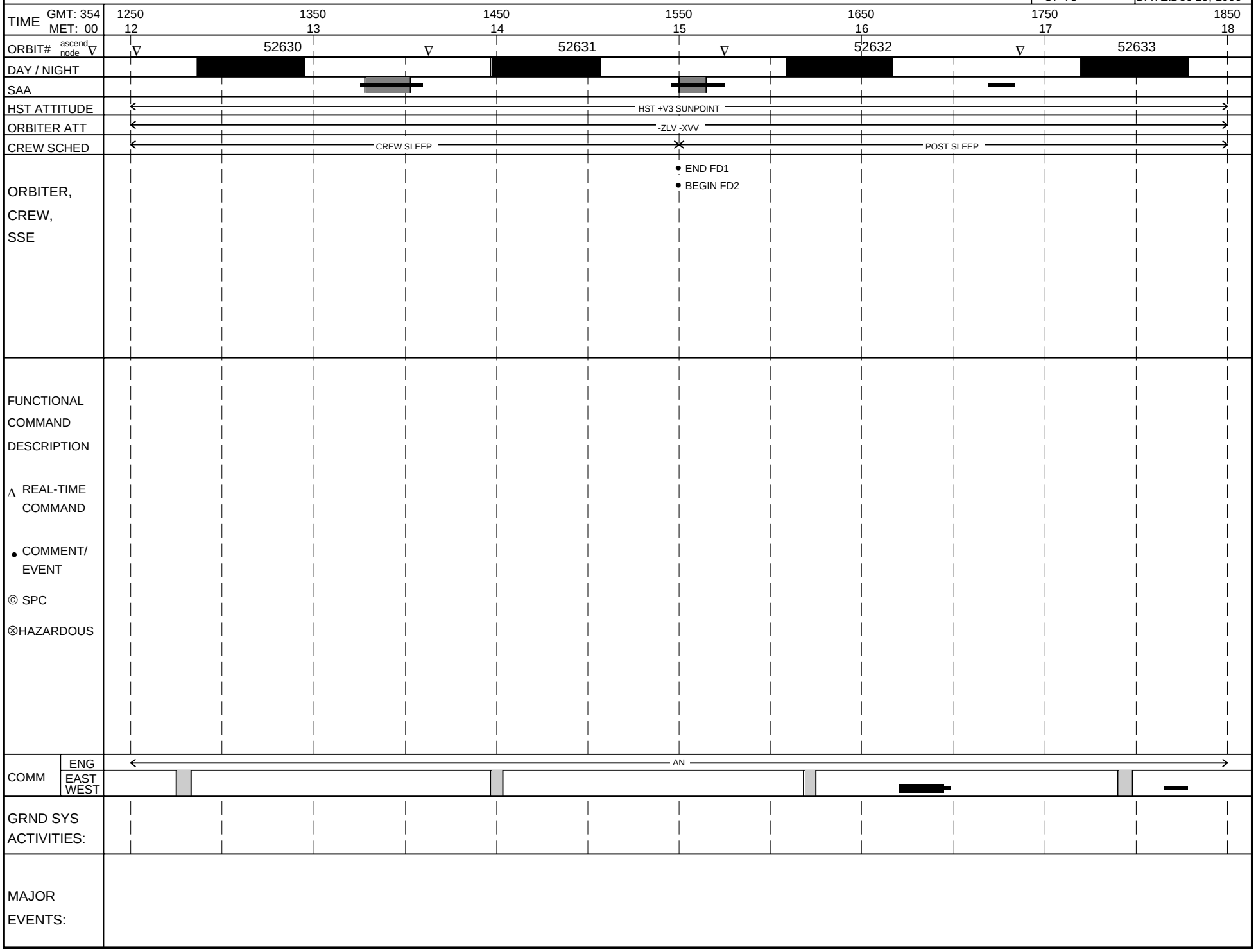
MAJOR EVENTS:

- LAUNCH
- HST GO FOR SERVICING MISSION
- HGA MASTS RETRACTED

HST THIRD SERVICING MISSION INTEGRATED TIMELINE: SM3A LAUNCH UPDATE #7



HST THIRD SERVICING MISSION INTEGRATED TIMELINE: SM3A LAUNCH UPDATE #7



HST THIRD SERVICING MISSION INTEGRATED TIMELINE: SM3A LAUNCH UPDATE #7

TIME GMT: 354 MET: 00	1850 18	1950 19	2050 20	2150 21	2250 22	2350 23	0050 24
ORBIT# ascend node ∇	52633 ∇	52634	∇ 52635	∇	52636	∇	52637
DAY / NIGHT							
SAA							
HST ATTITUDE	HST +V3 SUNPOINT						
ORBITER ATT	-ZLV -XVV				-ZLV -XVV		
CREW SCHED	RMS PWR UP & C/O	SSE SURVEY	HST TOOL PREP		MEAL	EMU CHECKOUT	

ORBITER, CREW, SSE

- CABIN DEPRESS TO 10.2 PSI
- RMS ACTIVATION & CHECK-OUT [60min]
- **11 • HST PGSC INSTALL AND CONFIG [30 min]**
- HST PGSC SETUP
- **12 • SSE CHECKOUT[40min]**
- SSE VISUAL INSPECTION [40min]
- **13 • FSS PREP FOR BERTHING [45min]**

FUNCTIONAL COMMAND DESCRIPTION

Δ REAL-TIME COMMAND

• COMMENT/ EVENT

© SPC

⊗HAZARDOUS

COMM

ENG: AN

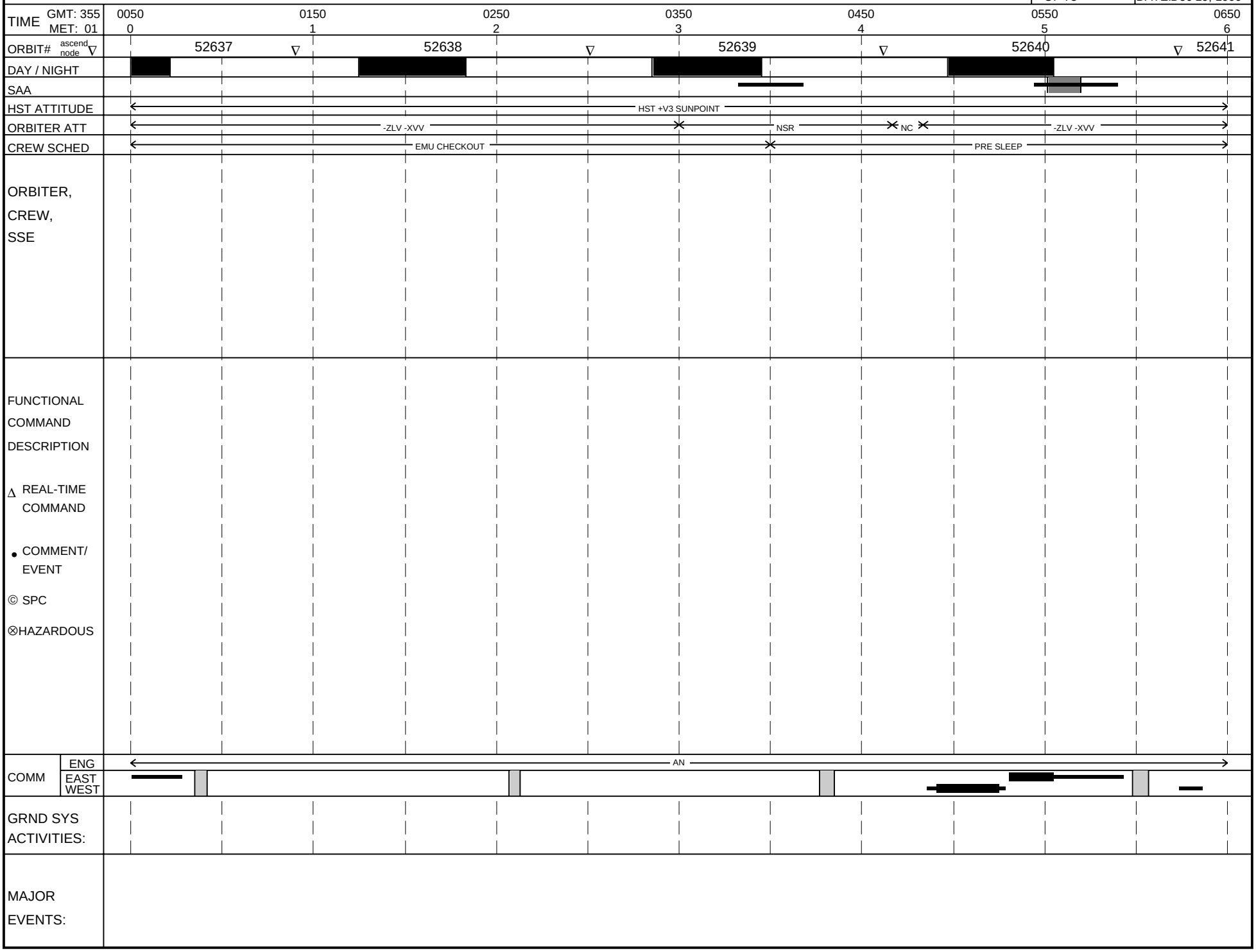
EAST WEST

GRND SYS ACTIVITIES:

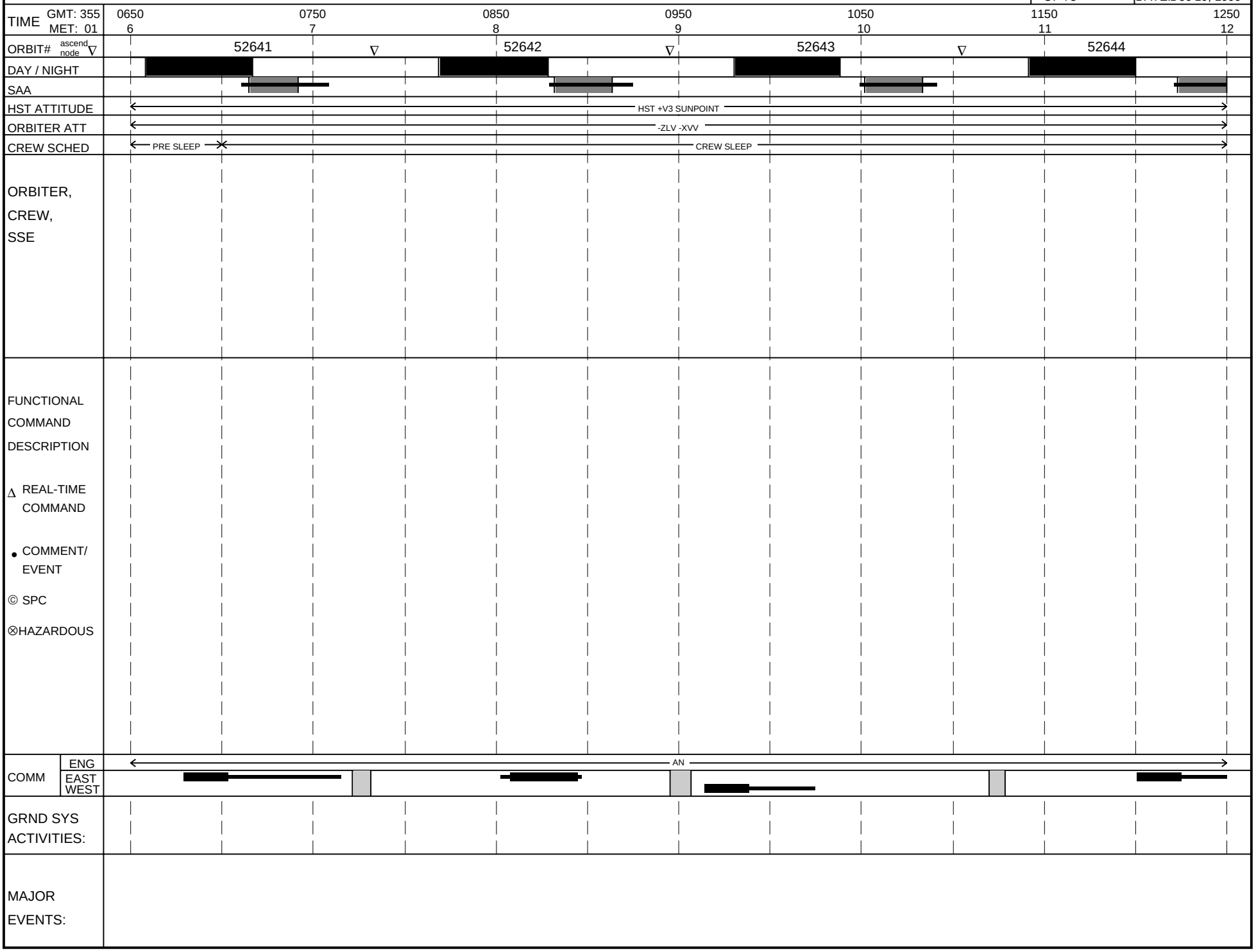
MCCH, LCR/LSR MONITOR SSE CHECKOUT

MAJOR EVENTS:

HST THIRD SERVICING MISSION INTEGRATED TIMELINE: SM3A LAUNCH UPDATE #7



HST THIRD SERVICING MISSION INTEGRATED TIMELINE: SM3A LAUNCH UPDATE #7



HST THIRD SERVICING MISSION INTEGRATED TIMELINE: SM3A LAUNCH UPDATE #7

TIME	GMT: 355 / MET: 01 — 1250 (12), 1350 (13), 1450 (14), 1550 (15), 1650 (16), 1750 (17), 1850 (18)
ORBIT# (ascend node ∇)	52645, 52646, 52647, 52648
DAY / NIGHT	
SAA	
HST ATTITUDE	HST +V3 SUNPOINT
ORBITER ATT	-ZLV -XVV; -ZLV +YVV
CREW SCHED	CREW SLEEP; POST SLEEP; HST RENDEZVOU
ORBITER, CREW, SSE	• END FD2 • BEGIN FD3 • WASTE WATER DUMP [1 hr 20 min]
FUNCTIONAL COMMAND DESCRIPTION Δ REAL-TIME COMMAND • COMMENT/ EVENT © SPC ⊗HAZARDOUS	**14 • SAFE NSSC-1** 14 ΔD700a-DISABLE PIT TOGGLE TEST [2min] 14 ΔD711a-TURN WFPC-II HEAT PIPE HTR OFF [2min] 14 ΔD702a-SAFE NSSC-1 [3min] **15 • TURN OFF FGEs BEFORE HWSP** 15 ΔF107b-FGS: FSW FGS 1 TURN OFF [4min] 15 ΔF207b-FGS: FSW FGS 2 TURN OFF [2min] 15 ΔF307b-FGS: FSW FGS 3 TURN OFF [2min] **16 • POWER ON RMGA** 16 ΔS003-POWER ON RMGA [2min] **17 • PSEA TEST MODE BEFORE HWSP** ⊗17 Δ S002b-PSEA TEST MODE [102min]
COMM — ENG	AN; AF
COMM — EAST WEST	
GRND SYS ACTIVITIES:	
MAJOR EVENTS:	• FGSs OFF

HST THIRD SERVICING MISSION INTEGRATED TIMELINE: SM3A LAUNCH UPDATE #7

TIME — GMT: 355 / MET: 01

1850 / 1800 — 1920 / 1830 — 1950 / 1900 — 2020 / 1930 — 2050 / 2000 — 2120 / 2030 — 2150 / 2100

ORBIT# (ascend node ∇): 52648 — ∇ — 52649 — ∇ — 52650

DAY / NIGHT

SAA

HST ATTITUDE: HST +V3 SUNPOINT

ORBITER ATT: -ZLV +YV — NC3 — NH — NC4 — TGT TRK

CREW SCHED: HST RENDEZVOUS OPS — PROX OPS

ORBITER, CREW, SSE

18 • PI CONFIG

- IVA VERIFY HST PGSC IS OPERATIONAL AND CONFIG FOR 4K NORMAL DATA

FUNCTIONAL COMMAND DESCRIPTION

Δ REAL-TIME COMMAND

• COMMENT/ EVENT

© SPC

⊗HAZARDOUS

19 • DISABLE PSEA KA MONITORING

⊗19 Δ S503-DSBL PSEA KA MON [6min]

20 • INITIATE HARDWARE SUNPOINT

20 ΔD713-CHANGE TO FORMAT "D" [3min]

20 ΔS007-INITIATE HARDWARE SUNPOINT [3min]

20 ΔC521-CONNECT DIODE BUSES & TURN OFF BUS C [2min]

20 ΔD707-ENABLE SIC&DH PRIMARY & REDUNDANT TRAY HTRS [4min]

20 ΔD721-PWR ON DF-224 & LOAD SHORT VARIABLES [9min]

20 ΔC522-COMMAND CCC K42 TO LEVEL 1 & CCC K52 TO LEVEL 4 [1min]

20 ΔD727-HALT CPU 2 [1min]

• TIMER B EXPIRES

MUST BE DONE AT LEAST 2 MINUTES PRIOR TO TIMER B EXPIRATION

COMMAND V/T LEVEL IN ORBIT NIGHT OR ONCE SA BLANKET TEMP > 50°C (CARD 2.1.5.12, 3.1.5.14)

21 • RECONFIGURATION FOLLOWING H/W SUNPOINT

21 ΔD720-PWR ON DMS & REESTABLISH COMMUNICATIONS [7min]

21 ΔG511-ZERO OUT RWA & MTE DIGITAL CMD REGISTERS [1min]

21 ΔD722-ACTIVATE VSS [8min]

21 ΔD715-CHANGE TO FORMAT "A" [3min]

21 ΔD726-SET CLOCK AND SYNC TO GMT [3min]

ΔD725-LOAD SERVICING MISSION MACROS [4min]

21 ΔD008c-DMS: DF-224 MEM DUMP [26min]

21 ΔH507-POWER ON GEAs [6min]

21 ΔD723-RECONFIGURE SAFEMODE TESTS & SMACs [1min]

21 D504a-DMS: FSW INIT CONFIG [3min]

22 • OTA BUS RECONFIG AFTER HWSP

22 ΔF602-FGE INIT [5min]

22 ΔE624-OTA PRIMARY BUSES 4,6,7 ON [3min]

OTA REDUNDANT BUSES 1,2,3 OFF [3min]-F601b Δ22

23 • TURN ON SIC&DH

23 ΔD708-TURN ON SIC&DH [4min]

23 ΔD709-PWR ON RIUs [2min]

TURN ON SADE & ENABLE EPS PROCESSING • 24

⊗24 Δ B006c-TURN ON SADE [5min]

RE-ENABLE EPS PROCESSING [3min]-C524 Δ24

PERFORM 20 MINUTES AFTER ENTRY TO ORBIT NIGHT

POWER OFF GYROS 3 & 4 • 25

POWER OFF GYROS 3 & 4 [7min]-G512 Δ25

COMM

ENG: AF — DE — AN — AF

EAST WEST

GRND SYS ACTIVITIES:

- PERFORM COARSE ATT DETERMINATION DURING EVERY ORBIT DAY PASS FOLLOWING HWSP INITIATION

COLLECT/VERIFY DF-224 DUMP

MAJOR EVENTS:

HST THIRD SERVICING MISSION INTEGRATED TIMELINE: SM3A LAUNCH UPDATE #7

TIME — GMT: 355 / MET: 01: 2150 / 2100, 2220 / 2130, 2250 / 2200, 2320 / 2230, 2350 / 2300, 0020 / 2330, 0050 / 2400

ORBIT# (ascend node ∇): 52650, 52651, 31

DAY / NIGHT

SAA

HST ATTITUDE: HST +V3 SUNPOINT — HST ON

ORBITER ATT: TGT TRK — RENDEZVOUS — FREE DR

CREW SCHED: PROX OPS — HST REN

ORBITER, CREW, SSE

- ACTIVATE RMS HEATERS
- **27 • ORBITER TI BURN**
- ESTABLISH PI COMM [5 min]
- P/TV 11
- HST TO BERTH ATTITUDE [60min]
- IVA CONFIGURE HST PGSC FOR 32K TELEMETRY
- ORBITER TO CAPTURE RANGE
- **RMS GRAPPLE HST**
- IVA CREW DEACTIVATE HST PCS
- FSS CCTV ON [2min]
- MON FSS CCTV

ORBITER TI BURN OCCURS APPROX. AT ORBIT NOON MINUS 2 MINUTES

ORBITER FREE DRIFT FROM GRAPPLE TO BERTH COMPLETE

FUNCTIONAL COMMAND DESCRIPTION

Δ REAL-TIME COMMAND

• COMMENT/ EVENT

© SPC

⊗HAZARDOUS

• POWER OFF GYROS 3 & 4 (CONT.)

G512 (CONT.)

26 • NON-ESSENTIAL LOAD REDUCTION

26 ΔE110-OTA: OTA HTR GROUPS OFF [3min]

26 ΔB505d-SA: TURN OFF SADE [2min]

28 • TRANSITION TO PSP-BYPASS

28 ΔH503-I&C: LGA/TDRS TO LGA/PI (4Kbps) [28min]

29 • DSBL S/M TESTS

⊗29 ©D550d-ENBL/ACTV SPC SUPPORT MACRO [2min]

⊗29 ©D528-DMS: DISABLE EPS/SA S/M TESTS [2min]

29 ΔC518a-EPS: OPEN K1 SPA TRIM RELAYS [4min]

30 • LGA SWITCH

30 ΔH606-I&C: PI/LGA SWITCH [8min]

31 • DSBL S/M TESTS & MCU AD CONFIGURATION

31 ©D524-DISABLE PCS S/M TESTS [3min]

31 A509-VERIFY MCU AD CONFIG [1min]

32 • SWITCH TO T FORMAT

32 ΔD037b-CHANGE TO FORMAT "T" [5min]

32 D728-RECORD CDI A&B COUNTER [1min]

HST TO DRIFT MODE • 33

RESET PSEA [2min]-D550f Δ33

DISABLE SMC A & B [1min]-S008 Δ33

EPS: DISCONNECT -EE TRIM RELAY [2min]-COP422 Δ33

SWITCH RWAs & MTEs TO DIGITAL COMMAND MODE [2min]-G510 Δ33

POWER OFF RMGA [2min]-S003a Δ33

PRIMARY CMD FROM AFT FLIGHT DECK.

SWITCH -EE RELAY DURING ORBIT NIGHT AND AFTER PSEA IS DISABLED (CARD 2.1.5.13)

DUAL COMMUNICATION OPERATIONS OCCUR HERE

SWITCH RELAYS IN ORBIT NIGHT (CARD 3.1.5.14) OR WHEN SA TEMPERATURE > 50°C IN ORBIT DAY (CARD 2.1.5.12)

THE TIMING OF THE COMM SWITCH WILL BE DETERMINED BY THE HST ATTITUDE

NOTE: ZOEs BETWEEN MET 01/22:00 & 02/04:00 WILL BE FILLED BY TDRS-Z OR DGIS. (FOR HST/PSP BYPASS DATA)

COMM

ENG: AF — TF

EAST WEST

GRND SYS ACTIVITIES:

MCCH, LCR/LSR MONITOR SSE ACTIVITY

MAJOR EVENTS:

- STOCC GO TO SMM FOR TI BURN
- SMM GO TO JSC FOR TI BURN
- CONFIGURE HST FOR CAPTURE
- STOCC GO TO ESTABLISH PI COMM
- JSC TI BURN COMPLETED
- HST COMM VIA ORBITER S-BAND
- STOCC GO FOR RMS GRAPPLE
- JSC RMS GRAPPLE CONFIRMED
- JSC/STOCC VERIFY HST PCS DEACTIVATED BY CREW
- STOCC NOTIFY JSC TO HAVE CREW RECORD VALID WORD COUNTER

HST THIRD SERVICING MISSION INTEGRATED TIMELINE: SM3A LAUNCH UPDATE #7

TIME — GMT: 356 / MET: 02

0050/0000 — 0120/0030 — 0150/0100 — 0220/0130 — 0250/0200 — 0320/0230 — 0350/0300

ORBIT# (ascend node ∇): 31 ∇ 32 ∇ 33

DAY / NIGHT

SAA

HST ATTITUDE: HST ON RMS → HST IN BERTHING POSITION (-V3 AXIS FWD)

ORBITER ATT: FREE DRIFT → BATTERY CHARGE ATTITUDE

CREW SCHED: HST RENDEZVOUS OPS

ORBITER, CREW, SSE

- P/TV 11 (CONT.)
- HST TO BERTH ATTITUDE [60min] (CONT.)
- P/TV 12
- ORBITER MNVR TO BAT CHARGE ATT [15min]
- ACTIVATE HST EXT POWER [5 min]

PHOTO/TV DOCUMENT FOR THE NEXT 2hr 30min

35 • LATCH & MATE HST [5min]

- VERIFY BERTH LATCHES LOCKED [1min]
- RMS RELEASE HST [2min]
- FSS CCTV OFF/DISABLED [1min]
- UMBILICAL I/F CONNECT [4min]
- TURN ON FSS PCU'S

VERIFY -EE TRIM RELAY DISCONNECTED PRIOR TO UMBILICAL CONNECT

FUNCTIONAL COMMAND DESCRIPTION

Δ REAL-TIME COMMAND

• COMMENT/ EVENT

© SPC

⊗HAZARDOUS

• HST TO DRIFT MODE (CONT.)

S003a (CONT.)

⊗33 Δ D550g-ENABLE / ACTIVATE SPC MACRO [2min]

33 © D667-ZERO SMAC 3&6 HAZ CMDS [4min]

33 Δ D729-STOP SSR1 RECORD [1min]

34 • SWITCH LGAs FOR PI OPS

34 Δ H505-PI/LGA SWITCH [10min]

36 • ACTIVATE HST EXTERNAL POWER

36 Δ C224a-IMPEDANCE CHECK [2min]

36 C517-EPS: STOCC VERIFY EXT PWR ON [22min]

CONNECT RELAYS DURING NIGHT (CARD 3.1.5.14) & AFTER ORBITER IN BATTERY CHARGE ATTITUDE (CARD 3.1.5.13)

36 Δ COP422p-EPS: CONNECT +WING SPA RELAYS (EXCEPT +DD AND +EE) [2min]

36 Δ COP422q-EPS: CONNECT -WING SPA RELAYS (EXCEPT -EE AND -AA) [2min]

⊗36 Δ B006d-ACTIVATE SADE-2 [8min]

37 • OTA HTR CONFIG

37 Δ E504-OTA: OTA HTR GROUPS ON [70min]

• BEGIN BATTERY CHARGING

⊗37 Δ B501-SA: POWER ON DCE [6min]

38 • DMU BYPASS OFF

38 Δ D724-DMU BYPASS OFF [2min]

OPEN SPA TRIM RELAYS • 39

EPS: OPEN SPA TRIM RELAYS [4min]-C518 Δ 39

COMM

ENG: TF

EAST / WEST

GRND SYS ACTIVITIES:

MCCH. LCR/LSR MONITOR SSE ACTIVITY

MAJOR EVENTS:

- JSC VERIFY HST BERTHED
- JSC VERIFY UMB CONNECT
- STOCC & SSE GO TO SMM FOR EXT PWR ON
- SMM GO TO JSC FOR EXT PWR ON
- REPLAN CONFERENCE #1
- FINAL INPUTS FOR NEXT DAY EVA REVIEW

HST THIRD SERVICING MISSION INTEGRATED TIMELINE: SM3A LAUNCH UPDATE #7

TIME GMT: 356 MET: 02

0350 0300 | 0420 0330 | 0450 0400 | 0520 0430 | 0550 0500 | 0620 0530 | 0650 0600

ORBIT# ascend node ∇ 33 ∇ 34 ∇ 35

DAY / NIGHT

SAA

HST ATTITUDE: HST IN BERTHING POSITION (-V3 AXIS FWD)

ORBITER ATT: BATTERY CHARGE ATTITUDE | -ZLV -XVV

CREW SCHED: HST RENDEZVOUS OPS | PRE SLEEP

ORBITER, CREW, SSE

- ORBITER FREE DRIFT FOR SA SLEW [22 min]
- P/TV 13
- IVA CONFIGURE HST PGSC FOR 4K TELEMETRY

FUNCTIONAL COMMAND DESCRIPTION

Δ REAL-TIME COMMAND

• COMMENT/ EVENT

© SPC

⊗HAZARDOUS

- **OPEN SPA TRIM RELAYS (CONT.)** ← CHARGE BATTERIES UNTIL 2 CCC K-RELAYS OPEN
- C518 (CONT.) ← OPEN SPA TRIM RELAYS IN ORBIT NIGHT OR ONCE BLANKET TEMP > 50°C IN ORBIT DAY (CARD 2.1.5.12 AND 3.1.5.14)

40 • ENABLE PRIMARY BATTERY HEATERS
40 Δ C520-EPS: ENA PRI BATT HTRS [2min]

41 • SLEW SAs TO 0°
⊗41 Δ B502-SA: SLEW SA TO 0° [22min]

42 • RECONFIGURE PSEA
42 Δ S006-CLOSE AD IN HWSP,RESET TIMER B [10min]

43 • FGEs ON
43 Δ F601-FGS CONFIG & TURN ON FGSs [9min]

44 • HST PGSCA ON ORBIT CHECKOUT
44 Δ H603-I&C: HST PGSCA ON ORBIT CHECKOUT [780min]

COMM ENG: TF | AF

COMM EAST WEST

GRND SYS ACTIVITIES:

MAJOR EVENTS:

- FGEs ON
- NEXT DAY EVA REVIEW

HST THIRD SERVICING MISSION INTEGRATED TIMELINE: SM3A LAUNCH UPDATE #7

TIME GMT: 356 / MET: 02	0650 / 0600	0720 / 0630	0750 / 0700	0820 / 0730	0850 / 0800	0920 / 0830	0950 / 0900
ORBIT# (ascend node ∇)	35			∇	36		
DAY / NIGHT							
SAA							
HST ATTITUDE	HST IN BERTHING POSITION (-V3 AXIS FWD)						
ORBITER ATT	-ZLV -XVV						
CREW SCHED	CREW SLEEP						
ORBITER, CREW, SSE			• SA STATIC TWIST ANALYSIS #1				
FUNCTIONAL COMMAND DESCRIPTION	• **HST PGSCA ON ORBIT CHECKOUT (CONT.)** H603 (CONT.)						
	45 • KU-BAND ON ORBIT CHECKOUT 45 ΔD503a-DMS: PLAYBACK SCIENCE SSR [24min]						
				46 • D FORMAT TELEMETRY TEST 46 ΔD704-ACTIVATE D FIXED FORMAT [18min]	46 ΔD705-ACTIVATE PROGRAMMABLE FORMAT A [6min] 46 ΔD679a-RETURN SIC&DH TO NORMAL FORMAT [8min]	46 ΔD711-TURN ON WFPC-II HEAT PIPE HTR [2min] 46 ΔD706-SET WFPC-2 SAFING BIT [4min]	
Δ REAL-TIME COMMAND			PLAYBACK REQUIRES 6 MIN OF KU-BAND				
• COMMENT/ EVENT							
© SPC							
⊗HAZARDOUS							
COMM ENG	N/A		AF	D	AF	AN	
COMM EAST WEST							
GRND SYS ACTIVITIES:	• CONFIGURE FOR KU-BAND	• CONFIGURE FOR PSP BYPASS					
MAJOR EVENTS:	• SMIT REV A	• REPLAN CONFERENCE #2					

HST THIRD SERVICING MISSION INTEGRATED TIMELINE: SM3A LAUNCH UPDATE #7

TIME	GMT: 356 / MET: 02	0950 / 0900	1020 / 0930	1050 / 1000	1120 / 1030	1150 / 1100	1220 / 1130	1250 / 1200
ORBIT#	ascend node ∇	∇	37		∇	38		
DAY / NIGHT								
SAA								
HST ATTITUDE		HST IN BERTHING POSITION (-V3 AXIS FWD)						
ORBITER ATT		-ZLV -XVV						
CREW SCHED		CREW SLEEP						

ORBITER, CREW, SSE

FUNCTIONAL COMMAND DESCRIPTION

- ∆ REAL-TIME COMMAND
- • COMMENT/ EVENT
- © SPC
- ⊗HAZARDOUS

• **HST PGSCA ON ORBIT CHECKOUT (CONT.)**

H603 (CONT.)

COMM

ENG: AN

EAST / WEST

GRND SYS ACTIVITIES:

MAJOR EVENTS:

- SMIT REV B
- REPLAN CONFERENCE #3

HST THIRD SERVICING MISSION INTEGRATED TIMELINE: SM3A LAUNCH UPDATE #7

TIME GMT: 356	1250	1320	1350	1420	1450	1520	1550
TIME MET: 02	1200	1230	1300	1330	1400	1430	1500
ORBIT# ascend node ∇	38 ∇		39	∇		40	
DAY / NIGHT							
SAA							
HST ATTITUDE	HST IN BERTHING POSITION (-V3 AXIS FWD)						
ORBITER ATT	-ZLV -XVV						
CREW SCHED	CREW SLEEP				POST SLEEP		

ORBITER, CREW, SSE

- END FD3
- BEGIN FD4

FUNCTIONAL COMMAND DESCRIPTION

- **HST PGSCA ON ORBIT CHECKOUT (CONT.)**

H603 (CONT.)

Δ REAL-TIME COMMAND

• COMMENT/ EVENT

© SPC

⊗HAZARDOUS

COMM

ENG: AN

EAST WEST

GRND SYS ACTIVITIES:

MAJOR EVENTS:

- CMD PLAN REV C
- SMIT REV C

HST THIRD SERVICING MISSION INTEGRATED TIMELINE: SM3A LAUNCH UPDATE #7

TIME GMT: 356	1550	1620	1650	1720	1750	1820	1850
TIME MET: 02	1500	1530	1600	1630	1700	1730	1800
ORBIT# (ascend node ∇)	40	∇	41		∇	42	
DAY / NIGHT							
SAA							
HST ATTITUDE	HST IN BERTHING POSITION (-V3 AXIS FWD)						
ORBITER ATT	-ZLV -XVV						
CREW SCHED	POST SLEEP		EVA PREP				

ORBITER, CREW, SSE

- IVA CONFIGURE HST PGSC FOR 32K DATA
- ORBITER FREE DRIFT [7 min]
- FSS PIVOT TO 85° [3 min]

FUNCTIONAL COMMAND DESCRIPTION

- **HST PGSCA ON ORBIT CHECKOUT (CONT.)**
  - H603 (CONT.)
- **47 GYRO-3 CONTROL HEATER ENABLE**
  - 47 ΔG704-GYRO-3 CONTROL HEATER ENABLE [4min]
- **48 TERMINATE HST PGSCA ON ORBIT CHECKOUT**
  - 48 ΔD037c-DMS: CHANGE TO FORMAT "T" [6min]

Δ REAL-TIME COMMAND

• COMMENT/ EVENT

© SPC

⊗HAZARDOUS

COMM

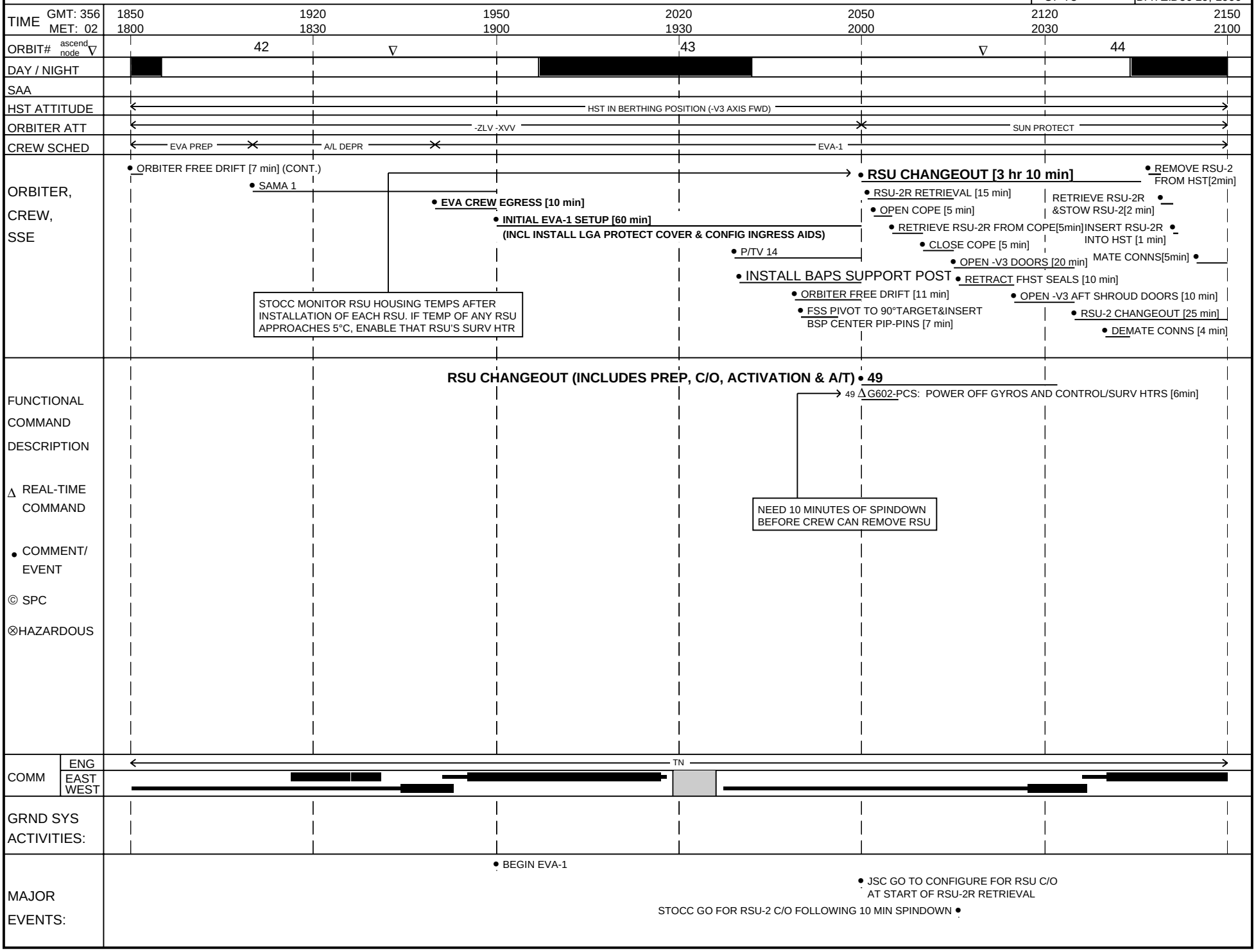
ENG	AN	TN
EAST WEST		

GRND SYS ACTIVITIES:

MAJOR EVENTS:

- SMM GO FOR EVA

HST THIRD SERVICING MISSION INTEGRATED TIMELINE: SM3A LAUNCH UPDATE #7



HST THIRD SERVICING MISSION INTEGRATED TIMELINE: SM3A LAUNCH UPDATE #7

TIME — GMT: 356 / MET: 02

2150 / 2100 — 2220 / 2130 — 2250 / 2200 — 2320 / 2230 — 2350 / 2300 — 0020 / 2330 — 0050 / 2400

ORBIT# (ascend node ∇): 44 ∇ — 45 ∇ — 46

DAY / NIGHT

SAA

HST ATTITUDE: HST IN BERTHING POSITION (-V3 AXIS FWD)

ORBITER ATT: SUN PROTECT — -ZLV-XVV

CREW SCHED: EVA-1

ORBITER, CREW, SSE

- **RSU CHANGEOUT [3 hr 10 min]**
- RSU-3R RETRIEVAL[15min]
- OPEN COPE [5 min]
- STOW RSU-2&RETRIEVE RSU-3R[5min]
- CLOSE COPE [5 min]
- RSU-3 CHANGEOUT [25 min]
- DEMATE CONNECTORS [5 min]
- REMOVE RSU-3 FROM HST [3 min]
- RETRIEVE RSU-3R&STOW RSU-3[3 min]
- INSERT RSU-3R INTO HST [1 min]
- MATE CONNECTORS [5 min]
- RSU-1R RETRIEVAL [15 min]
- OPEN COPE [5 min]
- STOW RSU-3&RETRIEVE RSU-1R [5 min]
- CLOSE COPE [5 min]
- RSU-1 CHANGEOUT [25 min]
- DEMATE CONNECTORS [4 min]
- REMOVE RSU-1 FROM HST [2 min]
- RETRIEVE RSU-1R & STOW RSU-1 [2 min]
- INSERT RSU-1R INTO HST [1 min]
- MATE CONNECTORS [5 min]
- CLOSEOUT [5 min]
- **OPEN NICMOS COOLANT VALVES [15 min]**
- REMOVE VALVE CAPS [7 min]
- OPEN VALVES [4 min]
- CLOSEOUT [4 min]
- CLOSE -V3 AS DOORS [25 min]
- EXTEND FHST SHADE SEALS [10 min]
- STOW RSU-1[10min]
- OPEN COPE[5min]
- STOW RSU-1&DEMATE BAT6 CONN[2min]
- MFR SWAP [1MATE VIK TO BAT6[1min]
- 52 **VIK INSTALLATION [1:10]**
- VIK RETRIEVAL [15 min]
- OPEN BAY3 DOOR[5min]
- VIK BAY3 INSTALLATION[25min]
- DEMATE BAT4 CONN[2min]
- MATE VIK TO BAT4[1min]
- DEMATE BAT5 CONN[2min]
- MATE VIK TO BAT5[1min]
- PHOTO CLOSEOUT[5]
- CLOSE BAY3 DOOR

FUNCTIONAL COMMAND DESCRIPTION

- 49 ΔG702-PCS: RSU-2R ACTIVATION [8min]
- 49 ΔG702a-PCS: RSU-3R ACTIVATION [8min]
- 49 ΔG702b-PCS: RSU-1R ACTIVATION & ALIVENESS TEST COMPLETION [10min]
- 50 **TURN OFF FGEs BEFORE VIK F/T**
  - 50 ΔF400-TURN OFF FGEs [8min]
- 51 **CONFIGURE FOR VIK INSTALLATION**
  - 51 ΔC202-BAT PRESS SENSORS OFF [6min]
  - 51 ΔC203-BAT PRI/RED HTRS DISABLED [2min]
  - 51 ΔC204-POWER OFF CCC(S) [2min]
  - 51 ΔC205-POWER OFF CT BUS [2min]

IF RELAYS ARE NOT CLOSED, PERFORM DURING ORBIT NIGHT

Δ REAL-TIME COMMAND

• COMMENT/ EVENT

© SPC

⊗HAZARDOUS

COMM

ENG: TN

EAST WEST

GRND SYS ACTIVITIES:

- STOCC VERIFY RSU-3R ACTIVATION SUCCESSFUL & GIVE GO FOR RSU-1 CHANGEOUT

MAJOR EVENTS:

- JSC GO FOR RSU-2R ACTIVATION AFTER MATE CONNECTORS
- STOCC VERIFY RSU-2R ACTIVATION SUCCESSFUL & GIVE GO FOR RSU-3 CHANGEOUT
- JSC GO FOR RSU-3R ACTIVATION AFTER MATE CONNECTORS
- JSC GO FOR RSU-1R ACTIVATION & ALIVENESS TEST COMPLETION AFTER MATE CONNECTORS
- STOCC VERIFY RSU A/T SUCCESSFUL
- JSC GO TO CONFIGURE FOR VIK INSTALLATION FOLLOWING STOW RSU-1 & CLOSE COPE
- STOCC GO FOR VIK INSTALLATION FOLLOWING CONFIG

HST THIRD SERVICING MISSION INTEGRATED TIMELINE: SM3A LAUNCH UPDATE #7

TIME	GMT: 357 / MET: 03 — 0050/0000, 0120/0030, 0150/0100, 0220/0130, 0250/0200, 0320/0230, 0350/0300
ORBIT#	ascend node ∇ — 46, ∇, 47, ∇, 48
DAY / NIGHT	
SAA	
HST ATTITUDE	HST IN BERTHING POSITION (-V3 AXIS FWD)
ORBITER ATT	-ZLV-XVV; BATTERY CHARGE ATTITUDE
CREW SCHED	EVA-1; POST EVA; A/L REPR; POST EVA
ORBITER, CREW, SSE	• **VIK INSTALLATION** [illegible] • CLOSE BAY 2 DOOR [5min] • **EVA-1 FINAL CLOSEOUT [30 min]** **(INCLUDES INSPECT INGRESS AIDS)** • VIK BAY2 INSTALLATION [30 min] • OPEN BAY 2 DOOR [3 min] • DEMATE BATT1 CONN[2min] • MATE VIK TO BATT1[1min] • DEMATE BATT2 CONN[2min] • MATE VIK TO BATT2[1min] • DEMATE BATT 3 CONN [2 min] • MATE VIK TO BATT 3 [1 min] • PHOTO CLOSEOUT [5 min] • EVA CREW INSPECT J101 CONNECTOR FOR DEBRIS [5 min] • REMOVE BSP CENTER PIP-PINS [5 min] • **END OF 6 HOUR EVA DAY** • ORBITER FREE DRIFT [22 min] • **EVA CREW INGRESS [10 min]** • ORBITER MNVR TO BATT CHARGE ATT [30 min] • IVA CREW TURN OFF EXT ESS & EXT MAIN POWER [5min]
FUNCTIONAL COMMAND DESCRIPTION	**53 • VIK ALIVENESS TEST** 53 ΔC210-EPS: POWER ON CT BUS [2min] 53 ΔC212-EPS: TURN ON BAT PRESS SENSORS / RED BAT HTRS ENBL [2min] 53 ΔC213-POWER ON ALL CCC(S) [3min] **54 • VIK FUNCTIONAL TEST** ⊗54 Δ B550b-SLEW SAs TO 100° [22min] 54 ΔC208-EXTERNAL ESSENTIAL & EXTERNAL MAIN POWER OFF [11min] 54 ΔC207-IMPEDANCE CHECK [1min] 54 ΔC220-EPS LOAD REDUCTION (OTA HTR GRP DIS) [9min] 54 ΔC215-EPS: CONNECT +/-WING SPA RELAYS (EXCEPT +DD AND +EE) [4min] 54 C216b-VERIFY KX1 RELAY OPEN/CLOSE [80min] PERFORM DURING ORBIT NIGHT (CARD 2.1.5.10) PERFORM DURING ORBIT NIGHT OR WHEN SA TEMP > 50°C IN ORBIT DAY (CARD 2.1.5.12 AND CARD 3.1.5.14)
Δ REAL-TIME COMMAND • COMMENT/ EVENT © SPC ⊗HAZARDOUS	
COMM — ENG	TN
COMM — EAST WEST	
GRND SYS ACTIVITIES:	• JSC GO TO CLOSE TRIM RELAYS ONCE MNVR TO BATTERY CHARGE ATTITUDE IN PROGRESS & EXPECTED TO BE COMPLETE BY SUNRISE + 5 MINUTES
MAJOR EVENTS:	• JSC GO FOR VIK A/T FOLLOWING MATE VIK TO BATTERY 3 • STOCC VERIFY VIK A/T SUCCESSFUL • END EVA-1 • SMM GO TO JSC FOR EXT ESS & EXT MAIN PWR OFF • REPLAN CONFERENCE #1 • STOCC & SSE GO TO SMM FOR EXT ESS & EXT MAIN PWR OFF

HST THIRD SERVICING MISSION INTEGRATED TIMELINE: SM3A LAUNCH UPDATE #7

TIME — GMT: 357 / MET: 03

0350 / 0300 — 0420 / 0330 — 0450 / 0400 — 0520 / 0430 — 0550 / 0500 — 0620 / 0530 — 0650 / 0600

ORBIT# (ascend node ∇): 48, 49

DAY / NIGHT

SAA

HST ATTITUDE: HST IN BERTHING POSITION (-V3 AXIS FWD)

ORBITER ATT: BATTERY CHARGE ATTITUDE — RGA F/T ATT — -ZLV-XVV

CREW SCHED: POST EVA — PRE SLEEP

ORBITER, CREW, SSE

- ORBITER FREE DRIFT [22 min]
- ORBITER MNVR TO RGA F/T ATTITUDE [15 min]
- IVA CREW ACTIVATE HST EXT ESS & EXT MAIN POWER [5 min]

FUNCTIONAL COMMAND DESCRIPTION

Δ REAL-TIME COMMAND

• COMMENT/ EVENT

© SPC

⊗HAZARDOUS

• VIK FUNCTIONAL TEST (CONT.)

C216b (CONT.)

54 ΔC216a-COMMAND CCCKX1 TO LEVEL 4 (EXCEPT K61) [7min]

54 C216c-VERIFY KX2 RELAY OPEN [35min]

54 ΔC217-EPS: OPEN SPA RELAYS (EXCEPT +DD, -AA, +EE, -EE) [4min]

54 C217a-VERIFY KX2 RELAY CLOSE [20min]

⊗54 Δ B551b-SLEW SAs TO 0° [22min]

54 ΔC209-EXTERNAL ESSENTIAL & EXTERNAL MAIN POWER ON [18min]

54 ΔC216-COMMAND CCCKX2 TO LEVEL 3 (EXCEPT K42 & K52) [5min]

54 ΔC222-EPS LOAD RECOVERY (OTA HTR GRP ENA) [69min]

PERFORM DURING ORBIT NIGHT (CARD 2.1.5.12)

OPEN SPA TRIM RELAYS ONCE BLANKET TEMP > 50°C (CARD 2.1.5.12 AND 3.1.5.14)

PERFORM DURING ORBIT NIGHT (CARD 2.1.5.12)

PERFORM AFTER ALL CCCK2 RELAYS CLOSE

55 • RGA FUNCTIONAL TEST

⊗55 Δ G703-PCS: RGA/PSEA INTERFACE CHECKOUT [13min]

CONFIG NEW RATE GYRO COMPLEMENT • 56

DMS: LOAD TO SUPPORT NEW GYRO COMPLEMENT [3min]-D555 Δ56

DMS: ENBL/ACT SPC SUPPORT MACRO [4min]-D550v Δ 56 ⊗

DMS: COMPLETE IN-BAY CONFIG [4min]-D540a Δ56

CONFIGURE PSEA FOR NEW GYRO COMPLEMENT [12min]-S001 Δ56

LOAD GYRO TABLES & DRIFT RATE BIASES • 57

LOAD GYRO TABLES AND DRIFT RATE BIASES [8min]-R009a Δ57

COMM

ENG: TN

EAST / WEST

GRND SYS ACTIVITIES:

- JSC NOTIFY STOCC ONCE MNVR TO RGA F/T ATT COMPLETE
- QUICK PRD UPDATE OF GYRO CALIBRATION

MAJOR EVENTS:

- NEXT DAY EVA REVIEW
- STOCC & SSE GO TO SMM FOR EXT ESS & EXT MAIN PWR ON
- SMM GO TO JSC FOR EXT ESS & EXT MAIN PWR ON
- STOCC VERIFY VIK FUNCTIONAL TEST SUCCESSFUL
- STOCC VERIFY RGA FUNCTIONAL TEST SUCCESSFUL

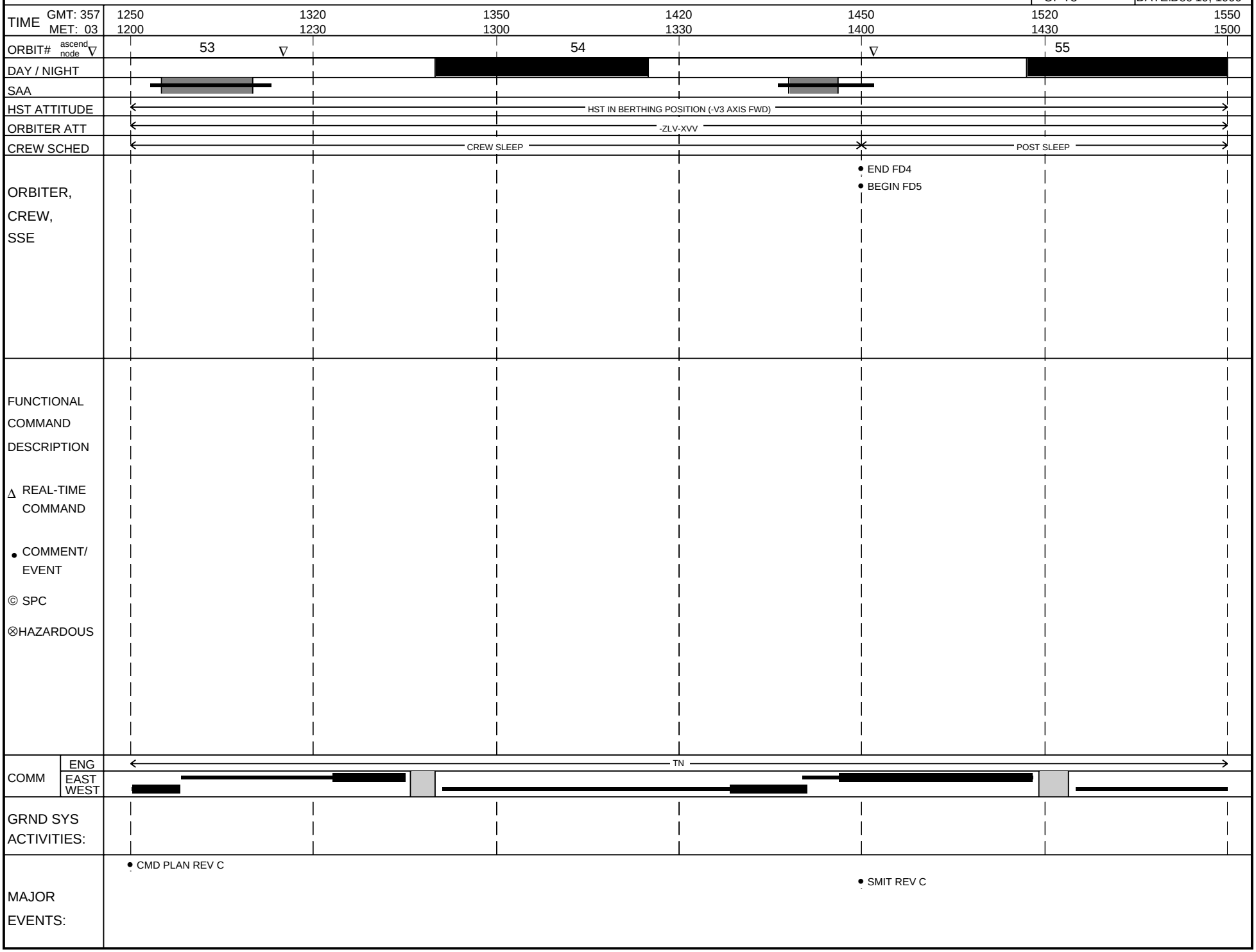
HST THIRD SERVICING MISSION INTEGRATED TIMELINE: SM3A LAUNCH UPDATE #7

TIME GMT: 357 / MET: 03	0650 / 0600	0720 / 0630	0750 / 0700	0820 / 0730	0850 / 0800	0920 / 0830	0950 / 0900
ORBIT# ascend node ∇		50		∇	51		
DAY / NIGHT							
SAA							
HST ATTITUDE	HST IN BERTHING POSITION (-V3 AXIS FWD)						
ORBITER ATT	-ZLV-XVV						
CREW SCHED	CREW SLEEP						
ORBITER, CREW, SSE			• SA STATIC TWIST ANALYSIS #2				
FUNCTIONAL COMMAND DESCRIPTION	C222 (CONT.) R009a (CONT.) **58 • TURN ON FGEs AFTER VIK F/T** 58 Δ F401-TURN ON FGEs [7min]						
Δ REAL-TIME COMMAND							
• COMMENT/ EVENT							
© SPC							
⊗HAZARDOUS							
COMM ENG	TN						
COMM EAST WEST							
GRND SYS ACTIVITIES:		• FDF DELIVERS EPHEMERIS PRODUCTS TO ScI					
MAJOR EVENTS:	• SMIT REV A	• REPLAN CONFERENCE #2					

HST THIRD SERVICING MISSION INTEGRATED TIMELINE: SM3A LAUNCH UPDATE #7

TIME GMT: 357	0950	1020	1050	1120	1150	1220	1250
TIME MET: 03	0900	0930	1000	1030	1100	1130	1200
ORBIT# ascend node ∇	51 ∇		52	∇		53	
DAY / NIGHT							
SAA							
HST ATTITUDE	HST IN BERTHING POSITION (-V3 AXIS FWD)						
ORBITER ATT	-ZLV-XVV						
CREW SCHED	CREW SLEEP						
ORBITER, CREW, SSE							
FUNCTIONAL COMMAND DESCRIPTION							
Δ REAL-TIME COMMAND							
• COMMENT/ EVENT							
© SPC							
⊗HAZARDOUS							
COMM ENG	TN						
COMM EAST WEST							
GRND SYS ACTIVITIES:							
MAJOR EVENTS:	• SMIT REV B		• REPLAN CONFERENCE #3				

HST THIRD SERVICING MISSION INTEGRATED TIMELINE: SM3A LAUNCH UPDATE #7



HST THIRD SERVICING MISSION INTEGRATED TIMELINE: SM3A LAUNCH UPDATE #7

TIME GMT: 357 / MET: 03	1550 / 1500	1620 / 1530	1650 / 1600	1720 / 1630	1750 / 1700	1820 / 1730	1850 / 1800
ORBIT# (ascend node ∇)	55	∇	56		∇	57	
DAY / NIGHT							
SAA							
HST ATTITUDE	HST IN BERTHING POSITION (-V3 AXIS FWD)					HST +V3 AXIS FWD	
ORBITER ATT	-ZLV-XVV						
CREW SCHED	POST SLEEP				EVA PREP		

ORBITER, CREW, SSE

- ORBITER FREE DRIFT [48 min]
- FSS PIVOT TO 75° [4 min]
- FSS ROTATE TO +V3 POSITION [13 min]
- FSS PIVOT TO 90° [4min]

FUNCTIONAL COMMAND DESCRIPTION

59 • SLEW +SA TO -20°

⊗59 Δ B520-SLEW +SA TO -20° [15min]

PREP FOR ADV COMPUTER 486/DF-224 CHANGEOUT • 60

DISABLE PIT TOGGLE TEST [1min]-D700 Δ60

SAFE NSSC-1 [3min]-D702 Δ60

Δ REAL-TIME COMMAND

• COMMENT/ EVENT

© SPC

⊗HAZARDOUS

COMM

ENG: TN → TF

EAST / WEST

GRND SYS ACTIVITIES:

MAJOR EVENTS:

• SMM GO FOR EVA

HST THIRD SERVICING MISSION INTEGRATED TIMELINE: SM3A LAUNCH UPDATE #7

TIME GMT: 357 MET: 03

1850 1800 | 1920 1830 | 1950 1900 | 2020 1930 | 2050 2000 | 2120 2030 | 2150 2100

ORBIT# ascend node ∇ 57 ∇ 58 ∇ 59

DAY / NIGHT

SAA

HST ATTITUDE: HST +V3 AXIS FWD — HST -V2 AXIS FWD

ORBITER ATT: -ZLV-XVV

CREW SCHED: EVA PREP — A/L DEPR — EVA-2

ORBITER, CREW, SSE

- SAMA 2
- **EVA CREW EGRESS [10 min]**
- ORBITER FREE DRIFT [11min]
- FSS ROTATE TO -V2 [7min]
- **EVA CREW PREP FOR EVA-2 [30 min]**
  (INCLUDES BSP CENTER PIP-PINS INSERT)
- IVA CONFIG HST PGSC FOR 4K TELEMETRY
- OPEN LOPE [5 min]
- DF224/COP REMOVAL [40 min]
- DEMATE CONNECTORS [5 min]
- CLOSE LOPE [2 min]
- REMOVE DF-224/COP FROM HST [2 min]
- **COMPUTER INSTALLATION [1hr 55 min]**
- INITIAL PREP [5 min]
- OPEN BAY 1 DOOR [5 min]
- INSERT 486 INTO HST [1 min]
- MATE CONNECTORS [14 min]
- OPEN LOPE [2 min]
- COMPUTER SWAP [10 min]
- SWAP DF-224/COP FOR 486 [5 min]
- CLOSE LOPE [5 min]
- 486 INSTALLATION [35 min]

FUNCTIONAL COMMAND DESCRIPTION

- **61 • ADV COMPUTER 486 / DF-224 CHANGEOUT**
- 61 Δ D641-ACTIVATE DE FORMAT [6min]
- 61 Δ D642-POWER OFF DF-224 [6min]

Δ REAL-TIME COMMAND

• COMMENT/ EVENT

© SPC

⊗HAZARDOUS

COMM ENG: TF — DE

COMM EAST WEST

GRND SYS ACTIVITIES:

- STOCC GO FOR 486/DF-224 CHANGEOUT FOLLOWING POWER DOWN OF DF-224

MAJOR EVENTS:

- BEGIN EVA-2
- JSC GO TO CONFIG FOR 486/DF-224 CHANGEOUT FOLLOWING CREW EGRESS
- JSC GO TO POWER DOWN DF-224 AT START OF TRANSLATE TO BAY 1

HST THIRD SERVICING MISSION INTEGRATED TIMELINE: SM3A LAUNCH UPDATE #7

TIME GMT: 357 / MET: 03 — 2150 / 2100 — 2220 / 2130 — 2250 / 2200 — 2320 / 2230 — 2350 / 2300 — 0020 / 2330 — 0050 / 2400

ORBIT# ascend node ∇ — 59 ∇ 60 ∇ 61

DAY / NIGHT

SAA

HST ATTITUDE — HST -V2 AXIS FWD — HST +V3 AXIS FWD

ORBITER ATT — -ZLV-XVV — SUN PROTECT

CREW SCHED — EVA-2

ORBITER, CREW, SSE

- **COMPUTER INSTALLATION [1[illegible]]**
- 486 INSTALLATION [35 min] (CONT.)
- MATE CONNECTORS [14 min] (CONT.)
- P/TV 14
- CLOSE BAY 1 DOOR [5 min]
- ATTACH/SECURE NOBL TO BAY 1 [5 min]
- MFR SWAP [10 min]
- ORBITER FREE DRIFT [11 min]
- FSS ROTATE TO +V3 POSITION [7min]
- P/TV 13
- IVA CONFIG HST PGSC FOR 32K TELEMETRY
- BAY1 NOBL INSTALLATION [illegible]
- OPEN NPE [5 min]
- RETRIEVE BAY 1 NOBL & 4 PLUGS FROM NPE [5 min]
- CLOSE NPE [1 min]
- **FGS-2 CHANGEOUT [2 hr 55 min]**
- PFR RETRIEVAL [10 min]
- PFR INSTALLATION [10 min]
- OPEN +V3 FGS-2 DOORS [10 min]
- FGS-2 CONNECTOR DEMATE [5 min]
- FGS-2 HANDHOLD ATTACH [15 min]
- FGS-2 A LATCH RELEASE [5 min]
- FGS-2 REMOVAL [20 min]
- REMOVE FGS-2 [4 min]
- STOW FGS-2 ON AFT FIXTURE[6min]
- FGS-2R PREP [10 min]
- OPEN FSIPE [3 min]
- FGS-2R A LATCH RELEASE [5 min]
- FGS-2R REMOVAL [5 min]
- CLOSE FSIPE LID [2 min]
- POMC REMOVAL [5 min]
- FGS-2R INSTALLATION [25 min]
- INSERT FGS-2R INTO HST [5 min]
- MATE CONNECTORS [13 min]
- FGS-2 BAY CLOSEOUT[10min]
- P/TV 14
- CLOSE +V3 FGS DOORS[5min]

FUNCTIONAL COMMAND DESCRIPTION

Δ REAL-TIME COMMAND

• COMMENT/ EVENT

© SPC

⊗HAZARDOUS

62 • ADVANCED COMPUTER 486 ALIVENESS TES

62 ΔD650-SET GRND SYS SWITCH FROM DF-224 TO HST486 [1min]
62 ΔD651-ENABLE HST486 HEATERS [1min]
62 ΔD652-POWER ON HST486 [1min]
62 ΔD653-CONFIGURE HST486 H/W [3min]
62 ΔD654-HARDWARE LOAD [1min]
62 ΔD655-ACTIVATE SMU [2min]
62 ΔD656-TRANSITION FROM SMU TO VSS [1min]
62 ΔD657-ACTIVATE "AF" FORMAT [5min]
62 ΔD659-VERIFY VSS OPERATION & KA OUTPUTS [2min]
62 ΔD660-VERIFY H/W LOAD VIA TMDIAG [2min]
62 ΔD658-SET THE VEHICLE TIME TO UTC TIME [6min]
62 ΔD661-SET DMU TO NORMAL MODE & STATUS REGISTER TO HST486 [2min]
62 ΔD662-ACTIVATE "TF" FORMAT [7min]
62 ΔD645-UPLINK HMAC 5&7 & ENBL SA COMMAND PROFILE TEST [8min]
62 ΔD646-DISABLE BMIC SAFEMODE TEST [2min]

63 • FGS-2 CHANGEOUT (INCLUDES PREP,C/O,AT)

- PREP FOR FGS-2 CHANGEOUT

63 ΔF207aq-POWER FGE-2 OFF [3min]
63 ΔF610-DISABLE FGS-2 HEATERS [1min]
63 ΔE600-POWER OFF EPTCE [3min]
63 ΔE601-POWER DOWN OTA BUS#2 [2min]

FGS-2R ALIVENESS TEST •

FGE-2 INITIALIZATION [1min]-F612 Δ63
POWER UP OTA BUS #2 [1min]-E602 Δ63
POWER ON EPTCE [2min]-E603 Δ63
ENABLE FGS-2R HEATERS [1min]-E606 Δ63
POWER UP FGE 2 [1min]-F601a Δ63

RE-ENABLE OTA HTR GROUPS (PART 1 OF 3) • 64

ENABLE FGS1, PRI & SEC MIRROR, FPS1 HTRS [5min]-E504a Δ64

COMM

ENG — DE — AF — TF

EAST / WEST

GRND SYS ACTIVITIES:

MAJOR EVENTS:

- JSC GO FOR 486 A/T FOLLOWING MATING OF POWER CONNECTORS
- STOCC VERIFY 486 A/T SUCCESSFUL
- JSC GO FOR FGS-2 PWR DOWN AT COMPLETION OF ORBITER FREE DRIFT
- STOCC GO FOR FGS-2 CHANGEOUT FOLLOWING OTA BUS #2 POWER DOWN
- JSC GO FOR FGS-2R A/T AFTER MATE POWER CONNECTORS
- STOCC VERIFY FGS-2R A/T SUCCESSFUL

HST THIRD SERVICING MISSION INTEGRATED TIMELINE: SM3A LAUNCH UPDATE #7

TIME — GMT: 358 / MET: 04: 0050/0000, 0120/0030, 0150/0100, 0220/0130, 0250/0200, 0320/0230, 0350/0300

ORBIT# (ascend node ∇): 61, ∇, 62, ∇

DAY / NIGHT

SAA

HST ATTITUDE: HST +V3 AXIS FWD

ORBITER ATT: SUN PROTECT | -ZLV -XVV | -ZLV +YVV

CREW SCHED: EVA-2 | POST EVA | A/L REPR | POST EVA

ORBITER, CREW, SSE

- **FGS-2 CHANGEOUT [2 hr 55 min] (C**
- FGS-2 BAY CLOSEOUT[10min] (CONT.)
- P/TV 14 (CONT.)
- CLOSE +V3 FGS DOORS[5min] (CONT.)
- FGS-2 INSTALLATION [20 min]
- OPEN FSIPE LID [5 min]
- IVA CONFIG HST PGSC FOR 4K TELEMETRY
- INSERT FGS-2 INTO FSIPE [5 min]
- FGS-2 A LATCH ENGAGE [10 min]
- CLOSE & SECURE FSIPE [5 min]
- STOW PFR [10 min]
- **EVA-2 FINAL CLOSEOUT [30 min]**
  (INCLUDES INSPECT INGRESS AIDS)
- IVA CONFIGURE HST PGSC FOR 32K TELEMETRY
- EVA CREW INSPECT J101 CONNECTOR FOR DEBRIS [5 min]
- REMOVE BSP CENTER PIP-PINS [5 min]
- **END OF 6 HOUR EVA DAY**
- **EVA CREW INGRESS [10 min]**
- ORBITER FREE DRIFT [15 min]
- IVA CONFIGURE HST PGSC FOR 4K TELEMETRY
- IVA CONFIGURE HST PGSC FOR 32K TELEMETRY

FUNCTIONAL COMMAND DESCRIPTION

Δ REAL-TIME COMMAND

• COMMENT/ EVENT

© SPC

⊗HAZARDOUS

- **RE-ENABLE OTA HTR GROUPS (PART 1 OF 3) (CONT.)**
  E504a (CONT.)
- **65 • ADVANCED COMPUTER 486 FUNCTIONAL TEST**
  - 65 ΔD671-HALT THE CPM PROCESSING AND ACTIVATE D FORMAT [6min]
  - 65 ΔD672-CONFIG 486 FOR OPS MODE STRING-1 & SET THERMISTOR [4min]
  - 65 ΔD673-CONFIG HST486 INT MODULES FOR THE OPS, STRING-1 [3min]
  - 65 ΔD674-UPLINK H/W LOAD AND ACTIVATE SMU [11min]
  - 65 ΔD675-START VSS OPERATIONS AND ACTIVATE AF FORMAT [6min]
- **66 • RE-ENABLE OTA HTR GROUPS (PART 2 OF 3)**
  - 66 ΔE504b-ENABLE FGS3, MAIN RING, FPS2 HTRS [4min]
  - 65 ΔD676-VERIFY VSS OPS & KA OUTPUTS & VERIFY H/W LOAD [4min]
  - 65 ΔD677-RESET STATUS REGISTER & VEHICLE CLOCK [3min]
  - 65 ΔD678-SWITCH DMU TO NORMAL MODE [1min]
  - 65 ΔD680-VERIFY HST HEALTH IN AF FORMAT [5min]
  - 65 ΔD683-ACTIVATE HF FORMAT AND VERIFY HST HEALTH [15min]
  - 65 ΔD681-UPLINK SM&S/M MACROS&DISABLE HLD MACROS & ENBL SA COMMAND PROFILE TEST [31min]
- **67 • RE-ENABLE OTA HTR GROUPS (PART 3 OF 3)**
  - 67 ΔE504c-ENABLE FPS3 HTRS [2min]
  - 65 ΔD679-RETURN SIC&DH TO NORMAL FORMAT [12min]
  - 65 ΔD682-PERFORM MEMORY DUMP [21min]
  - 65 ΔD684-ACTIVATE TN FORMAT [11min]
  - 65 ΔD685-TOGGLE RGA MODE [5min]
  - ENABLE BMIC TASK & DISABLE BMIC TEST [4min]-D686 Δ65
- **68 • SLEW +SA TO 0°**
  SLEW +SA TO 0° [15min]-B521 © 68 ⊗
- **FGS-2R FUNCTIONAL TEST • 69**
  - FILTER WHEEL VERIFICATION [4min]-E608 Δ69
  - PMT DARK COUNT VERIFICATION [8min]-E609 Δ69

DO NOT EXECUTE ANY FGS COMMANDING DURING SAA LEVEL 1 PASSAGE

EXECUTE AFTER OTA HTR GROUPS ENABLED IN PART 1 ARE HEATER CYCLING (~30 MIN)

EXECUTE AFTER OTA HTR GROUPS ENABLED IN PART 2 ARE HEATER CYCLING (~30 MIN)

COMM

ENG: DE | AF | HF | N/A | TN

EAST WEST

GRND SYS ACTIVITIES:

- COMPUTE CLOCK CORRELATION PARAMETERS

MAJOR EVENTS:

- END EVA-2
- REPLAN CONFERENCE #1
- STOCC VERIFY 486 F/T SUCCESSFUL

HST THIRD SERVICING MISSION INTEGRATED TIMELINE: SM3A LAUNCH UPDATE #7

TIME — GMT: 358 / MET: 04

0350 / 0300 — 0420 / 0330 — 0450 / 0400 — 0520 / 0430 — 0550 / 0500 — 0620 / 0530 — 0650 / 0600

ORBIT# (ascend node ∇): 63 ∇ 64

DAY / NIGHT

SAA

HST ATTITUDE: HST +V3 AXIS FWD

ORBITER ATT: -ZLV +YVV — -ZLV -XVV

CREW SCHED: POST EVA — PRE SLEEP

ORBITER, CREW, SSE

- WASTE WATER DUMP [1 hr 20 min]

FUNCTIONAL COMMAND DESCRIPTION

Δ REAL-TIME COMMAND

• COMMENT/ EVENT

© SPC

⊗HAZARDOUS

• FGS-2R FUNCTIONAL TEST (CONT.)

E609 (CONT.)

69 ΔE610-ITS ACQUISITION & FF3 POSITION VERIF [14min]

69 ΔE611-FIELD STOP ALIGNMENT VERIFICATION [9min]

69 ΔE612-FGS TO DEFAULT MODE [2min]

70 • RELOAD GYRO & FHST TABLES

70 ΔD555b-DMS: LOAD TO SUPPORT NEW GYRO COMPLEMENT [3min]

⊗70 © D550t-DMS: ENBL/ACT SPC SUPPORT MACRO [4min]

70 ΔR009-LOAD GYRO TABLES AND DRIFT RATE BIASES [14min]

70 ΔD754-LOAD FHST ALIGNMENT TABLES [6min]

70 ΔD750-ENABLE EPS SOC FSW PROCESSING [26min]

70 ΔD751-TURN OFF QUATERNION PROPAGATION [2min]

70 ΔD752-SET HGA GIMBAL LIMIT TO 102 DEG [14min]

71 • TELEMETRY LOAD FOR SOLID STATE DR PREP

71 ΔD625-DMS: LOAD HST486 TLM ADJ LOAD FOR SSR-3 TELEM [6min]

71 ΔD626-DMS: OFF ENABLE FOR SSR-1 [1min]

COMM — ENG: TN — HN — TN

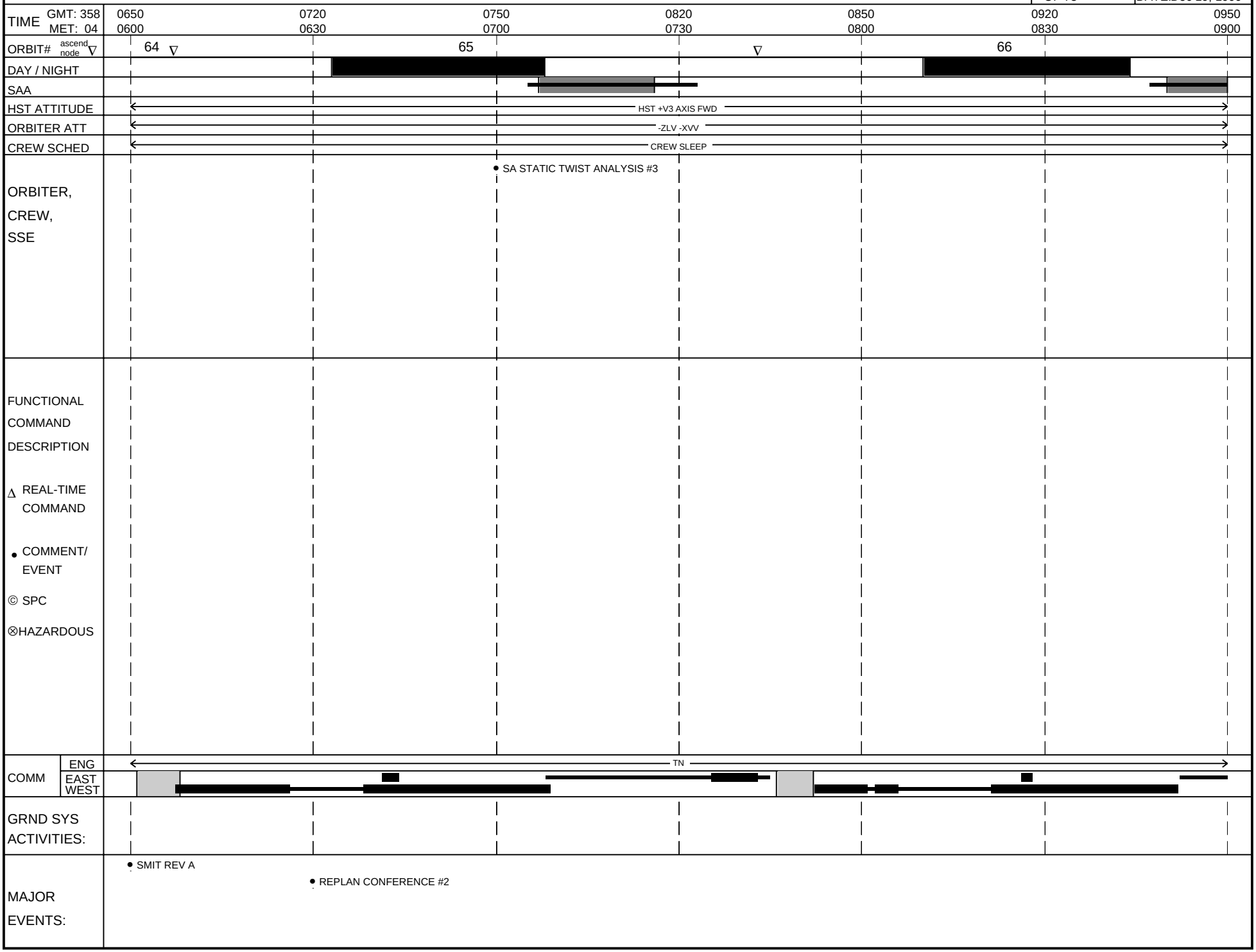
COMM — EAST / WEST

GRND SYS ACTIVITIES:

MAJOR EVENTS:

- STOCC VERIFY FGS-2R FUNCTIONAL TEST SUCCESSFUL
- NEXT DAY EVA REVIEW

HST THIRD SERVICING MISSION INTEGRATED TIMELINE: SM3A LAUNCH UPDATE #7



HST THIRD SERVICING MISSION INTEGRATED TIMELINE: SM3A LAUNCH UPDATE #7

TIME	GMT: 358	0950	1020	1050	1120	1150	1220	1250
	MET: 04	0900	0930	1000	1030	1100	1130	1200

ORBIT# (ascend node ∇): 66, 67, 68

DAY / NIGHT

SAA

HST ATTITUDE: HST +V3 AXIS FWD

ORBITER ATT: -ZLV -XVV

CREW SCHED: CREW SLEEP

ORBITER, CREW, SSE

FUNCTIONAL COMMAND DESCRIPTION

Δ REAL-TIME COMMAND

• COMMENT/ EVENT

© SPC

⊗HAZARDOUS

COMM
- ENG: TN
- EAST WEST

GRND SYS ACTIVITIES:
- REPORT ON RGA IN-BAY POLARITY CHECK

MAJOR EVENTS:
- SMIT REV B
- REPLAN CONFERENCE #3

HST THIRD SERVICING MISSION INTEGRATED TIMELINE: SM3A LAUNCH UPDATE #7

TIME	GMT: 358	1250	1320	1350	1420	1450	1520	1550
	MET: 04	1200	1230	1300	1330	1400	1430	1500
ORBIT# ascend node ∇		68	∇	69		∇	70	
DAY / NIGHT								
SAA								
HST ATTITUDE		HST +V3 AXIS FWD						
ORBITER ATT		-ZLV -XVV						
CREW SCHED		CREW SLEEP				POST SLEEP		
ORBITER, CREW, SSE						● END FD5 ● BEGIN FD6		
FUNCTIONAL COMMAND DESCRIPTION Δ REAL-TIME COMMAND ● COMMENT/ EVENT © SPC ⊗HAZARDOUS								
COMM ENG		TN						
COMM EAST WEST								
GRND SYS ACTIVITIES:								
MAJOR EVENTS:		● CMD PLAN REV C				● SMIT REV C		

HST THIRD SERVICING MISSION INTEGRATED TIMELINE: SM3A LAUNCH UPDATE #7

TIME	GMT: 358	1550	1620	1650	1720	1750	1820	1850
	MET: 04	1500	1530	1600	1630	1700	1730	1800
ORBIT# ascend node ∇		70	∇		71	∇	72	
DAY / NIGHT								
SAA								
HST ATTITUDE		HST +V3 AXIS FWD						
ORBITER ATT		-ZLV -XVV						
CREW SCHED		POST SLEEP				EVA PREP		
ORBITER, CREW, SSE								
FUNCTIONAL COMMAND DESCRIPTION								
Δ REAL-TIME COMMAND								
• COMMENT/ EVENT								
© SPC								
⊗HAZARDOUS								
COMM ENG		TN						
COMM EAST WEST								
GRND SYS ACTIVITIES:								
MAJOR EVENTS:					• SMM GO FOR EVA			

HST THIRD SERVICING MISSION INTEGRATED TIMELINE: SM3A LAUNCH UPDATE #7

TIME — GMT: 358 / MET: 04: 1850/1800, 1920/1830, 1950/1900, 2020/1930, 2050/2000, 2120/2030, 2150/2100

ORBIT# (ascend node ∇): 72, 73, 74

DAY / NIGHT

SAA

HST ATTITUDE: HST +V3 AXIS FWD

ORBITER ATT: -ZLV -XVV; BIAS -ZLV -XVV

CREW SCHED: EVA PREP; A/L DEPR; EVA-3

ORBITER, CREW, SSE

- SAMA 3
- **EVA CREW EGRESS [10 min]**
- **INITIAL EVA-3 SETUP [15 min]**
  (INCLUDES BSP CENTER PIP-PINS INSERT)
- **CONFIGURE OCE EK [30 min]**
- OCE EK MATE [20 min]
- OPEN BAY C DOOR [5 min]
- DEMATE/MATE CONN #11 [7 min]
- OCE-EK CLOSEOUT [4 min]
- P/TV 14
- CLOSE BAY C DOOR [10 min]
- **76 • SSA XMTR CHANGEOUT [1 hr 15**
- SSAT-2 REMOVAL [45 min]
- OPEN BAY 5 DOOR [10 min]
- DEMATE CONNECTORS [10 min]
- OPEN COPE [4 min]
- RETRIEVE SSAT-2R [5 min]
- CLOSE COPE [4 min]
- SSAT-2R INSTALLATION [30 min]
- INSERT SSAT-2R [9 min]
- OPEN COPE [4 min]
- MATE CONNS[15min]
- STOW SSAT-2 [5 min]
- CLOSE COPE [4 min]
- REMOVE SSAT-2 [1 min]

FUNCTIONAL COMMAND DESCRIPTION

72 • OCE CABLE INSTALL(PREP,C/O)

- PREP FOR OCE CABLE INSTALLATION
- 72 ΔE618-OCE INITIALIZATION [1min]
- 72 ΔF307aq-POWER DOWN FGE-3 [2min]
- 72 ΔE604-POWER DOWN OTA BUS #4 [1min]

73 • OCE CABLE / AMS ALIVENESS TEST

- 73 ΔF613-FGE-3 INITIALIZATION [1min]
- 73 ΔE619-OCE INITIALIZATION [1min]
- 73 ΔE605-POWER UP OTA BUS #4 [1min]
- 73 ΔF611-POWER UP FGE-3 [1min]
- 73 ΔE200a-POWER ON OCE/AMS [2min]
- 73 ΔE620-POWER OFF OCE/AMS [2min]

74 • SOLID STATE DR PREP

- 74 ΔD609-PUT TRI1/TRI3 IN STANDBY [2min]
- 74 ΔD632-DMS: SSR-1 POWER OFF [2min]
- 74 ΔD633-ADJUST LIMITS [1min]

75 • VERIFY SSA XMTR OFF

- 75 P300-VERIFY SSA XMTR OFF [5min]

Δ REAL-TIME COMMAND

• COMMENT/ EVENT

© SPC

⊗HAZARDOUS

COMM: ENG — TN; EAST / WEST

GRND SYS ACTIVITIES:

- STOCC GO FOR OCE EK INSTALL AFTER OTA BUS#4 PWR DOWN
- STOCC GO FOR SSA XMTR CHANGEOUT FOLLOWING VERIFICATION OF SSA XMTR OFF

MAJOR EVENTS:

- BEGIN EVA-3
- JSC GO FOR OCE CABLE PREP FOLLOWING CREW EGRESS
- STOCC VERIFY OCE EK A/T SUCCESSFUL
- STOCC GO FOR SSR/ESTR-3 C/O FOLLOWING VERIFICATION OF SSR-1/ESTR-3 PWR OFF
- JSC GO FOR OCE EK A/T AND CONFIG FOR SSR/ESTR-3 C/O FOLLOWING MATE OF POWER CONN

HST THIRD SERVICING MISSION INTEGRATED TIMELINE: SM3A LAUNCH UPDATE #7

TIME — GMT: 358 / MET: 04: 2150/2100, 2220/2130, 2250/2200, 2320/2230, 2350/2300, 0020/2330, 0050/2400

ORBIT# (ascend node ∇): 74, ∇, 75, ∇, 76

DAY / NIGHT

SAA

HST ATTITUDE: HST +V3 AXIS FWD

ORBITER ATT: BIAS -ZLV -XVV → -ZLV -XVV

CREW SCHED: EVA-3

ORBITER, CREW, SSE

- **SSA XMTR CHANGEOUT**
- SSAT-2R INSTALLATION [30 min] (CONT.)
- MATE CONNS[15min] (CONT.)
- CLOSE COPE [4 min] (CONT.)
- PHOTO CLOSEOUT [5 min]
- OPEN COPE & REMOVE SSR-3 [5 min]
- SSR-3/ESTR-3 SWAP [5 min]
- STOW ESTR-3 IN COPE [1 min]
- CLOSE COPE [3 min]
- SSR-3 INSTALLATION [35 min]
- INSERT SSR [11 min]
- **SSR/ESTR-3 CHANGEOUT [1hr]**
- ESTR-3 REMOVAL[20min]
- DEMATE T-HARNESS & CONNECTORS [5 min]
- REMOVE ESTR-3 [1 min]
- MATE CONNECTORS & J-HARNESS [8 min]
- CLOSEOUT [6 min]
- P/TV 14
- CLOSE BAY 5 DOOR [9 min]
- **79 • NOBL INSTALLATION ON SSM BAYS5-10[2:20]**
- BAY 5 MLI REMOVAL [10 min]
- MFR SWAP [10 min]
- BAY 5 & 6 NOBL RETRIEVAL [15 min]
- OPEN NPE [4 min]
- RETRIEVE BAY 5&6 NOBL&PLUGS[10min]
- CLOSE NPE [1 min]
- BAY 5 & 6 NOBL INSTALLATION [15 min]
- INSTALL BAY 6 NOBL [4 min]
- INSTALL BAY 5 NOBL & PLUGS [5 min]
- BAY 7 & 8 MLI PATCH KIT REMOVAL [20 min]
- BAY 7 & 8 NOBL RETRIEVAL [15 min]
- OPEN NPE [4 min]
- RETRIEVE BAY 7 & 8 NOBL & PLUGS [10 min]
- CLOSE NPE [1 min]
- BAY 7 & 8 NOBL INSTALL[15min]
- INSTALL BAY 7 NOBL&PLUGS[5min]
- INSTALL BAY 8 NOBL & PLUGS [5 min]
- BAY 10 MLI PATCH KIT &MLI REMOVAL[20min]

FUNCTIONAL COMMAND DESCRIPTION

- **77 • SSR/ESTR-3 CHANGEOUT (INCLUDES PREP, C/O)**
  - 77 D634-PERFORM SSR/ESTR-3 CHANGEOUT [2min]
- **78 • SSR-1/SSR-3 ALIVENESS TEST**
  - 78 Δ D607-ADJUST LIMITS & VERIFY POWER [6min]
  - 78 Δ D608-ENABLE 1Mbps SCIENCE DATA FILL & REC 30SEC 1Mbps SCIENCE [1min]
  - 78 Δ D621-ADJUST LIMITS [1min]
- VERIFY HGA FOV CLEAR → **80 • SSAT-2R ALIVENESS TEST**
  - ⊗80 Δ P100-SSAT-2R ALIVENESS TEST [34min]
- **81 • FGS AMS FUNCTIONAL TEST**
  - 81 Δ E200b-POWER ON OCE/AMS [1min]
  - 81 Δ E613-MOVE FF3 -/+/-DIRECTION USING AMS 1, MOTORS 1 & 2 [12min]
  - 81 Δ E614-ITS ACQUISITION [9min]
  - 81 Δ E615-MOVE FF3 +DIR USING AMS1, MOTORS 1&2 [6min]
  - 81 Δ E616-ITS ACQUISITION [8min]
  - MOVE FF3 - DIRECTION USING AMS 1, MOTORS 1 & 2 [6min]-E622 Δ 81
  - 81 Δ E623-ITS ACQUISITION [8min]
  - FGS TO DEFAULT MODE [1min]-E617 Δ 81
  - POWER OFF OCE/AMS [1min]-E621 Δ 81
- THIS SEQUENCE MUST BE EXECUTED COMPLETELY OUTSIDE OF ANY SAA LEVEL 1 PASSAGE
- **SSR-1/SSR-3 FUNCTIONAL TEST • 82**
  - PREP FOR RECORDS [1min]-D616 Δ 82
  - SSR1/P1/SA1&P2/SA2-.5MIN 1Mb REC,3MIN 1Mb REC, FOUR .5MIN 1Mb REC [5min]-D636 Δ 82
  - SSR3/P1/SA1 & P2/SA2-3 MIN 1Mb, TWO 0.5 MIN 1Mb, 1MIN 32Kb, & 1MIN 4Kb RECS [6min]-D617 Δ

Δ REAL-TIME COMMAND

• COMMENT/ EVENT

© SPC

⊗HAZARDOUS

COMM

ENG: TN

EAST / WEST

GRND SYS ACTIVITIES:

- QUICK PRD UPDATE OF FGS-2R CALIBRATION •

MAJOR EVENTS:

- JSC GO FOR SSR-1/SSR-3 A/T FOLLOWING MATE J-HARNESS
- STOCC VERIFY SSR-1/SSR-3 A/T SUCCESSFUL
- JSC GO FOR SSAT A/T FOLLOWING BAY 5 DOOR CLOSURE
- STOCC VERIFY SSAT-2R A/T SUCCESSFUL
- STOCC VERIFY FGS AMS FUNCTIONAL TEST SUCCESSFUL

HST THIRD SERVICING MISSION INTEGRATED TIMELINE: SM3A LAUNCH UPDATE #7

TIME GMT: 359 MET: 05 — 0050 0000, 0120 0030, 0150 0100, 0220 0130, 0250 0200, 0320 0230, 0350 0300

ORBIT# ascend node ∇ — 76 ∇ 77

DAY / NIGHT

SAA

HST ATTITUDE — HST +V3 AXIS FWD — HST TO BERTHING POSITION (-V3 AXIS FWD)

ORBITER ATT — -ZLV -XVV

CREW SCHED — EVA-3 — POST EVA — A/L REPR — POST EVA

ORBITER, CREW, SSE

- **NOBL INSTALLATION ON SSM BAY**
- BAY 10 MLI PATCH KIT &MLI REMOVAL[20min] (CONT.)
- BAY 9 & 10 NOBL RETRIEVAL [15 min]
- OPEN NPE [4 min]
- RETRIEVE BAY 9 & 10 NOBL & PLUGS [10 min]
- CLOSE NPE [1 min]
- BAY 9 & 10 NOBL INSTALLATION [15 min]
- INSTALL BAY 9 NOBL [4 min]
- INSTALL BAY10 NOBL & PLUGS [5 min]
- **EVA-3 FINAL CLOSEOUT - INCLUDES REMOVAL & STOWAGE OF LGA COVER & INGRESS AIDS [60 min]**
- **END OF 6 HOUR EVA DAY**
- EVA CREW INSPECT J101 CONNECTOR FOR DEBRIS [5 min]
- REMOVE BSP CENTER PIP-PINS & FSS PIVOT TO 75 ° TARGET [5 min]
- ORBITER FREE DRIFT [34 min]
- **EVA CREW INGRESS [10 min]**
- FSS ROTATE TO -V3 TARGET [13 min]
- FSS PIVOT TO 90° TARGET [4 min]
- IVA CREW TURN OFF HST EXT ESS & EXT MAIN POWER [5 min]
- IVA CREW ACTIVATE HST EXT ESS & EXT MAIN POWER [5 min]

FUNCTIONAL COMMAND DESCRIPTION

Δ REAL-TIME COMMAND

• COMMENT/ EVENT

© SPC

⊗HAZARDOUS

- **SSR-1/SSR-3 FUNCTIONAL TEST (CONT.)**
- 82 ΔD619-CONFIGURE COM FOR 1Mb SSR PLAYBACK [6min]
- 82 ΔD618-PLAYBACK SSR1/P1/SA1 DATA [1min]
- 82 ΔD697-FOUR SHORT, ONE LONG PLAYBACKS SSR1/P2/SA2 [5min]
- 82 ΔD698-FOUR SHORT, ONE LONG PLAYBACKS SSR3/P1/SA1 [6min]
- 82 ΔD699-FOUR SHORT, ONE LONG PLAYBACKS SSR3/P2/SA2 [6min]
- 82 ΔD604-RECONFIGURE COM TO TRANSMIT 32K H-FORMAT ENGINEERING DATA [7min]
- 82 ΔD605-COLLECT 12MIN H-FORMAT ENG DATA [12min]
- 82 ΔD611-RECONFIGURE COM TO TRANSMIT T-FORMAT DATA [2min]
- 82 ΔD606-ANAYLSIS OF SSR1/SSR3 PLAYBACK & TELEMETRY DATA [10min]
- 82 ΔD610-DMS: SSR-1/SSR-3 TELEMETRY MONITOR LOAD [10min]

Ku-BAND

TURN OFF FGEs BEFORE IMPEDANCE CHECK • 86

- 86 ΔF402-TURN OFF FGEs [8min]

88 • IMPEDANCE CHECK

- EXTERNAL ESSENTIAL & EXTERNAL MAIN POWER OFF [12min]-C223 Δ88
- VERIFY BATTERY IMPEDANCE [2min]-C224 Δ88
- EXTERNAL ESSENTIAL & EXTERNAL MAIN POWER ON [17min]-C225 Δ88

COMM — ENG: TN — P/B — HN — TN; EAST WEST

GRND SYS ACTIVITIES:

- CONFIGURE FOR KU-BAND
- CONFIGURE FOR PSP BYPASS

MAJOR EVENTS:

- STOCC SMM GO TO JSC FOR EXT ESS & EXT MAIN PWR OFF
- SSR-3 F/T SUCCESSFUL
- STOCC & SSE GO TO SMM FOR EXT ESS & EXT MAIN PWR ON
- END EVA-3
- SMM GO TO JSC FOR EXT ESS & EXT MAIN PWR ON
- REPLAN CONFERENCE #1
- STOCC & SSE GO TO SMM FOR EXT ESS & EXT MAIN PWR OFF

HST THIRD SERVICING MISSION INTEGRATED TIMELINE: SM3A LAUNCH UPDATE #7

TIME GMT: 359 / MET: 05	0350 / 0300	0420 / 0330	0450 / 0400	0520 / 0430	0550 / 0500	0620 / 0530	0650 / 0600
ORBIT# (ascend node ∇)	∇	78		∇	79		
DAY / NIGHT							
SAA							
HST ATTITUDE	HST TO BERTHING POSITION (-V3 AXIS FWD)						
ORBITER ATT	-ZLV -XVV						
CREW SCHED	POST EVA				PRE SLEEP		

ORBITER, CREW, SSE

FUNCTIONAL COMMAND DESCRIPTION

C225 (CONT.)

85 • PARALLEL HGA DEPLOYMENT (PART 1) ← VERIFY HGA GIMBALS ARE WITHIN LIMITS BEFORE EXECUTION

⊗85 Δ D550n-DMS: ENBL/ACT SPC SUPPORT MACRO [6min]

⊗85 © A005-S&M: DEPLOY HGA MASTS [14min]

⊗85 Δ D550s-DMS: ENBL/ACT SPC SUPPORT MACRO [2min]

85 © H515b-I&C: SLEW ±HGAs TO (0,0) [6min]

85 © D915a-DMS: RESTORE HGA DB LIMITS [1min]

89 • PARALLEL HGA DEPLOYMENT (PART 2)

89 Δ COP509-DMS: SLEW +/- HGAs FOR STRUCT. CLEAR. [16min]

⊗89 Δ A008-S&M: RELAX HGA LATCHES [8min]

90 • TURN ON FGEs AFTER IMPEDANCE CHECK

90 Δ F403-TURN ON FGEs [7min]

Δ REAL-TIME COMMAND

• COMMENT/ EVENT

© SPC

⊗HAZARDOUS

COMM

ENG: ← TN →

EAST / WEST

GRND SYS ACTIVITIES:

• GENERATE LGA AVAILABILITY REPORT FOR RELEASE

MAJOR EVENTS:

• NEXT DAY EVA REVIEW

• JSC TO EMAIL RELEASE ATTITUDE

HST THIRD SERVICING MISSION INTEGRATED TIMELINE: SM3A LAUNCH UPDATE #7

TIME GMT: 359 / MET: 05	0650 / 0600	0720 / 0630	0750 / 0700	0820 / 0730	0850 / 0800	0920 / 0830	0950 / 0900
ORBIT# ascend node ∇	79 ∇		80	∇		81	
DAY / NIGHT							
SAA							
HST ATTITUDE	HST TO BERTHING POSITION (-V3 AXIS FWD)						
ORBITER ATT	-ZLV -XVV						
CREW SCHED	CREW SLEEP						
ORBITER, CREW, SSE			• SA STATIC TWIST ANALYSIS #4				
FUNCTIONAL COMMAND DESCRIPTION							
Δ REAL-TIME COMMAND							
• COMMENT/ EVENT							
© SPC							
⊗HAZARDOUS							
COMM ENG	TN						
COMM EAST WEST							
GRND SYS ACTIVITIES:		• FDF DELIVERS EPHEMERIS PRODUCTS TO ScI					
MAJOR EVENTS:	• SMIT REV A	• REPLAN CONFERENCE #2					

HST THIRD SERVICING MISSION INTEGRATED TIMELINE: SM3A LAUNCH UPDATE #7

TIME	GMT: 359	0950	1020	1050	1120	1150	1220	1250
	MET: 05	0900	0930	1000	1030	1100	1130	1200

ORBIT# (ascend node ∇): 81, 82, 83

DAY / NIGHT

SAA

HST ATTITUDE: HST TO BERTHING POSITION (-V3 AXIS FWD)

ORBITER ATT: -ZLV -XVV

CREW SCHED: CREW SLEEP

ORBITER, CREW, SSE

FUNCTIONAL COMMAND DESCRIPTION

Δ REAL-TIME COMMAND

• COMMENT/ EVENT

© SPC

⊗HAZARDOUS

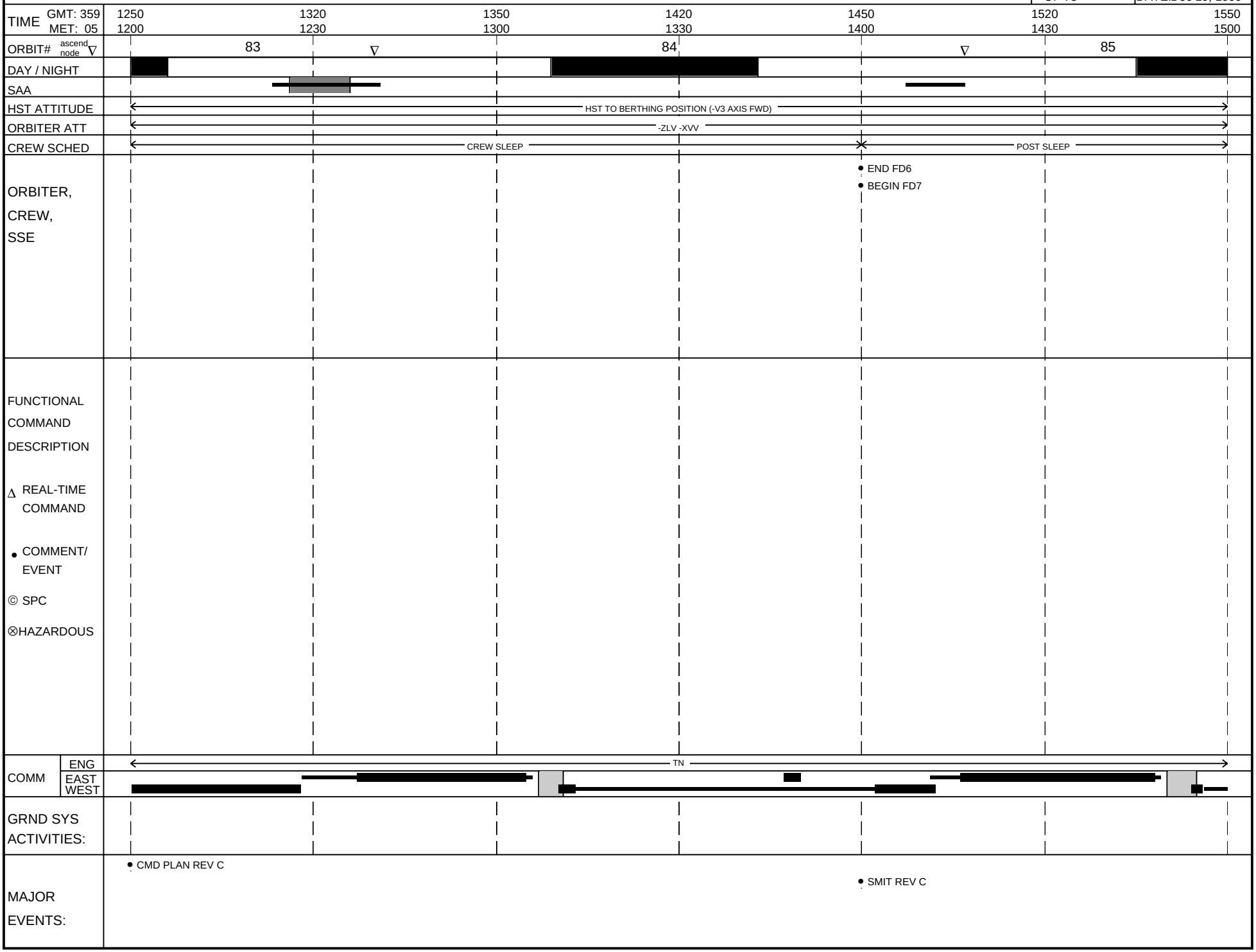
COMM: ENG — TN; EAST / WEST

GRND SYS ACTIVITIES:

MAJOR EVENTS:

- SMIT REV B
- REPLAN CONFERENCE #3

HST THIRD SERVICING MISSION INTEGRATED TIMELINE: SM3A LAUNCH UPDATE #7



HST THIRD SERVICING MISSION INTEGRATED TIMELINE: SM3A LAUNCH UPDATE #7

TIME — GMT: 359 / MET: 05

1550 / 1500 — 1620 / 1530 — 1650 / 1600 — 1720 / 1630 — 1750 / 1700 — 1820 / 1730 — 1850 / 1800

ORBIT# (ascend node ∇): 85 — 86 — 87

DAY / NIGHT

SAA

HST ATTITUDE: HST TO BERTHING POSITION (-V3 AXIS FWD)

ORBITER ATT: -ZLV -XVV — BATT

CREW SCHED: POST SLEEP — HST DEPLOYMENT

ORBITER, CREW, SSE

- ORBITER FREE DRIFT [22 min]
- P/TV 13
- P/TV 15
- MANEUVER TO BATTERY CHARGE ATTITUDE [30 min]

PHOTO/TV DOCUMENT ENTIRE HST RELEASE OPS

FUNCTIONAL COMMAND DESCRIPTION

Δ REAL-TIME COMMAND

• COMMENT/ EVENT

© SPC

⊗HAZARDOUS

91 • LOAD EPHEMERIS TABLES

91 ΔD032a-DMS: LOAD EPHEMERIS DATA [5min]

91 ΔD753-CLEAR EPHEMERIS DELTA TIME LIMIT EXCEED FLAG [2min]

92 • RELOAD SMACs

92 ΔD668-RELOAD SMAC, HMAC, ACQ LOGIC, & SM RECOVERY LOAD [18min]

93 • VERIFY INITIAL FSW CONFIGURATION

93 D009-DMS: VERIFY INITIAL HST FSW CONFIG [5min]

PREP FOR BATTERY CHARGING • 94

SLEW SOLAR ARRAYS TO 90° [22min]-B518a Δ 94 ⊗

NOTE: ZOEs BETWEEN MET 05/17:30 & 05/23:00 WILL BE FILLED BY TDRS-Z OR DGIS. (FOR HST/PSP BYPASS DATA)

COMM

ENG: TN

EAST / WEST

GRND SYS ACTIVITIES:

MAJOR EVENTS:

- JSC GO FOR SA SLEW

HST THIRD SERVICING MISSION INTEGRATED TIMELINE: SM3A LAUNCH UPDATE #7

TIME — GMT: 359 / MET: 05

1850 / 1800 — 1920 / 1830 — 1950 / 1900 — 2020 / 1930 — 2050 / 2000 — 2120 / 2030 — 2150 / 2100

ORBIT# (ascend node ∇): 87, 88, 89

DAY / NIGHT

SAA

HST ATTITUDE: HST TO BERTHING POSITION (-V3 AXIS FWD) → HST ON RMS (+V3 SUNPOINT)

ORBITER ATT: BATTERY CHARGE → RELEASE ATTITUDE

CREW SCHED: HST DEPLOYMENT

ORBITER, CREW, SSE

- MANEUVER TO BATTERY CHARGE ATTITUDE [30 min] (CONT.)
- VERIFY HST POSITION FOR GRAPPLE
- **HST GRAPPLE [15min]**

ORBITER FREE DRIFT FOR BERTHING LATCHES AND RMS MANEUVER

- IVA TURN OFF EXT PWR [3 min]
- IVA CREW DEADFACE UMBILICAL
- HST UMBILICAL DISCONNECT [2min]
- HST UNBERTH [3min]
- ORBITER FREE DRIFT [28 min]
- RMS MNVR HST TO RELEASE POSITION [25min]
- ORBITER TO RELEASE ATTITUDE [15 min]

FUNCTIONAL COMMAND DESCRIPTION

Δ REAL-TIME COMMAND

• COMMENT/ EVENT

© SPC

⊗HAZARDOUS

94 ΔCOP422m-EPS: CONNECT +WING SPA RELAYS (EXCEPT +DD AND +EE) [2min]

94 ΔCOP422o-EPS: CONNECT -WING SPA RELAYS (EXCEPT -EE & -AA) [2min]

CONNECT RELAYS DURING NIGHT (CARD 3.1.5.14) AND AFTER ORBITER IN BATTERY CHARGE ATTITUDE (CARD 3.1.5.13)

95 • TURN OFF FGEs BEFORE DEPLOY

95 ΔF404-TURN OFF FGEs [8min]

96 • PSEA TEST MODE

96 ΔCOP408-EPS: DISABLE MCU MOTOR CURRENT PRI AND RED [4min]

⊗96 Δ S607-PSEA: ENABLE SMC's A/B [1min]

⊗96 Δ S002a-RUN PSEA TEST MODE (A/B SIDES) [13min]

96 ΔCOP408a-EPS: ENABLE MCU MOTOR CURRENT PRI AND RED [4min]

PERFORM AFTER 2 CCC K-RELAYS HAVE OPENED (CARD 2.1.5.7) AND DURING ORBIT NIGHT (CARD 2.1.5.12 AND 3.1.5.14)

97 • OPEN TRIM RELAYS

97 ΔC518b-EPS: OPEN SA TRIM RELAYS (EXCEPT +DD, -AA, +EE, -EE) [4min]

98 • POWER OFF SADE

98 ΔB505a-SA: TURN OFF SADE [4min]

99 • CONFIG LGAs FOR RELEASE OPS

99 ΔH601-I&C: CONFIG MAT TX 2 [7min]

100 • EXT PWR OFF & UMB DISCONNECT

100 C607-STOCC VERIFY READY FOR EXT POWER OFF [14min]

DMS: VERIFY STFS PRE-RELEASE CONFIGURATION • 101

DMS: VERIFY STFS PRE-RELEASE CONFIG [2min]-D010 101

ORBITER MUST BE AT RELEASE ATTITUDE → **OPEN APERTURE DOOR • 102**

S&M: OPEN AD [6min]-A009 Δ 102 ⊗

COMM

ENG: TN

EAST / WEST

GRND SYS ACTIVITIES:

MAJOR EVENTS:

- BEGIN BATTERY CHARGING
- **GRAPPLE HST**
- SMM GIVE GO TO JSC FOR EXT PWR OFF & UMBILICAL DISCONNECT
- STOCC & SSE GO TO SMM FOR EXT PWR OFF & UMBILICAL DISCONNECT
- JSC GO TO OPEN APERTURE DOOR

HST THIRD SERVICING MISSION INTEGRATED TIMELINE: SM3A LAUNCH UPDATE #7

TIME — GMT: 359 / MET: 05: 2150/2100, 2220/2130, 2250/2200, 2320/2230, 2350/2300, 0020/2330, 0050/2400

ORBIT# (ascend node ∇): 89 ∇ 52711 ∇

DAY / NIGHT: [redacted]

SAA

HST ATTITUDE: HST ON RMS (+V3 SUNPOINT) — HST INERTIAL +V3 TO SUN — HST BRIGHT EARTH AVOID ATT

ORBITER ATT: RELEASE ATTITUDE — RE — SEP — TGT TRK — -ZLV -XVV

CREW SCHED: HST DEPLOYMENT — POST DEPLOYMENT

ORBITER, CREW, SSE

- IVA CREW ACTIVATE SPC MACRO TO INIT QCI AND S/W SUNPOINT TIMER
- **HST RELEASE**
- HST RELEASE WINDOW [20 min]
- SEP 1
- FSS STOW [45min]
- SEP 2
- PI OFF

CREW TO ACTIVATE MACRO 1 MINUTE AND 30 SECONDS PRIOR TO RMS RELEASE

RELEASE WINDOW OPENS AT ORBIT NOON MINUS 6 MIN AND CLOSES AT ORBIT NOON PLUS 16 MIN.

FUNCTIONAL COMMAND DESCRIPTION

Δ REAL-TIME COMMAND

• COMMENT/ EVENT

© SPC

⊗HAZARDOUS

• OPEN APERTURE DOOR (CONT.)

⊗ A009 (CONT.)

102 Δ S005a-CONFIGURE PSEA FOR BOD [12min]

MANEUVER TO BRIGHT EARTH AVOIDANCE ATTITUDE • 108

108 Δ G800-PERFORM ARU/PRT [10min]

CONFIGURE PSEA FOR NOT-CLOSE AD IN HWSP [6min]-S006b Δ 108

CONFIG MCU&RETR/DEPL HTRS FOR NORMAL OPS • 109

EPS: DISBL RETR/DPLY HTRS&RESET THERMAL LIMS [4min]-C506 Δ 109

S&M: TURN OFF MCU RED CONTROL PS & MTR CURRENT [4min]-A009a Δ 109

103 • EPS RECONFIGURATION

103 Δ COP422k-EPS: CONNECT +WING SPA RELAYS (EXCEPT +DD & +EE) [

103 Δ COP422l-EPS: CONNECT -WING SPA RELAYS (EXCEPT -AA) [2min]

TURN ON FGEs AFTER DEPLOY • 110

110 Δ F405-TURN ON FGEs [7min]

104 • PREP FOR RMS RELEASE OF HST

104 C600-EPS: VERIFY BAT SOC PRIOR TO REL [2min]

⊗104 Δ B006b-SA: ACTIVATE SADE-2R [4min]

104 Δ C602-EPS: ENBL EPS SOC SAFEMODE TESTS [1min]

104 Δ F700-PCS: POWER ON FHSTs [4min]

PERFORM ADDITIONAL FHST MAPS DURING SUBSEQUENT ORBIT MIDNIGHTS IF NECESSARY AND FWD LINK AVAILABLE

111 • FHST FOV CHECK

PCS: FHST MAP MODES USING COP 346 •

105 • PSEA CONFIG FOR RELEASE & HST RELEASE

⊗105 Δ S005-CONFIGURE PSEA FOR KA ENABLE [6min]

105 © D028-VERIFY SPC MAC EXECUTION TO INIT QCI & S/W SUNPOINT CONTROL [5min]

- INIT GYRO INTEGRATOR
- DMS: TRANSITION TO S/W SUNPOINT

EPS SOC OF 265 AMP HOURS MINIMUM PRIOR TO RELEASE

106 • TRANSITION TO NORMAL MODE

106 Δ D023-DMS: TRANSITION TO NORMAL MODE [9min]

107 • RECONFIGURE HST LGA DIRECT TDRSS

107 Δ D033b-DMS: CHANGE TO "A" FORMAT [18min]

107 Δ H502a-I&C: I&C TO TDRS VIA LGAs [1min]

CONNECT RELAYS DURING NIGHT(CARD 3.1.5.14 & 2.1.5.11) & AFTER ORBITER IN RELEASE ATTITUDE (CARD 3.1.5.13)

AFTER S/W SP INITIATION, SUN CAPTURE IS ACHIEVED IN APPROXIMATELY 5 MIN.

COMM

ENG: TN — AN

EAST / WEST: [redacted]

GRND SYS ACTIVITIES:

CALCULATE/DETERMINE COARSE ATT

- STOCC GO FOR PI OFF

MAJOR EVENTS:

- APERTURE DOOR OPEN
- EPS VERIFY SOC
- STOCC GO FOR RMS RELEASE
- **HST RELEASE**
- SMOV BEGINS
- STOCC GO FOR ACTIVATE SUNPOINT TIMER FOR RMS RELEASE
- GYROS TO LO MODE
- JSC GO TO RECONFIGURE COMM LGA TO TDRSS
- COARSE ATTITUDE AVAIL
- JSC TO EMAIL RELEASE ATTITUDE
- UPLINK 1ST ARU AND PRT SLEW

HST THIRD SERVICING MISSION INTEGRATED TIMELINE: SM3A LAUNCH UPDATE #7

TIME GMT: 360 MET: 06 — 0050 (0) 0150 (1) 0250 (2) 0350 (3) 0450 (4) 0550 (5) 0650 (6)

ORBIT# (ascend node ∇): 52712 ∇ 52713 ∇ 52714 ∇ 52715

DAY / NIGHT

SAA

HST ATTITUDE: HST BRIGHT EARTH AVOID ATT

ORBITER ATT: -ZLV -XVV

CREW SCHED: POST DEPLOYMENT | PRE SLEEP | CREW SLEEP

ORBITER, CREW, SSE

- WASTE WATER DUMP [1 hr 30 min]

FUNCTIONAL COMMAND DESCRIPTION

Δ REAL-TIME COMMAND

• COMMENT/ EVENT

© SPC

⊗HAZARDOUS

- **FHST FOV CHECK (CONT.)**
- PCS: FHST MAP MODES USING COP 346 (CONT.)
  - 111 ΔCOP346h-PCS: FHST 1,2 MAP [10min]
  - 111 ΔCOP346i-PCS: FHST 2,3 MAP [10min]
- **112 • ATTITUDE DETERMINATION FOR FIRST HLGBU**
  - ATTITUDE DETERMINATION FOR FIRST HLGBU [300 MIN]
  - 112 ΔCOP346j-PCS:FHST 1,2 MAP [20min]
- **113 • ENABLE BATTERY SOC SAFEMODE TEST(S)**
  - 113 ΔC601-ENABLE BATTERY SOC SAFEMODE TEST(S) [3min]
  - 112 ΔROPP04A-PLACE GYROS IN HIGH MODE [5min]
- **114 • RE-CENTER HGA GIMBALS**
  - 114 ΔH515a-I&C: SLEW ±HGAs TO (0,0) [9min]
  - 112 ΔCOP346r-PCS:FHST 1,2 MAP [10min]
  - 112 ΔROPP04Aa-PLACE GYROS IN LO MODE [5min]

PERFORM ADDITIONAL FHST MAPS DURING SUBSEQUENT ORBIT MIDNIGHTS TO COMPUTE GYRO DRIFT RATE BIASES FOR LGBU

FIRST LGBU/HGBU • 115

GYRO BIAS UPLINK PROCEDURE [10min]-ROPDF14A Δ115

COMM: ENG — AN; EAST / WEST

GRND SYS ACTIVITIES:

- CALCULATE GYRO BIASES
- ScI DELIVERS EPHEMERIS PRODUCTS TO CCS
- FDF DELIVERS EPHEMERIS PRODUCTS TO ScI

MAJOR EVENTS:

- 1st LGBU/HGBU •

HST THIRD SERVICING MISSION INTEGRATED TIMELINE: SM3A LAUNCH UPDATE #7

TIME GMT: 360 MET: 06 — 0650 (6), 0750 (7), 0850 (8), 0950 (9), 1050 (10), 1150 (11), 1250 (12)

ORBIT# (ascend node ∇): 52715, 52716, 52717, 52718, 52719

DAY / NIGHT

SAA

HST ATTITUDE: HST BRIGHT EARTH AVOID ATT

ORBITER ATT: -ZLV -XVV

CREW SCHED: CREW SLEEP

ORBITER, CREW, SSE

- SA STATIC TWIST ANALYSIS #5

FUNCTIONAL COMMAND DESCRIPTION

Δ REAL-TIME COMMAND

• COMMENT/ EVENT

© SPC

⊗HAZARDOUS

- **ATTITUDE DETERMINATION FOR FIRST HLGBU (CONT.)**

116 • ATTITUDE DETERMINATION FOR SECOND ARU

116 ΔCOP346a-ATTITUDE DETERMINATION [100min]

117 • LOAD EPHEMERIS

117 ΔD032-DMS: LOAD EPHEMERIS DATA [5min]

118 • TRANSITION TO NORMAL OPERATIONS / UPLINK 2ND ARU

118 ΔD029-DMS: TRANSITION TO NORMAL OPS / 2ND ARU UPLINKED [20min]

119 • ENABLE FGE MEMORY REFRESH, OPT. DIST. & B.O.P. TESTS

119 ΔD506-DMS: ENABLE FGE MEMORY REFRESH [2min]

119 ΔD029a-DMS: ENABLE OPTICAL DISTORTION [2min]

119 ΔD521-DMS: ENABLE B.O.P. [4min]

120 • FHST/FHST ALIGNMENT (DATA COLLECT)

- PCS: ATTITUDE DETERMINATION

120 ΔCOP346k-PCS: FHST 1,2 MAP [10min]

120 ΔCOP346l-PCS: FHST MAP 1,3 [10min]

PCS: FHST MAP 2,3 [10min]-COP346m Δ120

PERFORM DURING ORBIT NIGHT

REPEAT FHST MAPS WITH DIFFERENT FHST COMBINATIONS FOR THE NEXT THREE ORBIT MIDNIGHTS AS NECESSARY AND FWD LINK AVAILABLE

COMM: ENG — AN; EAST WEST

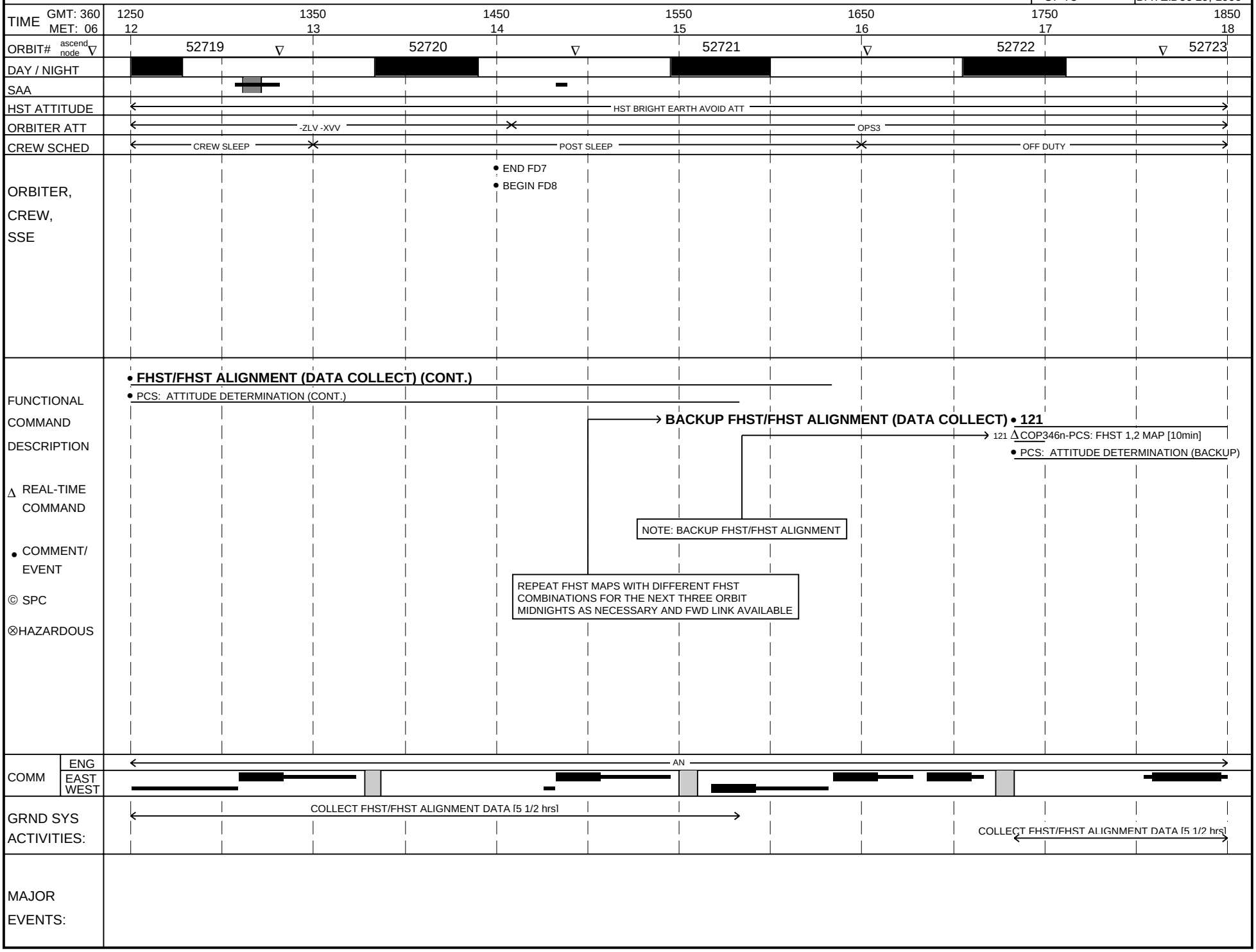
GRND SYS ACTIVITIES:

- DETERMINE FINE ATTITUDE
- PROCESS ARU
- CALCULATE O c/j
- COLLECT FHST/FHST ALIGNMENT DATA [5 1/2 hrs]

MAJOR EVENTS:

- BEGIN FINE ATTITUDE DETERMINATION
- END FINE ATTITUDE DETERMINATION
- 2ND ARU UPLINKED
- BEGIN FHST/FHST ALIGNMENT DATA COLLECTION

HST THIRD SERVICING MISSION INTEGRATED TIMELINE: SM3A LAUNCH UPDATE #7



HST THIRD SERVICING MISSION INTEGRATED TIMELINE: SM3A LAUNCH UPDATE #7

TIME GMT: 360 / MET: 06	1850 / 18	1950 / 19	2050 / 20	2150 / 21	2250 / 22	2350 / 23	0050 / 24
ORBIT# ascend node ∇	52723 ∇		52724 ∇		52725 ∇	52726	
DAY / NIGHT							
SAA							
HST ATTITUDE	HST BRIGHT EARTH AVOID ATT						
ORBITER ATT	OPS3	-ZLV -XVV		ADJ	-ZLV +YVV	-ZLV -XVV	
CREW SCHED	OFF DUTY						

ORBITER, CREW, SSE

FUNCTIONAL COMMAND DESCRIPTION

Δ REAL-TIME COMMAND

• COMMENT/ EVENT

© SPC

⊗HAZARDOUS

• BACKUP FHST/FHST ALIGNMENT (DATA COLLECT) (CONT.)

• PCS: ATTITUDE DETERMINATION (BACKUP) (CONT.)

121 ΔCOP346o-PCS: FHST 1,3 MAP [10min]

121 ΔCOP346p-PCS: FHST 2,3 MAP [10min]

LOAD HEALTH & SAFETY SPCs (FIRST OPPORTUNITY) • 122

122 ΔD565-DMS: LOAD H/S SPCs [7min]

122 ΔD036-DMS: SET TIMED PROCESSOR [2min]

COMM: ENG — AN; EAST; WEST

GRND SYS ACTIVITIES: COLLECT FHST/FHST ALIGNMENT DATA [5 1/2 hrs]

MAJOR EVENTS: • FHST/FHST ALIGNMENT DATA COLLECTION COMPLETE

HST THIRD SERVICING MISSION INTEGRATED TIMELINE: SM3A LAUNCH UPDATE #7

TIME — GMT: 361 / MET: 07

0050 (0) — 0150 (1) — 0250 (2) — 0350 (3) — 0450 (4) — 0550 (5) — 0650 (6)

ORBIT# (ascend node ∇): 52727, 52728, 52729, 52730

DAY / NIGHT

SAA

HST ATTITUDE: HST BRIGHT EARTH AVOID ATT

ORBITER ATT: -ZLV -XVV → -ZLV -YVV

CREW SCHED: OFF DUTY → PRE SLEEP → CREW SLEEP

ORBITER, CREW, SSE

FUNCTIONAL COMMAND DESCRIPTION

Δ REAL-TIME COMMAND

• COMMENT/ EVENT

© SPC

⊗HAZARDOUS

123 • ATTITUDE DETERMINATION FOR SECOND HLGBU & THIRD ARU

• PCS: ATTITUDE DETERMINATION

123 ΔCOP346q-PCS: FHST 1,2 MAP [10min]

PERFORM ADDITIONAL FHST MAP DURING FOLLOWING ORBIT MIDNIGHT IF NECESSARY AND FWD LINK AVAILABLE

• LOAD HEALTH & SAFETY SPCs (LAST OPPORTUNITY)

124 • SECOND LGBU / HGBU AND ARU

124 ΔROPDF14a-DMS: GYRO BIAS UPLINK PROCEDURE [10min]

• 3RD ARU

125 • CONFIGURE HST HGA DIRECT TDRSS

125 ΔH006-I&C: INITIATE HGA POINTING MANAGEMENT [1min]

125 ΔH003-I&C: CONFIGURE LGA/TDRS TO HGA/TDRS [6min]

126 • SSAT-2R FUNCTIONAL TEST

126 ΔP200-ACTIVATE SSA TRANSMITTER [9min]

PLAYBACK SCIENCE DATA RECORDER [30min]-P201 Δ126

DEACTIVATE SSA TRANSMITTER [2min]-P202 Δ126

COMM — ENG: AN — EAST / WEST

GRND SYS ACTIVITIES:

- FDF DELIVERS ALL EPHEMERIS PRODUCTS TO ScI
- ScI DELIVERS EPHEMERIS PRODUCT TO CCS
- UPLINK EPHEMERIS LOAD FOR H&S SMS

MAJOR EVENTS:

- UPLINK SECOND LGBU/HGBU AND THIRD ARU
- **BEGIN HEALTH & SAFETY LOAD**
- HST COMM VIA STANDARD TDRSS SERVICE USING HGA
- STOCC VERIFY SSAT-2R F/T SUCCESSFUL

HST THIRD SERVICING MISSION INTEGRATED TIMELINE: SM3A LAUNCH UPDATE #7

TIME GMT: 361 MET: 07	0650 6	0750 7	0850 8	0950 9	1050 10	1150 11	1250 12
ORBIT# ascend node ∇	52730 ∇	52731 ∇	52732 ∇	52733 ∇	52734		
DAY / NIGHT							
SAA							
HST ATTITUDE	HST BRIGHT EARTH AVOID ATT						
ORBITER ATT	-ZLV -YVV						
CREW SCHED	CREW SLEEP						
ORBITER, CREW, SSE							
FUNCTIONAL COMMAND DESCRIPTION	127 • FHST/FHST ALIGNMENT (COMPUTATION PHASE (24hrs))						
Δ REAL-TIME COMMAND							
• COMMENT/ EVENT							
© SPC							
⊗HAZARDOUS							
COMM ENG	AN						
COMM EAST WEST							
GRND SYS ACTIVITIES:			COMPUTE FHST/FHST ALIGNMENT (24 hrs)				
MAJOR EVENTS:	• BEGIN FHST/FHST ALIGNMENT COMPUTATION PHASE						

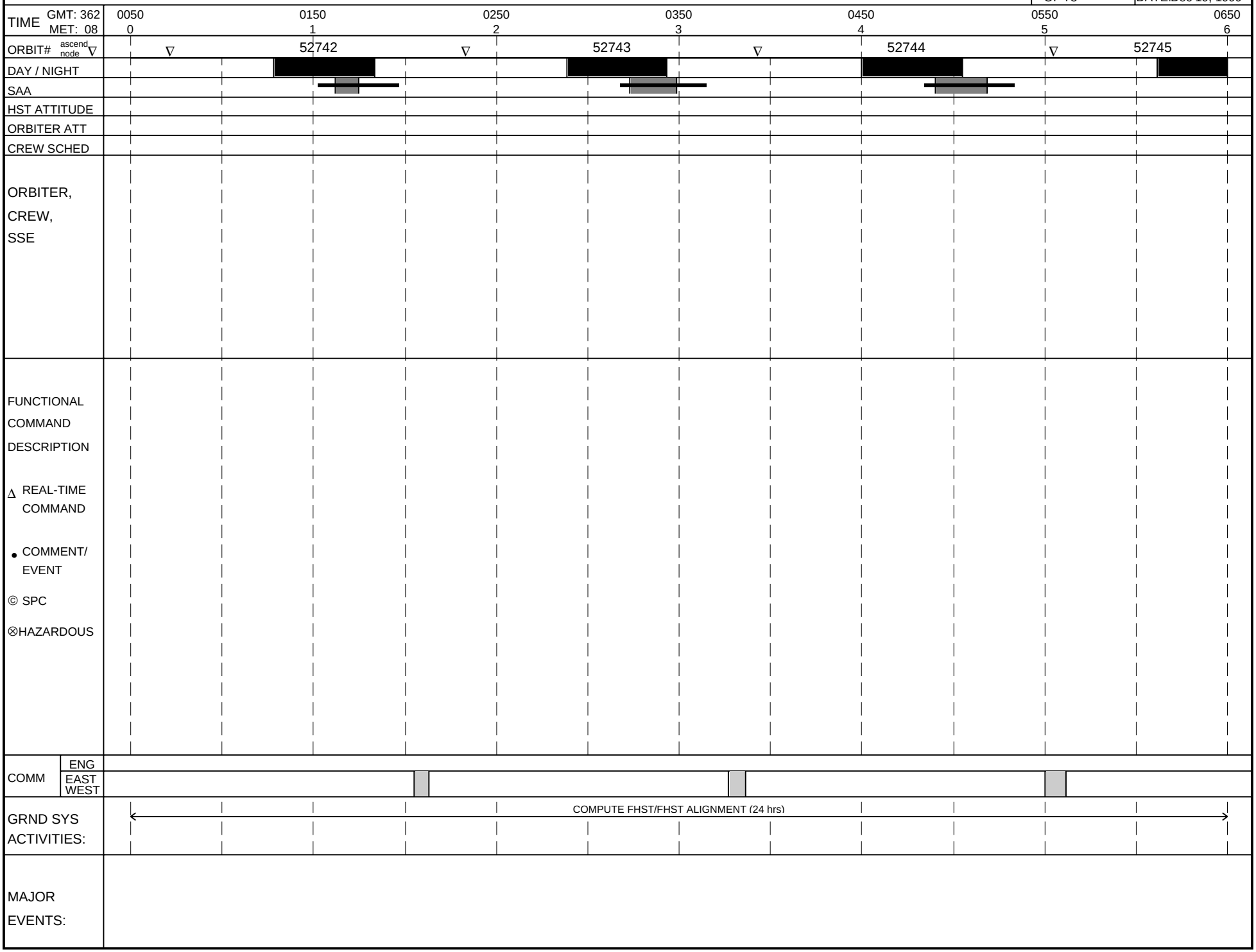
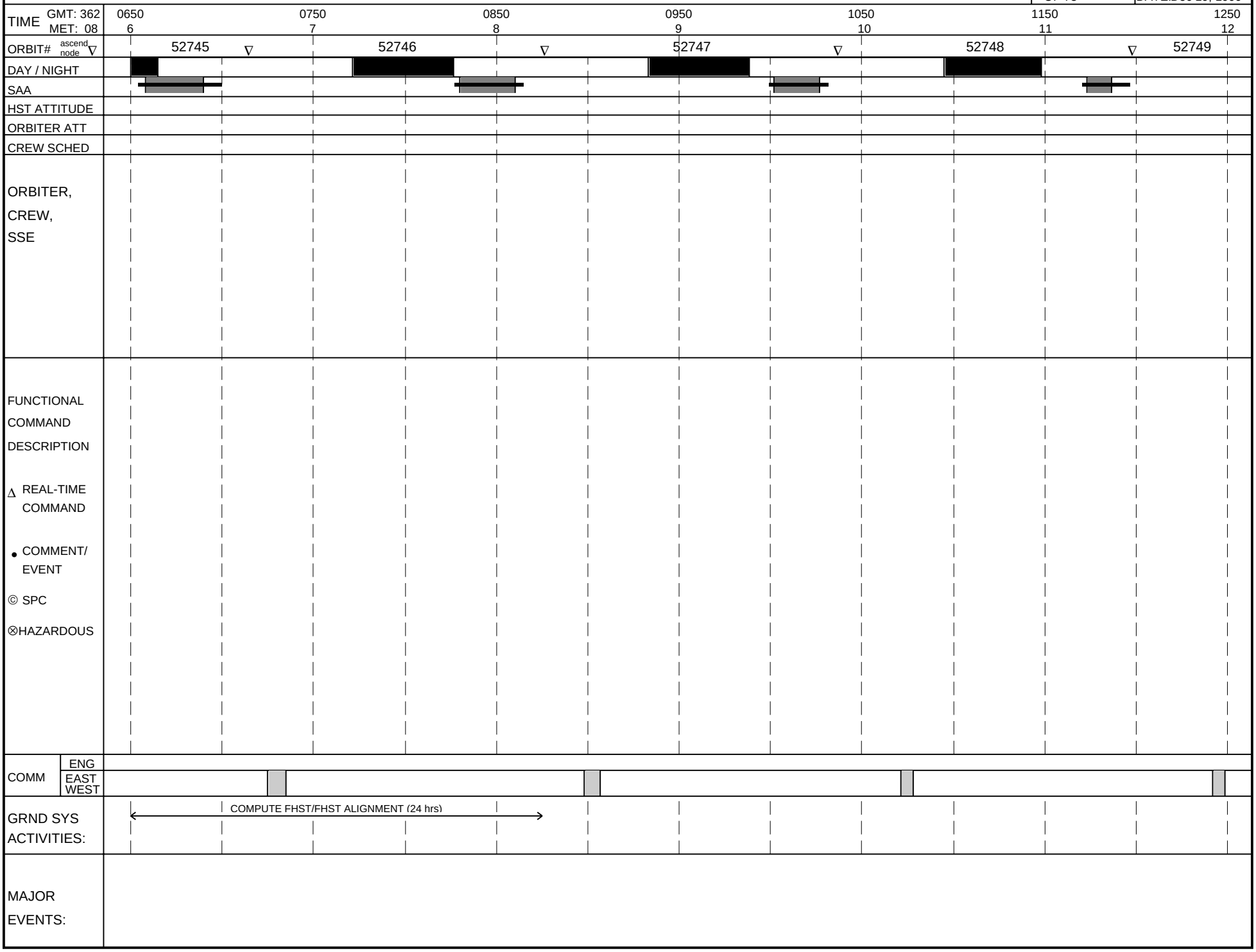
HST THIRD SERVICING MISSION INTEGRATED TIMELINE: SM3A LAUNCH UPDATE #7

TIME GMT: 361 MET: 07	1250 12	1350 13	1450 14	1550 15	1650 16	1750 17	1850 18
ORBIT# ascend node ∇	52734 ∇		52735 ∇		52736 ∇	52737 ∇	
DAY / NIGHT							
SAA							
HST ATTITUDE	HST BRIGHT EARTH AVOID ATT						
ORBITER ATT	-ZLV -YVV				IMU	-XSI	COM
CREW SCHED	POST SLEEP						
ORBITER, CREW, SSE		• END FD8 • BEGIN FD9		128 • SSE DEACTIVATION [15 min]		• DE-ORBIT PREPARATIONS • PLBD OPS	
FUNCTIONAL COMMAND DESCRIPTION ∆ REAL-TIME COMMAND • COMMENT/ EVENT © SPC ⊗HAZARDOUS							
COMM ENG							
COMM EAST WEST							
GRND SYS ACTIVITIES:	COMPUTE FHST/FHST ALIGNMENT (24 hrs)						
MAJOR EVENTS:				• SSE CLOSEOUT		• PAYLOAD BAY DOORS CLOSED	

HST THIRD SERVICING MISSION INTEGRATED TIMELINE: SM3A LAUNCH UPDATE #7

TIME GMT: 361 / MET: 07	1850 / 18	1950 / 19	2050 / 20	2150 / 21	2250 / 22	2350 / 23	0050 / 24
ORBIT# ascend node ∇	52738 ∇		52739 ∇		52740 ∇		52741
DAY / NIGHT	[redacted]		[redacted]		[redacted]		[redacted]
SAA							
HST ATTITUDE	HST BRIGHT EARTH AVOID ATT						
ORBITER ATT	COMM		D/O BURN		ENTRY		
CREW SCHED							
ORBITER, CREW, SSE	• DE-ORBIT PREPARATIONS (CONT.)		• DE-ORBIT BURN		• ORBITER LANDING		
FUNCTIONAL COMMAND DESCRIPTION Δ REAL-TIME COMMAND • COMMENT/ EVENT © SPC ⊗HAZARDOUS							
COMM ENG							
COMM EAST WEST							
GRND SYS ACTIVITIES:	COMPUTE FHST/FHST ALIGNMENT (24 hrs)						
MAJOR EVENTS:			• DE-ORBIT BURN				

HST THIRD SERVICING MISSION INTEGRATED TIMELINE: SM3A LAUNCH UPDATE #7



HST THIRD SERVICING MISSION INTEGRATED TIMELINE: SM3A LAUNCH UPDATE #7