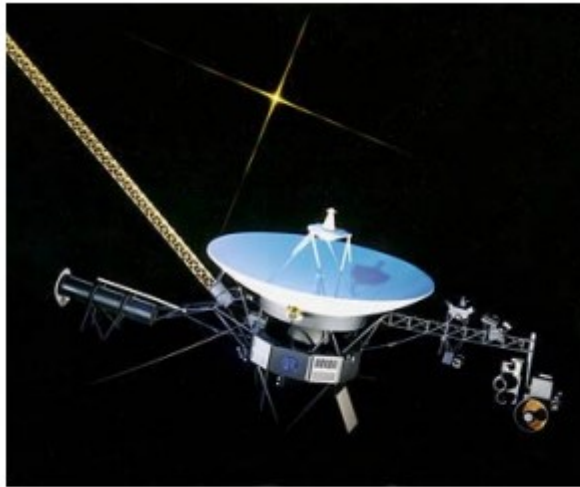


# VOYAGER

## Space Flight Operations Schedule (SFOS)

Issue Date: December 4, 2019

For the Period: 12/05/19 to 12/23/19 (19/339 – 19/357)



Posted at <https://voyager.jpl.nasa.gov/mission/status/>

**LEGEND:**

- ∇ = R/T Command (Last chance or Contingency)
- ▼ = R/T Command (Scheduled)
- \* = Result of R/T Command
- n = (where n = 1,2,3 ..) Special Note, see bottom of page
- A = Arrayed station
- B = BLF
- D = Downlink only pass
- H = High Power Transmitter
- R = Array Reference Antenna
- T = TLC Uplink
- U = Uplink only pass
- [o] = Ramp-through

02/27/19

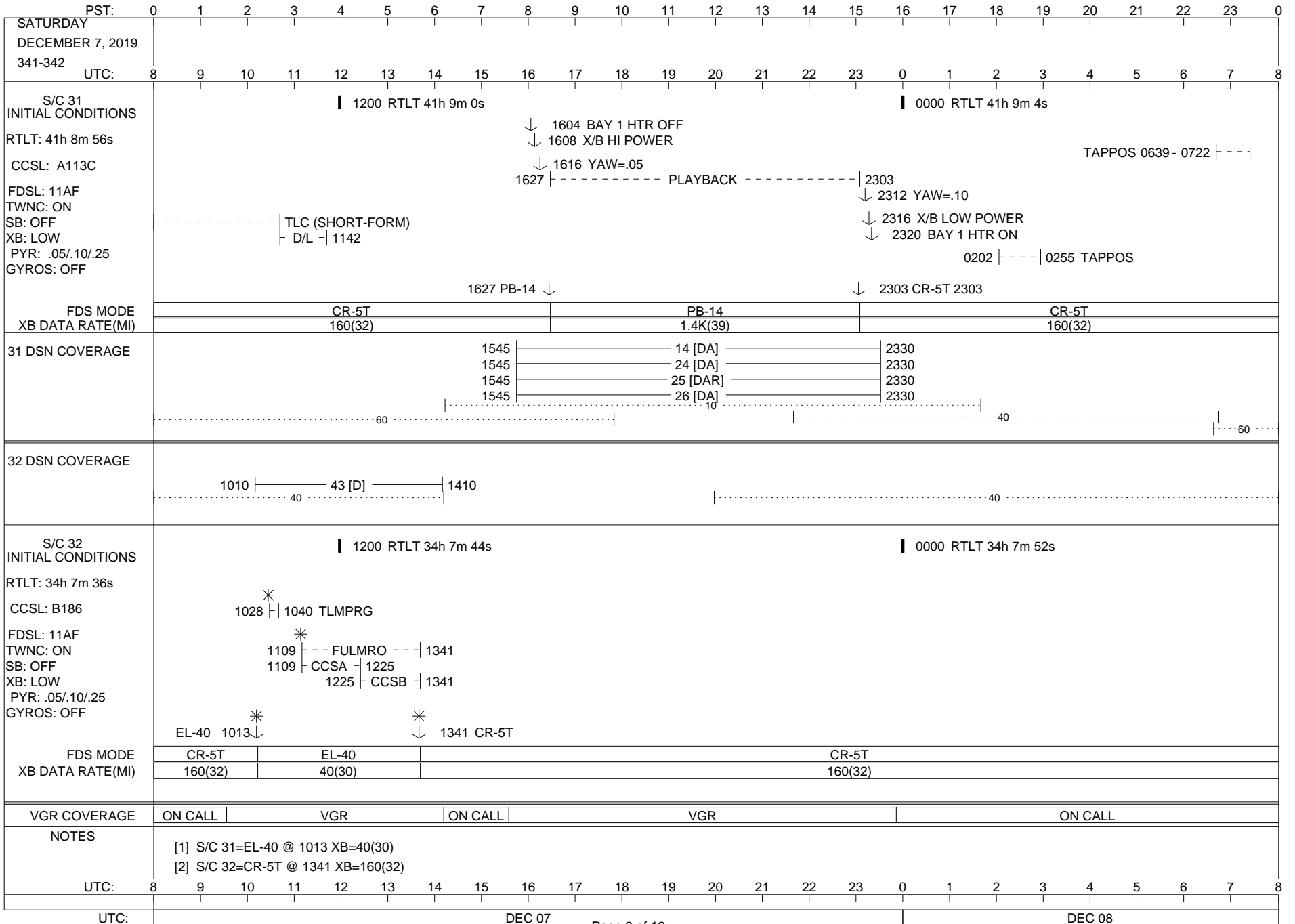
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THURSDAY DECEMBER 5, 2019 339-340																																			
UTC:	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	0	1	2	3	4	5	6	7	8										
S/C 31 INITIAL CONDITIONS RTLTL: 41h 8m 34s CCSL: A113C FDSL: 11AF TWNC: ON SB: OFF XB: LOW PYR: .05/10/25 GYROS: OFF	█ 1200 RTLTL 41h 8m 40s														█ 0000 RTLTL 41h 8m 44s																				
	▼ 1640 DUMMY (09:49)														0339   -   0408 TAPPOS PWS/RH 0641   0643 TAPPOS 0653 - 0736   - - -																				
	U/L 1705   -														----- TLC (SHORT-FORM) -----																				
															0641 GS-4B 0643 ↓																				
FDS MODE	CR-5T														CR-5T																				
XB DATA RATE(MI)	160(32)														160(32)																				
31 DSN COVERAGE	----- 10 -----														----- 40 -----																				
	60														1615  --- 63 [T] ---  1820																				
	----- 60 -----														----- 60 -----																				
32 DSN COVERAGE	1020  --- 43 [D] ---  1420														2340  --- 43 [H1] ---  0315																				
	----- 40 -----														----- 40 -----																				
S/C 32 INITIAL CONDITIONS RTLTL: 34h 7m 2s CCSL: B186 FDSL: 11AF TWNC: SB: OFF XB: LOW PYR: .05/10/25 GYROS: OFF	█ 1200 RTLTL 34h 7m 10s														█ 0000 RTLTL 34h 7m 20s																				
															▼ 0004 EL-40 (10:12) ▼ 0020 TLMPRG (10:28) ▼ 0045 CCS FULMRO CONTINGENCY (10:53)																				
FDS MODE	CR-5T														CR-5T																				
XB DATA RATE(MI)	160(32)														160(32)																				
VGR COVERAGE	ON CALL							VGR							ON CALL							VGR							ON CALL						
NOTES	[1] DSS-43 HP DRV >= 21:29																																		
UTC:	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	0	1	2	3	4	5	6	7	8										
UTC:	DEC 05														DEC 06																				

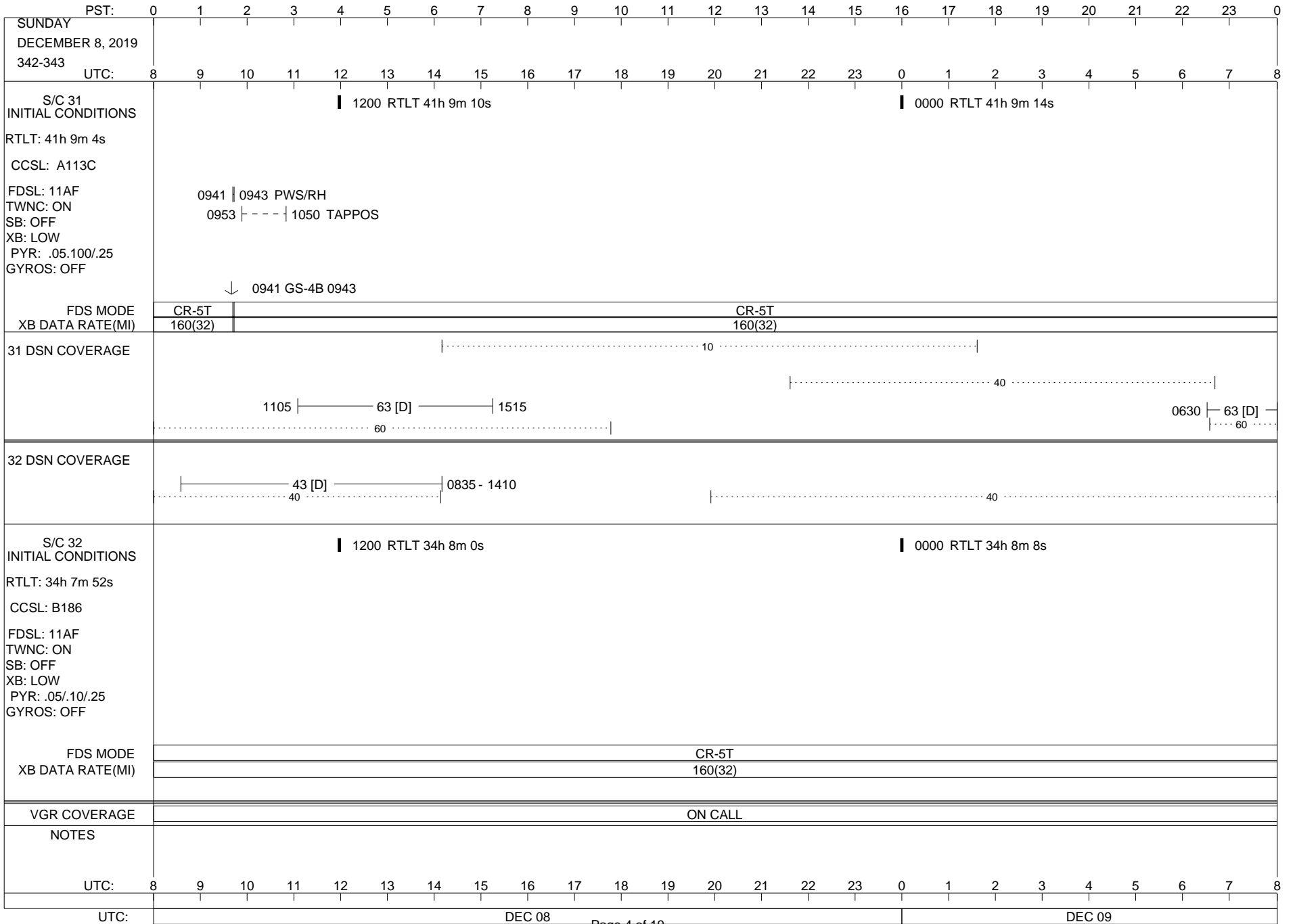
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FRIDAY DECEMBER 6, 2019 340-341	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	0	1	2	3	4	5	6	7	8
S/C 31 INITIAL CONDITIONS RTLTL: 41h 8m 44s CCSL: A113C FDSL: 11AF TWNC: ON SB: OFF XB: LOW PYR: .05/.10/.25 GYROS: OFF	1200 RTLTL 41h 8m 50s												0000 RTLTL 41h 8m 56s												
FDS MODE XB DATA RATE(MI)													CR-5T 160(32)												
31 DSN COVERAGE	.....												.....												
	.....60.....												.....40.....												
	.....												.....40.....												
32 DSN COVERAGE	.....												.....40.....												
	.....												.....40.....												
S/C 32 INITIAL CONDITIONS RTLTL: 34h 7m 20s CCSL: B186 FDSL: 11AF TWNC: ON SB: OFF XB: LOW PYR: .05/.10/.25 GYROS: OFF	1200 RTLTL 34h 7m 28s												0000 RTLTL 34h 7m 36s												
FDS MODE XB DATA RATE(MI)													CR-5T 160(32)												
VGR COVERAGE													ON CALL												
NOTES																									
UTC:	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	0	1	2	3	4	5	6	7	8
UTC:	DEC 06												DEC 07												

ISSUE DATE: 12/11/19 09:27



ISSUE DATE: 12/11/19 09:27



ISSUE DATE: 12/11/19 09:27

PST:	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	0
MONDAY DECEMBER 9, 2019 343-344	UTC: 8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	0	1	2	3	4	5	6	7	8
S/C 31 INITIAL CONDITIONS RTLTL: 41h 9m 14s CCSL: A113C FDSL: 11AF TWNC: ON SB: OFF XB: LOW PYR: .05/100/.25 GYROS: OFF	1200 RTLTL 41h 9m 20s												0000 RTLTL 41h 9m 24s												
FDS MODE XB DATA RATE(MI)													CR-5T 160(32)												
31 DSN COVERAGE	1405  ----- 14 [D] -----  1835  ----- 10 -----   ----- 40 -----												63 [D]  ----- 0950 -----   ----- 60 -----												
32 DSN COVERAGE	1005  ----- 43 [D] -----  1405  ----- 40 -----												----- 40 -----												
S/C 32 INITIAL CONDITIONS RTLTL: 34h 8m 8s CCSL: B186 FDSL: 11AF TWNC: ON SB: OFF XB: LOW PYR: .05/10/.25 GYROS: OFF	1200 RTLTL 34h 8m 16s												0000 RTLTL 34h 8m 26s												
FDS MODE XB DATA RATE(MI)													CR-5T 160(32)												
VGR COVERAGE													ON CALL												
NOTES																									
UTC:	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	0	1	2	3	4	5	6	7	8
UTC:	DEC 09												DEC 10												

ISSUE DATE: 12/11/19 09:27

TUESDAY DECEMBER 10, 2019 344-345		PST: 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 0																																															
UTC: 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 0 1 2 3 4 5 6 7 8		S/C 31 INITIAL CONDITIONS RTLT: 41h 9m 24s CCSL: A113C FDSL: 11AF TWNC: ON SB: OFF XB: LOW PYR: .05/100/.25 GYROS: OFF												1200 RTLT 41h 9m 28s												0000 RTLT 41h 9m 34s																							
FDS MODE XB DATA RATE(MI)		CR-5T 160(32)												0004   0005 PWS/RH												CR-5T 160(32)																							
31 DSN COVERAGE		1355  -----  14 [D]  -----  1755												10												40																							
32 DSN COVERAGE		0905  -----  43 [H1]  -----  1355												40												40																							
S/C 32 INITIAL CONDITIONS RTLT: 34h 8m 26s CCSL: B186 FDSL: 11AF TWNC: ON SB: OFF XB: LOW PYR: .05/10/.25 GYROS: OFF		1200 RTLT 34h 8m 34s												COMMAND MORATORIUM												0000 RTLT 34h 8m 40s																							
FDS MODE XB DATA RATE(MI)		CR-5T 160(32)												1123  -----												0956 CRS CMD WORD 10 UPD (20:04)												1105 CR-5T (21:14)											
VGR COVERAGE		VGR												ON CALL																																			
NOTES		[1] HP TXR OFF <= 12:36																																															
UTC: 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 0 1 2 3 4 5 6 7 8		DEC 10												DEC 11																																			

ISSUE DATE: 12/11/19 09:27

PST:	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	0			
WEDNESDAY DECEMBER 11, 2019 345-346																												
UTC:	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	0	1	2	3	4	5	6	7	8			
S/C 31 INITIAL CONDITIONS RTLT: 41h 9m 34s CCSL: A113C FDSL: 11AF TWNC: ON SB: OFF XB: LOW PYR: .05.100/.25 GYROS: OFF	1200 RTLT 41h 9m 38s														0000 RTLT 41h 9m 42s													
FDS MODE															CR-5T													
XB DATA RATE(MI)															160(32)													
31 DSN COVERAGE	1400  -----  14 [D]  -----  1545														.....10..... -----  40..... -----  60.....													
32 DSN COVERAGE	0955  -----  43 [D]  -----  1355														1945  -----  43 [D]  -----  2310 .....40..... -----  40.....													
S/C 32 INITIAL CONDITIONS RTLT: 34h 8m 40s CCSL: B186 FDSL: 11AF TWNC: ON SB: OFF XB: LOW PYR: .05/.10/.25 GYROS: OFF	1200 RTLT 34h 8m 48s														0000 RTLT 34h 8m 56s													
FDS MODE															COMMAND MORATORIUM													
XB DATA RATE(MI)	CR-5T 160(32)														CR-5T 160(32)													
VGR COVERAGE	ON CALL														VGR							ON CALL						
NOTES	[1] S/C 32=EL-40 @ 2105 XB=40(30) [2] S/C 32=CR-5T @ 2114 XB=160(32)																											
UTC:	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	0	1	2	3	4	5	6	7	8			
UTC:	DEC 11																					DEC 12						



PST: 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 0

THURSDAY  
DECEMBER 12, 2019  
346-347 UTC: 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 0 1 2 3 4 5 6 7 8

S/C 31  
INITIAL CONDITIONS  
RTLT: 41h 9m 42s  
CCSL: A113C  
FDSL: 11AF  
TWNC: ON  
SB: OFF  
XB: LOW  
PYR: .05/100/.25  
GYROS: OFF  
1200 RTLT 41h 9m 46s  
0000 RTLT 41h 9m 50s  
2250 ECR 204313 & CRS CMD WORD UPD (16:00)  
2258 YAW SSB UPD (16:08)  
2306 DUMMY (16:16)  
U/L 2345 | - | - - - - - TLC (SHORT-FORM) - - - - -  
0316 | - - - - - | 0426 TAPPOS  
PWS/RH 0617 | 0619  
0629 - 0754 | TAPPOS |  
0617 GS-4B 0619 ↓

FDS MODE	CR-5T	CR-5T
XB DATA RATE(MI)	160(32)	160(32)

31 DSN COVERAGE  
.....| ..... 10 .....|  
2205 | --- 43 [T] --- | 0050  
..... 40 .....|  
..... 60 .....| ..... 60 .....

32 DSN COVERAGE  
..... 40 .....|  
0135 | --- 34 [DAR] --- | 0535  
0135 | --- 43 [DA] --- | 0535  
..... 40 .....

S/C 32  
INITIAL CONDITIONS  
RTLT: 34h 8m 56s  
CCSL: B186  
FDSL: 11AF  
TWNC: ON  
SB: OFF  
XB: LOW  
PYR: .05/10/.25  
GYROS: OFF  
1200 RTLT 34h 9m 4s  
0000 RTLT 34h 9m 12s

----- COMMAND MORATORIUM -----  
↓ 0300 GYROS BC ON  
↓ 0300 BAY 1 HTR OFF  
↓ 0301 GYRO INIT  
↓ 0310 GYRO FAULT TEST  
↓ 0331 AAI  
0331 | - - | 0407 MAGROL  
↓ 0413 RAI  
↓ 0419 GYROS OFF  
↓ 0419 CRU  
↓ 0427 BAY 1 HTR ON  
0303 EL-40 0304 ↓

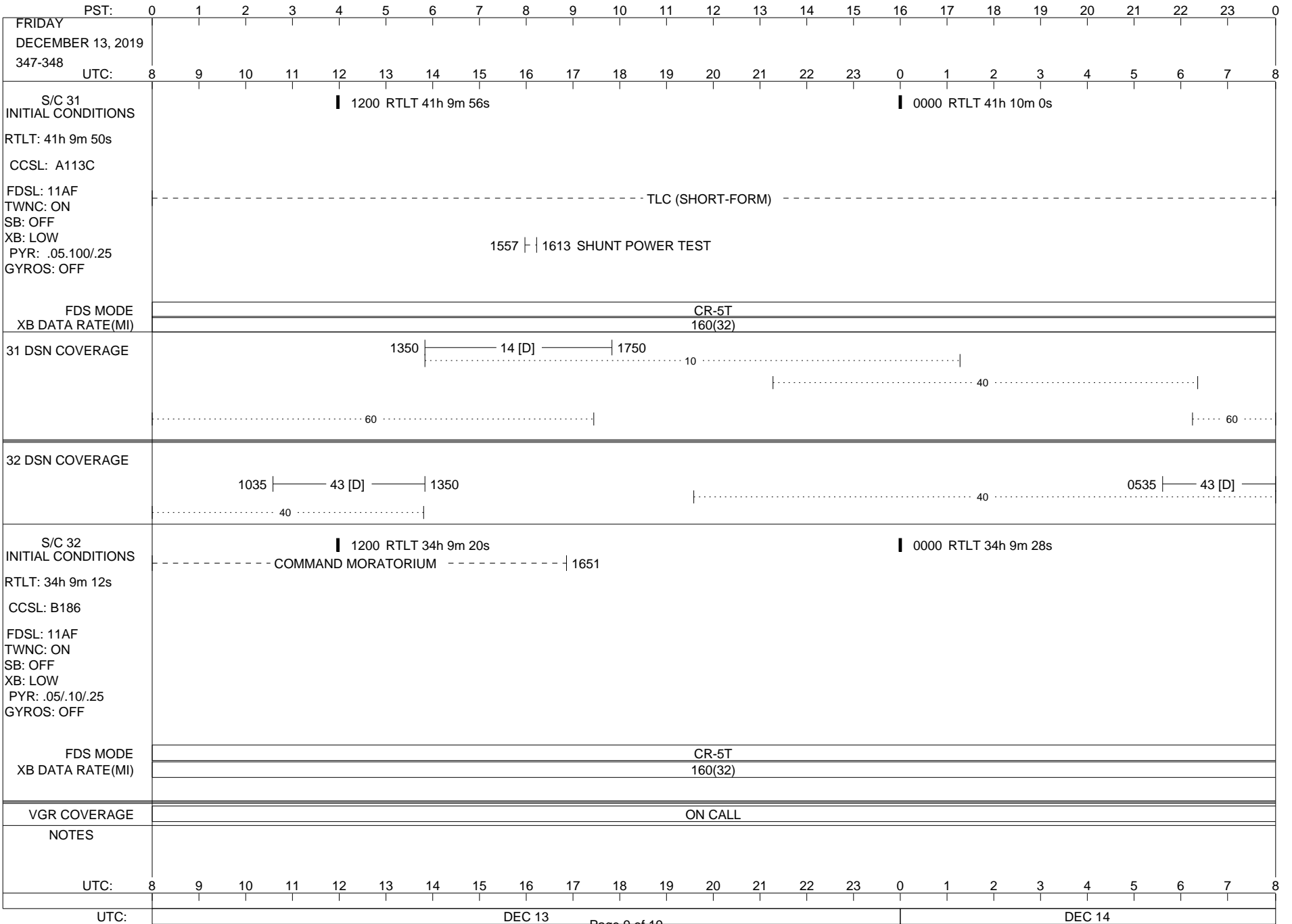
FDS MODE	CR-5T	CR-5T
XB DATA RATE(MI)	160(32)	160(32)

VGR COVERAGE ON CALL VGR ON CALL VGR ON CALL

NOTES  
[1] S/C 32 - D/L AGC VARIATIONS EXPECTED DURING MAGROL (0300-0419)

UTC: 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 0 1 2 3 4 5 6 7 8

ISSUE DATE: 12/11/19 09:27



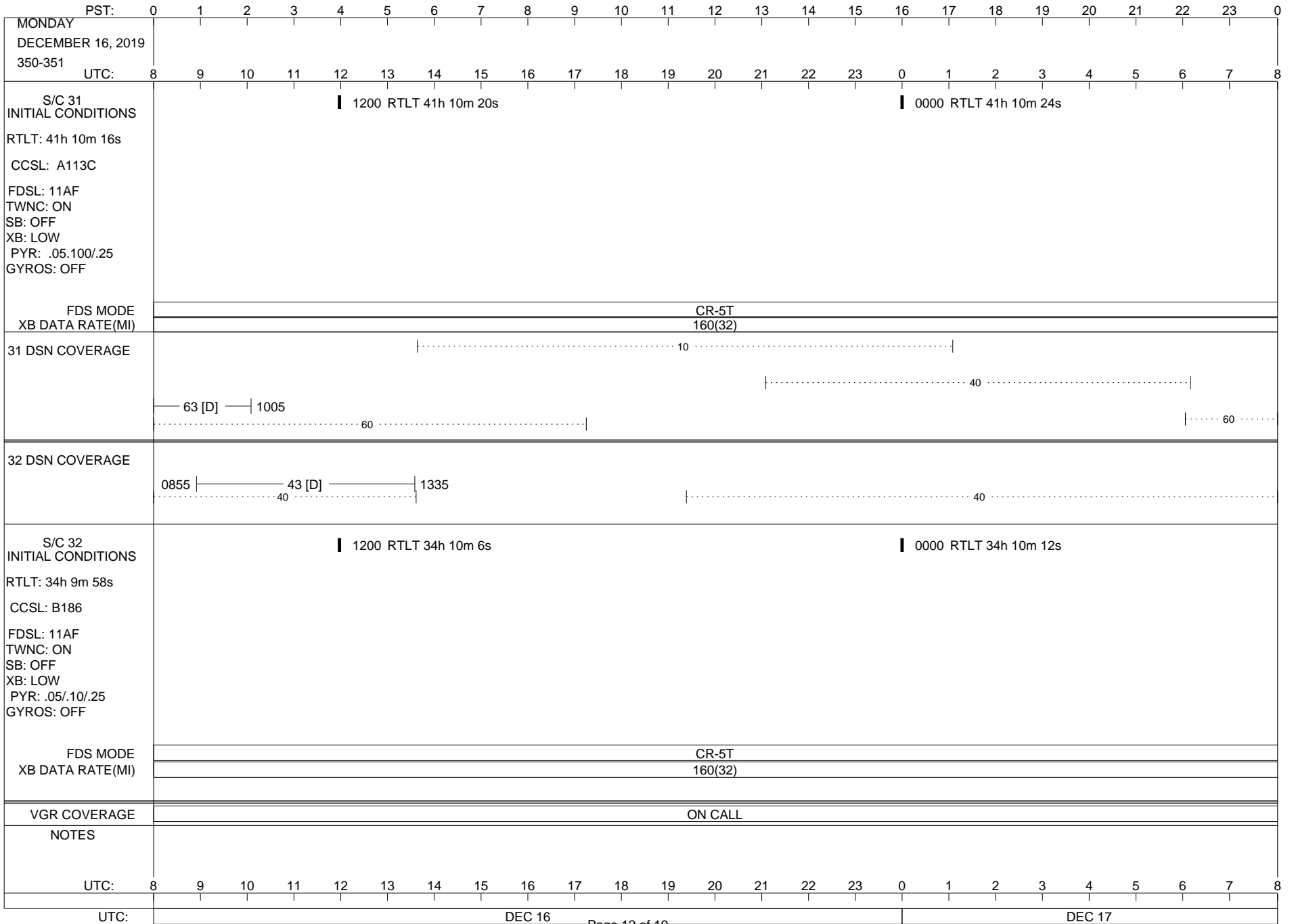
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SATURDAY DECEMBER 14, 2019 348-349																																			
UTC:	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	0	1	2	3	4	5	6	7	8										
S/C 31 INITIAL CONDITIONS	1200 RTLT 41h 10m 4s														0000 RTLT 41h 10m 8s																				
RTLT: 41h 10m 0s																																			
CCSL: A113C	0616 - 0740   TAPPOS																																		
FDSL: 11AF	----- TLC (SHORT-FORM) -----   D/L -   1823																																		
TWNC: ON																																			
SB: OFF																																			
XB: LOW																																			
PYR: .05.100/.25																																			
GYROS: OFF																																			
FDS MODE	CR-5T																																		
XB DATA RATE(MI)	160(32)																																		
31 DSN COVERAGE	1350  ----- 14 [D] -----  1825  ----- 10 -----   ----- 40 -----   ----- 60 -----																																		
32 DSN COVERAGE	43 [D]  ----- 0945 -----   ----- 40 -----   ----- 40 -----  0420  ----- 43 [D] -----																																		
S/C 32 INITIAL CONDITIONS	1200 RTLT 34h 9m 36s														0000 RTLT 34h 9m 42s																				
RTLT: 34h 9m 28s																																			
CCSL: B186	↓ 0452 PYR=.01 0456   -   0529 ASCAL ↓ 0529 ROLL=.25																																		
FDSL: 11AF																																			
TWNC: ON																																			
SB: OFF																																			
XB: LOW																																			
PYR: .05/.10/.25																																			
GYROS: OFF																																			
FDS MODE	CR-5T														EL-40				CR-5T																
XB DATA RATE(MI)	160(32)														40(30)				160(32)																
VGR COVERAGE	ON CALL							VGR							ON CALL							VGR							ON CALL						
NOTES	[1] S/C 32=EL-40 @ 0430 XB=40(30) [2] S/C 32=CR-5T @ 0533 XB=160(32)																																		
UTC:	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	0	1	2	3	4	5	6	7	8										
UTC:	DEC 14														DEC 15																				

ISSUE DATE: 12/11/19 09:27

PST:	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	0
SUNDAY DECEMBER 15, 2019 349-350																									
UTC:	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	0	1	2	3	4	5	6	7	8
S/C 31 INITIAL CONDITIONS RTLTL: 41h 10m 8s CCSL: A113C FDSL: 11AF TWNC: ON SB: OFF XB: LOW PYR: .05/100/.25 GYROS: OFF	1200 RTLTL 41h 10m 12s												0000 RTLTL 41h 10m 16s												
0918   0919 PWS/RH 0930   TAPPOS -   1108													1714   ----- FULMRO -----   2342 1714   - AACS - -   1857 1858   --- FDS ---   2110 2111   CCSA -   2226 2227   CCSB -   2342												
↓ 0918 GS-4B 0919	1700 EL-40 ↓												↓ 2343 CR-5T												
FDS MODE XB DATA RATE(MI)	CR-5T 160(32)	CR-5T 160(32)										EL-40 40(30)	CR-5T 160(32)												
31 DSN COVERAGE	<p>1625  ----- 14 [D] -----  0025</p> <p>..... 10 ..... ..... 40 .....</p> <p>..... 60 ..... ..... 0605  --- 63 [D] --- </p> <p>..... 60 .....</p>																								
32 DSN COVERAGE	<p>43 [D]   0915</p> <p>..... 40 ..... ..... 40 .....</p>																								
S/C 32 INITIAL CONDITIONS RTLTL: 34h 9m 42s CCSL: B186 FDSL: 11AF TWNC: ON SB: OFF XB: LOW PYR: .05/10/.25 GYROS: OFF	1200 RTLTL 34h 9m 50s												0000 RTLTL 34h 9m 58s												
FDS MODE XB DATA RATE(MI)	CR-5T 160(32)																								
VGR COVERAGE	ON CALL												VGR						ON CALL						
NOTES	<p>[1] S/C 31=EL-40 @ 1700 XB=40(30)</p> <p>[2] S/C 32=CR-5T @ 2343 XB=16(32)</p>																								
UTC:	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	0	1	2	3	4	5	6	7	8
UTC:	DEC 15																DEC 16								

ISSUE DATE: 12/11/19 09:27





ISSUE DATE: 12/11/19 09:27

PST:	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	0	
WEDNESDAY DECEMBER 18, 2019 352-353																										
UTC:	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	0	1	2	3	4	5	6	7	8	
S/C 31 INITIAL CONDITIONS RTLT: 41h 10m 30s CCSL: A113C FDSL: 11AF TWNC: ON SB: OFF XB: LOW PYR: .05/100/.25 GYROS: OFF					█ 1200																					
FDS MODE XB DATA RATE(MI)																										
31 DSN COVERAGE						1330					14 [D]			1730												
32 DSN COVERAGE																										
S/C 32 INITIAL CONDITIONS RTLT: 34h 10m 28s CCSL: B186 FDSL: 11AF TWNC: ON SB: OFF XB: LOW PYR: .05/10/.25 GYROS: OFF						█ 1200																				
FDS MODE XB DATA RATE(MI)																										
VGR COVERAGE																										
NOTES																										
UTC:	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	0	1	2	3	4	5	6	7	8	
UTC:	DEC 18													DEC 19												

ISSUE DATE: 12/11/19 09:27

PST: 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 0

THURSDAY  
DECEMBER 19, 2019  
353-354

UTC: 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 0 1 2 3 4 5 6 7 8

S/C 31  
INITIAL CONDITIONS  
RTLTL: 41h 10m 38s  
CCSL: A113C  
FDSL: 11AF  
TWNC: ON  
SB: OFF  
XB: LOW  
PYR: .05.100/.25  
GYROS: OFF

1200 RTLTL 41h 10m 42s

0000 RTLTL 41h 10m 44s

0252 | - TAPPOS - | 0444

0554 | 0555 PWS/RH  
0606 - 0744 | TAPPOS - |

0554 GS-4B 0555 ↓

FDS MODE  
XB DATA RATE(MI)

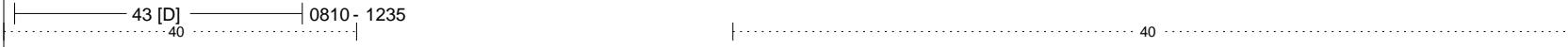
CR-5T  
160(32)

CR-5T  
160(32)

31 DSN COVERAGE



32 DSN COVERAGE



S/C 32  
INITIAL CONDITIONS  
RTLTL: 34h 10m 42s  
CCSL: B186  
FDSL: 11AF  
TWNC: ON  
SB: OFF  
XB: LOW  
PYR: .05/.10/.25  
GYROS: OFF

1200 RTLTL 34h 10m 48s

0000 RTLTL 34h 10m 56s

FDS MODE  
XB DATA RATE(MI)

CR-5T  
160(32)

VGR COVERAGE

ON CALL

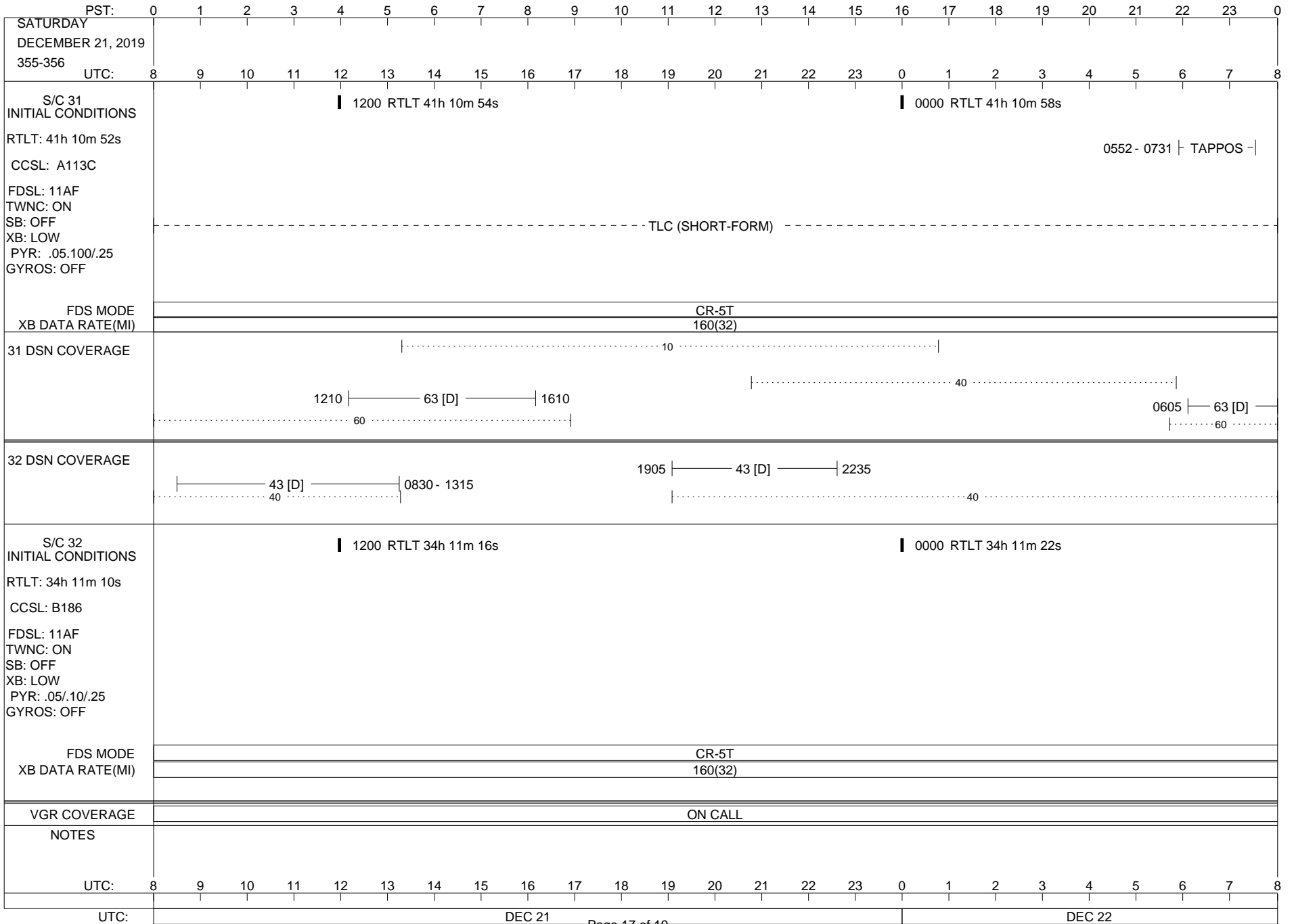
NOTES

UTC: 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 0 1 2 3 4 5 6 7 8





ISSUE DATE: 12/11/19 09:27



ISSUE DATE: 12/11/19 09:27

PST:	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	0
SUNDAY DECEMBER 22, 2019 356-357	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	0	1	2	3	4	5	6	7	8
S/C 31 INITIAL CONDITIONS RTL: 41h 10m 58s CCSL: A113C FDSL: 11AF TWNC: ON SB: OFF XB: LOW PYR: .05/100/.25 GYROS: OFF	1200 RTLT 41h 11m 2s												0000 RTLT 41h 11m 4s												
0854   0856 PWS/RH 0906   TAPPOS   1030 -----  TLC (SHORT-FORM)   D/L -   1104  ↓ 0854 GS-4B 0856																									
FDS MODE XB DATA RATE(MI)	CR-5T												CR-5T 160(32)												
31 DSN COVERAGE																									
32 DSN COVERAGE																									
S/C 32 INITIAL CONDITIONS RTL: 34h 11m 22s CCSL: B186 FDSL: 11AF TWNC: ON SB: OFF XB: LOW PYR: .05/10/.25 GYROS: OFF	1200 RTLT 34h 11m 30s												0000 RTLT 34h 11m 36s												
FDS MODE XB DATA RATE(MI)	CR-5T												CR-5T 160(32)												
VGR COVERAGE	ON CALL																								
NOTES																									
UTC:	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	0	1	2	3	4	5	6	7	8
UTC:	DEC 22												DEC 23												

ISSUE DATE: 12/11/19 09:27

PST:	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	0
MONDAY DECEMBER 23, 2019 357-358																									
UTC:	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	0	1	2	3	4	5	6	7	8
S/C 31 INITIAL CONDITIONS RTLT: 41h 11m 4s CCSL: A113C FDSL: 11AF TWNC: ON SB: OFF XB: LOW PYR: .05/100/.25 GYROS: OFF	<div style="text-align: center;"> <p>1200 RTLT 41h 11m 8s</p> </div>																								
FDS MODE													CR-5T												
XB DATA RATE(MI)													160(32)												
31 DSN COVERAGE	<div style="text-align: center;"> <p>63 [D] 0940 60</p> </div>																								
32 DSN COVERAGE	<div style="text-align: center;"> <p>43 [D] 1140 40</p> </div>																								
S/C 32 INITIAL CONDITIONS RTLT: 34h 11m 36s CCSL: B186 FDSL: 11AF TWNC: ON SB: OFF XB: LOW PYR: .05/10/.25 GYROS: OFF	<div style="text-align: center;"> <p>1200 RTLT 34h 11m 42s</p> </div>																								
FDS MODE													CR-5T												
XB DATA RATE(MI)													160(32)												
VGR COVERAGE													ON CALL												
NOTES																									
UTC:	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	0	1	2	3	4	5	6	7	8
UTC:	DEC 23												DEC 24												