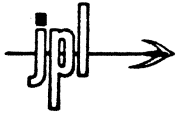




PLANNED
VOYAGER ENCOUNTER
DATA PRODUCTS AND
DATA AVAILABILITY

8 / 14 / 78

JRT - 1



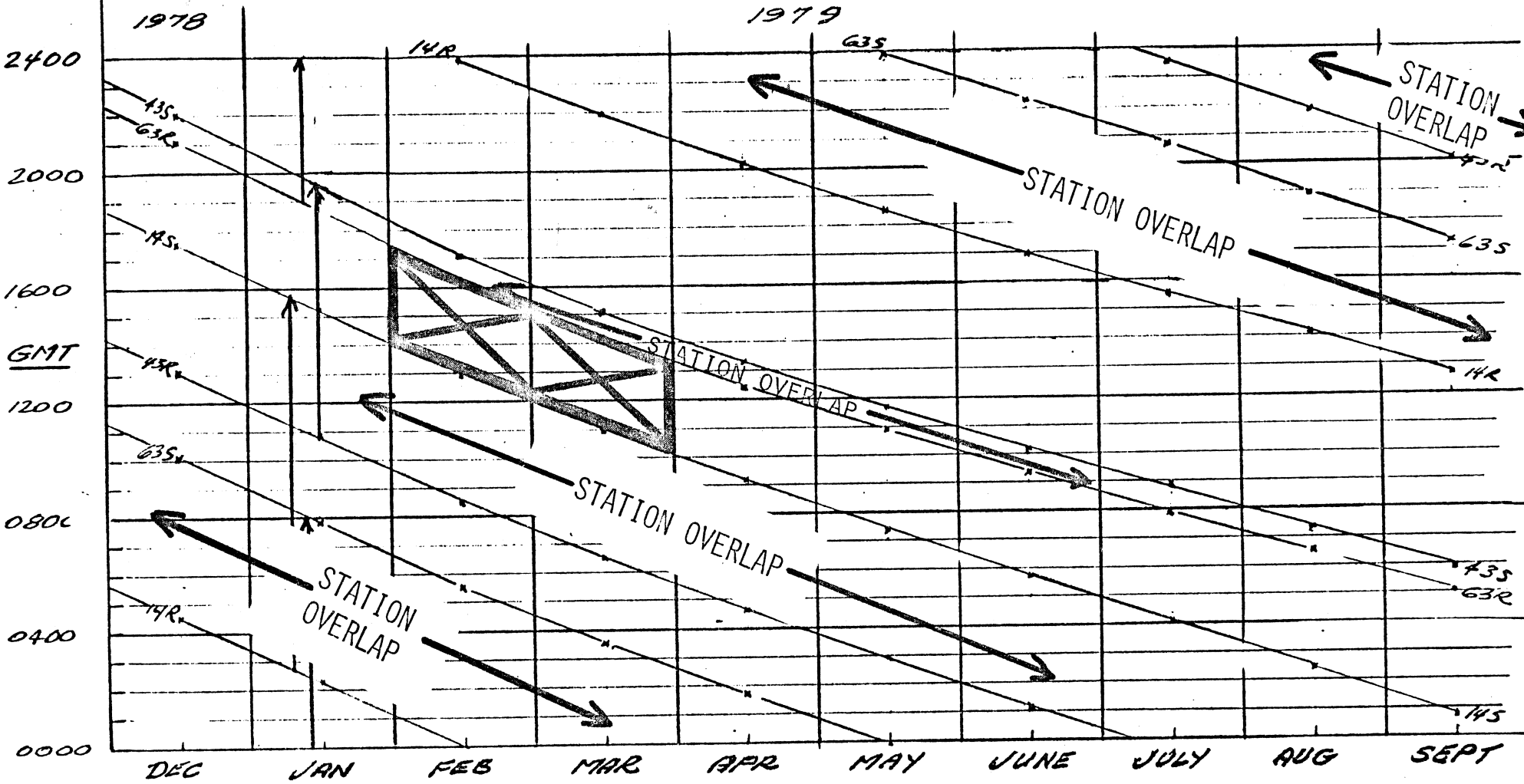
A G E N D A

- * DEEP SPACE STATION VIEW PERIODS
- * DATA FLOW
- * REMOTE NORT
- * DATA PRODUCT REQUIREMENTS
- * ASSUMPTIONS
- * ENCOUNTER DATA AVAILABILITY
- * SUMMARY

JRT - 2
8/14/78

CLOSEST APPROACH
 MARCH 5 (DAY 64): 12.05.25 GMT

VOYAGER 1 VIEW PERIODS
 REF. NAV ID T780202



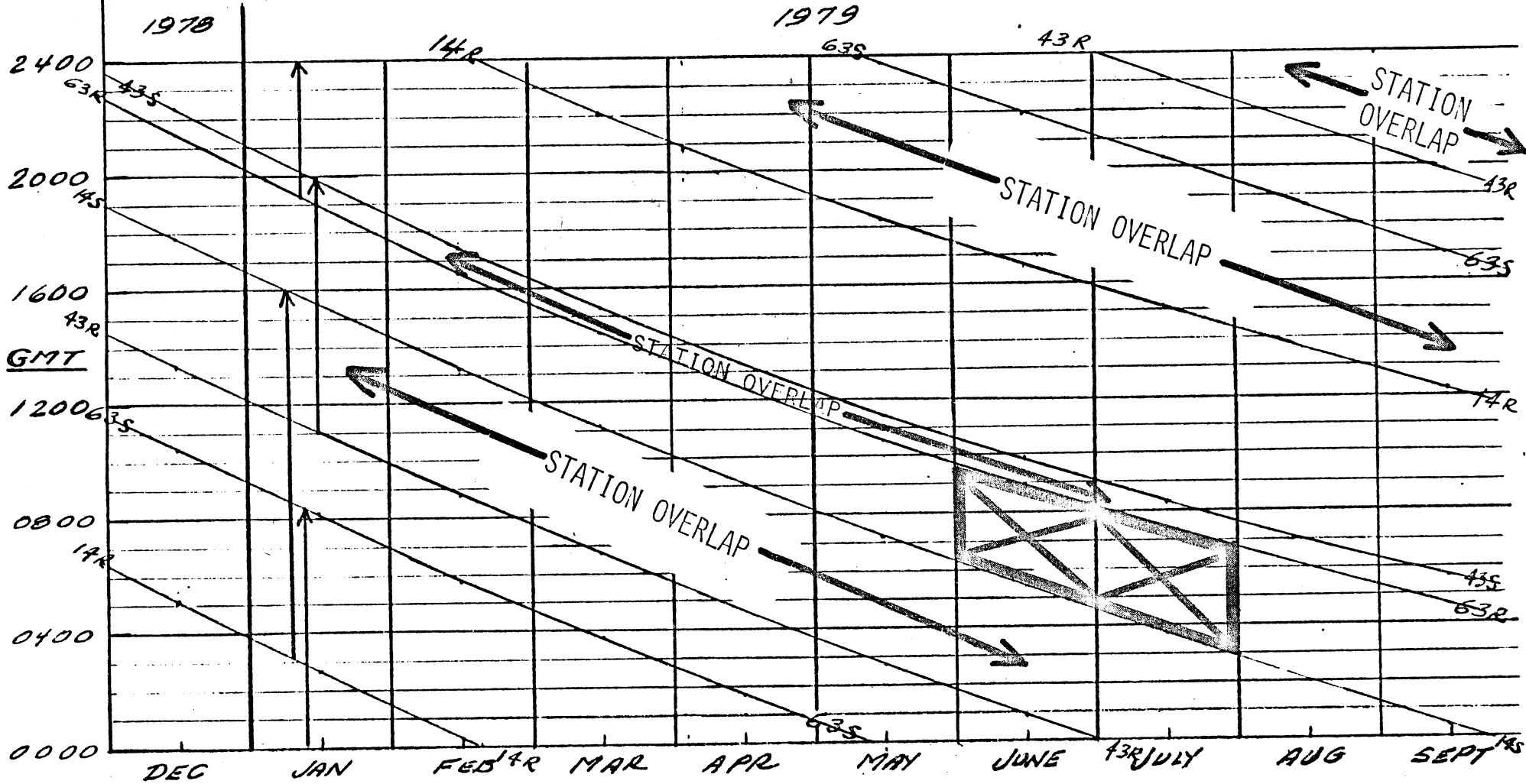
↑ } INDICATES VIEW PERIODS
 ⊠ INDICATES WHEN DATA RATES EXCEED LINE RATE

JRT - 3
 8/14/78

CLOSEST APPROACH
 JULY 9 (DAY 190): 22.30 GMT

VOYAGER 2 VIEW PERIODS

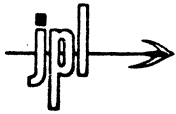
REF. NAV I.D. 7780203



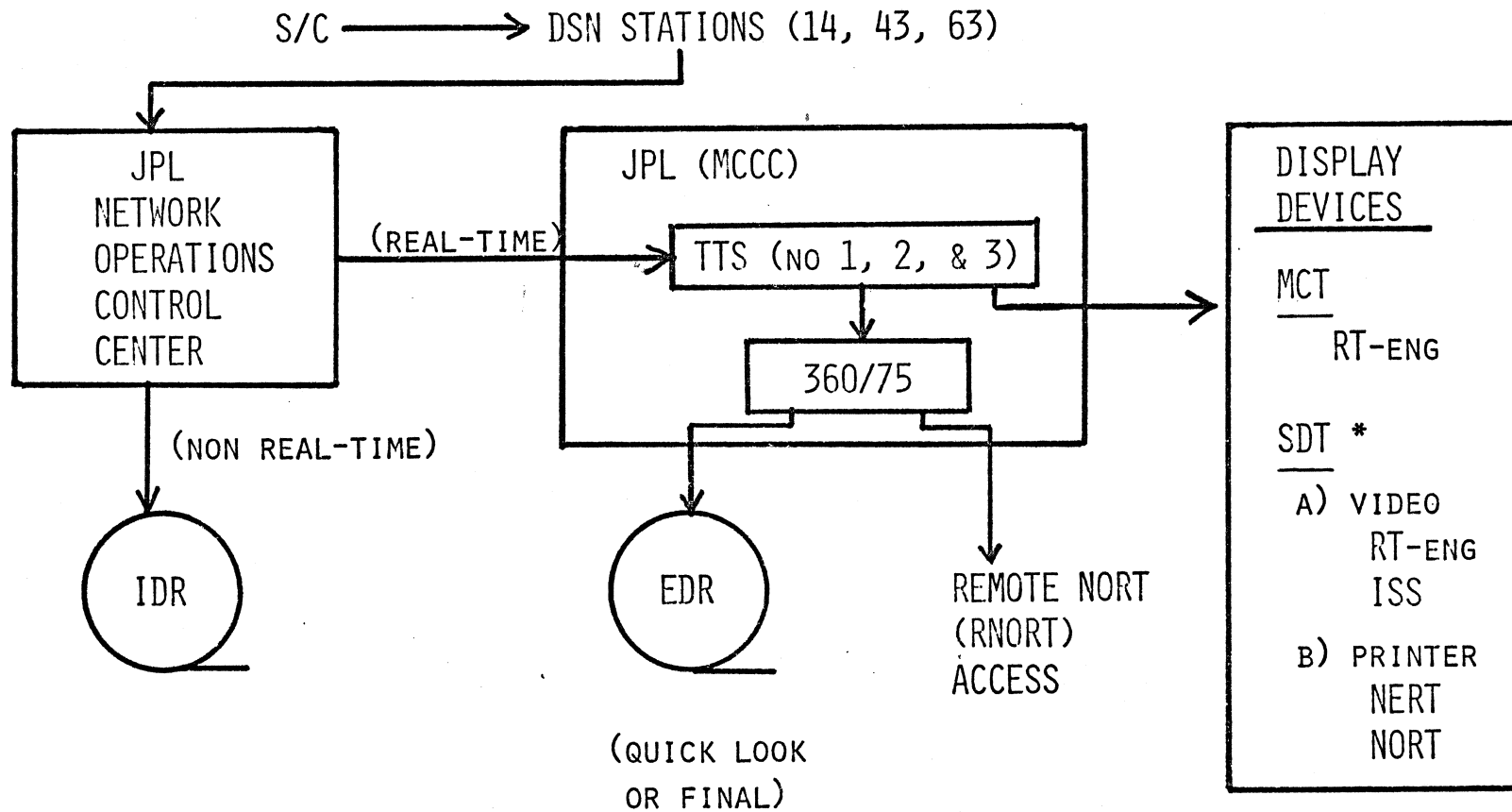
↑ } INDICATES VIEW PERIODS

⊗ INDICATES WHEN DATA RATES EXCEED LINE RATE

JRT - 4
 8/14/78



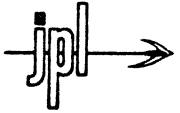
DATA FLOW - SPACECRAFT TO USER



* ALSO AVAILABLE IN SDT AREA FOR HARDCOPY TRANSMISSION:

- A) RAPIDFAX 100
- B) XEROX 400-1

JRT - 5
8/14/78



REMOTE NORT

ENCOUNTER SPACECRAFT



DAY OF YEAR

4 34 56 68 106 156 184 195 213

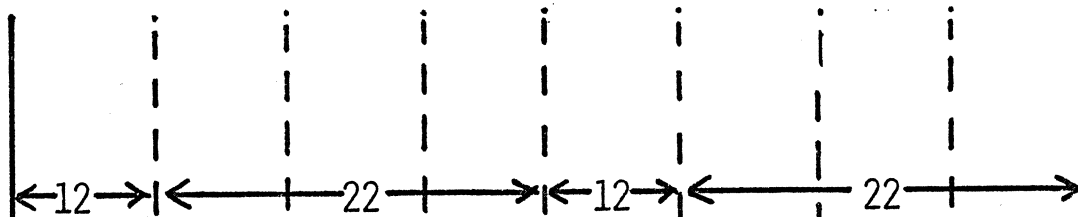
CALENDAR DAY (1979)

1/4 2/3 ~~2/27~~ 3/9 4/16 6/5 7/3 7/14 8/1

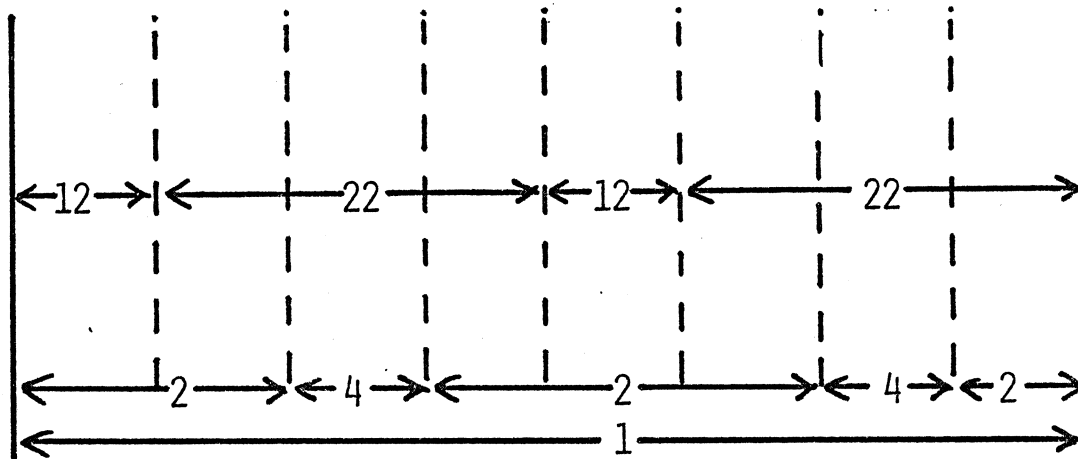
ENCOUNTER DAY

-60 -30 -6 +4 +42 -34 -6 +5 +23

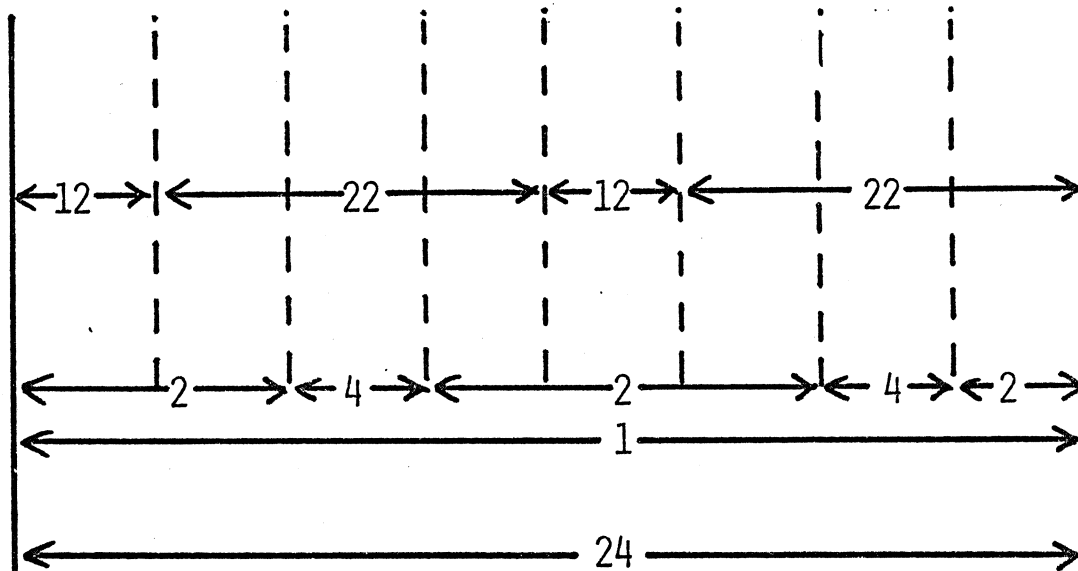
7.2KB HOURS PER DAY
USAGE
MAG & LECP



DIALUP HOURS PER DAY
USAGE
PPS
UVS



360/75 AVAILABLE FOR
ACCESS HOURS PER DAY

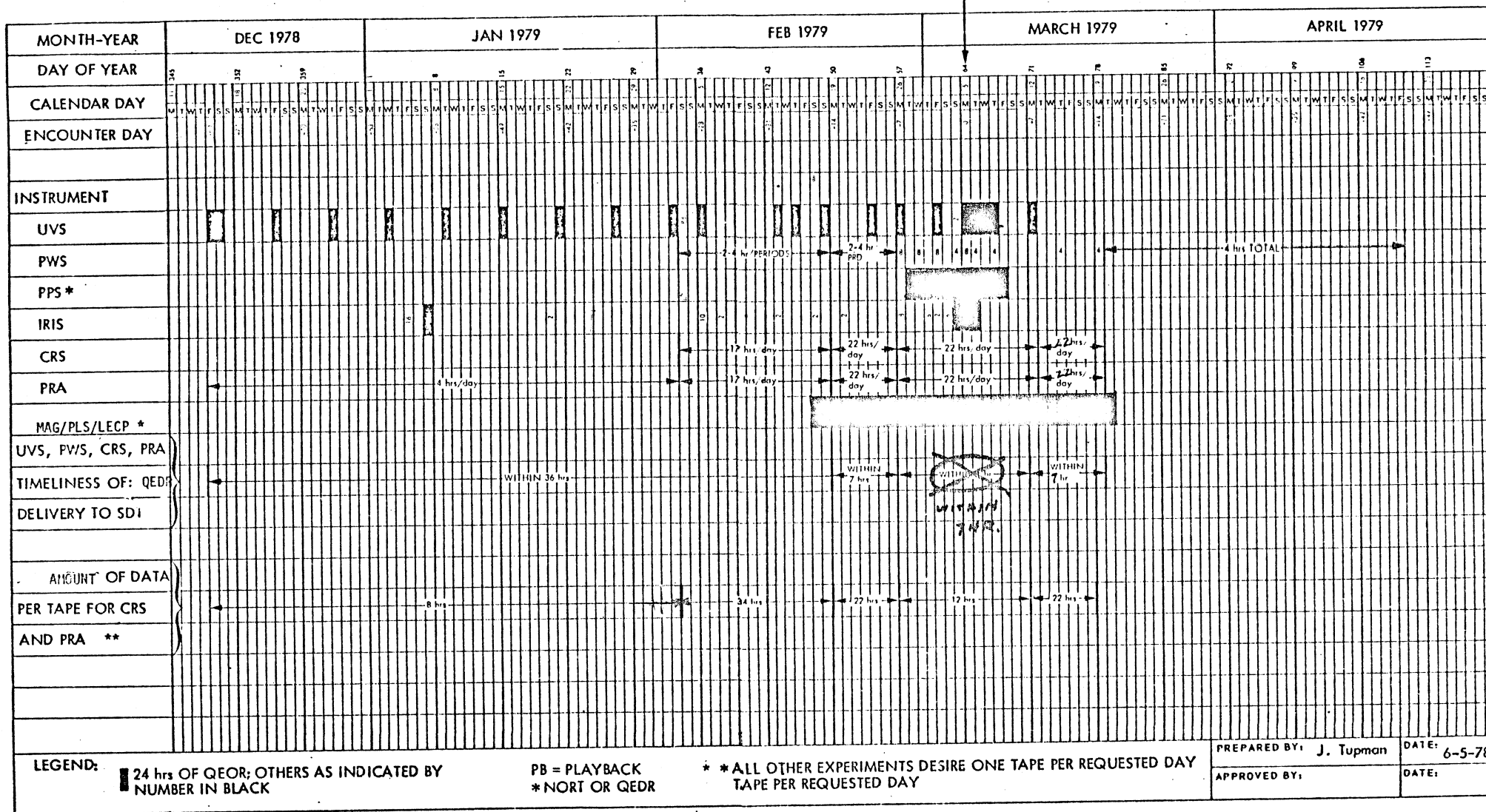


*all data available
all the time*

JRT - 6
8/14/78

VOYAGER S/C 1

ENCOUNTER

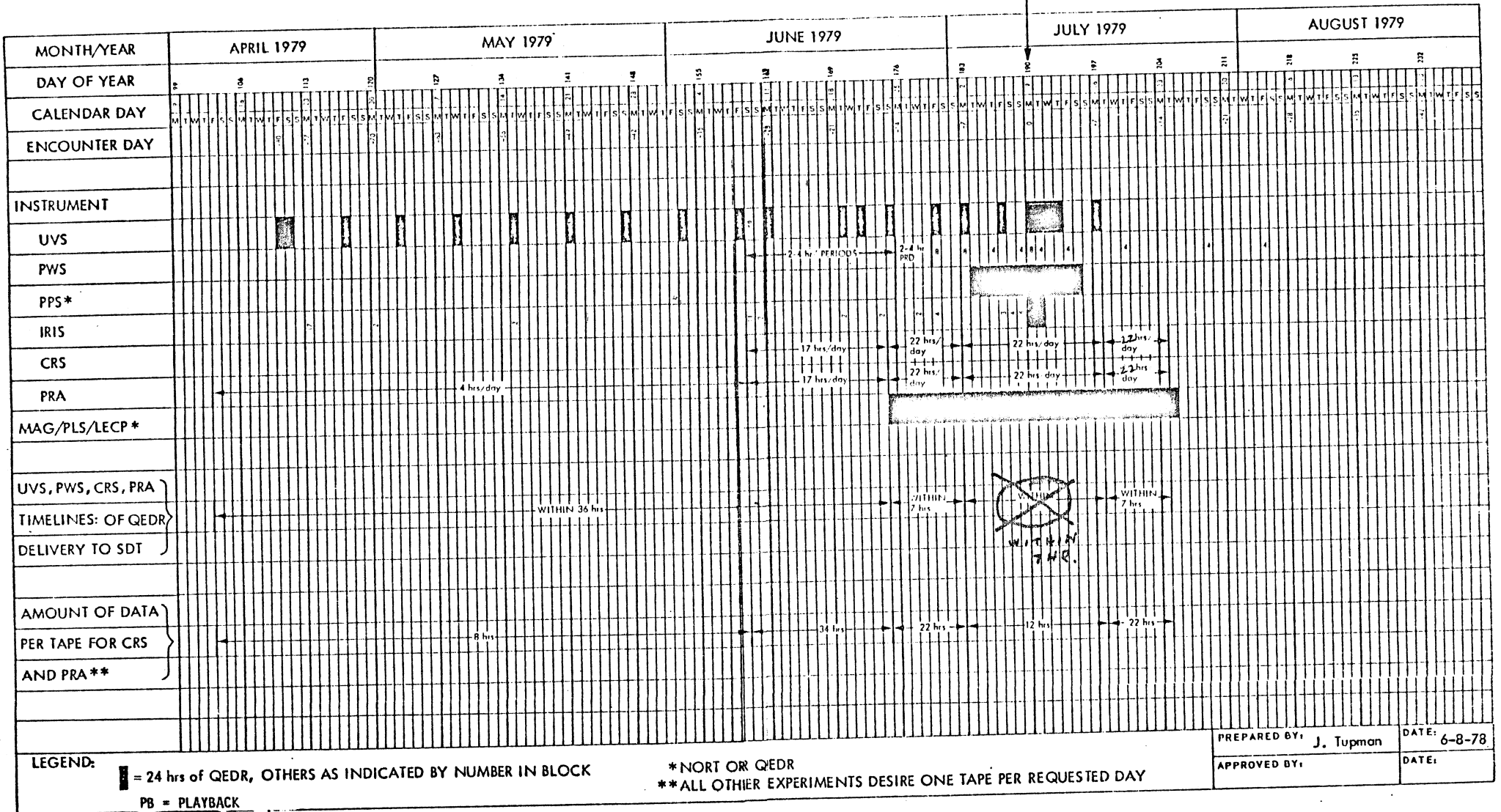


JRT - 7

8/14/78

VOYAGER 5/C 2

ENCOUNTER



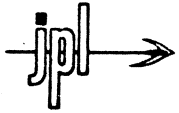
JRT - 9
8/14/78

S/C 32 DATA REQUIREMENTS

ENCOUNTER (22.30 GMT)

MONTH/YEAR	JUNE 1979														JULY 1979																																																																
DAY OF YEAR								155								162								169								176								183								190								197								204								211							
CALENDAR DAY								4								11								18								25								1								8								15								22								29							
ENCOUNTER DAY								-35								-28								-21								-14								-7								0								7								14								21							
INSTRUMENT																																																																															
UVS	[Shaded bars indicating UVS activity]																																																																														
PWS	[Timeline for PWS: 2-4 hr PERIODS, 2-4 hr PRD, 8, 6, 4, 4, 4, 4, 4]																																																																														
PPS*	[Timeline for PPS*]																																																																														
IRIS	[Timeline for IRIS: 11, 2, 2, 2, 2, 4, 2, 4]																																																																														
CRS	[Timeline for CRS: 17 hrs day, 22 hrs/day, 22 hrs day, 22 hrs day, 22 hrs day]																																																																														
PRA	[Timeline for PRA: 17 hrs day, 22 hrs day, 22 hrs day, 22 hrs day, 22 hrs day]																																																																														
MAG/PLS/LECP*	[Timeline for MAG/PLS/LECP*]																																																																														
UVS, PWS, CRS, PRA	[Timeline for UVS, PWS, CRS, PRA]																																																																														
TIMELINES: OF QEDR	[Timeline for TIMELINES: OF QEDR]																																																																														
DELIVERY TO SDT	[Timeline for DELIVERY TO SDT]																																																																														
AMOUNT OF DATA	[Timeline for AMOUNT OF DATA]																																																																														
PER TAPE FOR CRS	[Timeline for PER TAPE FOR CRS]																																																																														
AND PRA**	[Timeline for AND PRA**]																																																																														

~~WITHIN 1 hr~~
WITHIN 7 HR.



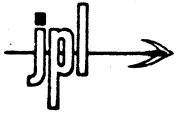
PLAYBACK DATA REQUIREMENT

<u>S/C</u>	<u>DATE DATA RECEIVED FROM SPACECRAFT</u>
1	2/3/79 - 3/2/79 - 3/3/79 - 3/5/79 - 3/8/79 3/10/79 - 3/13/79
2	6/4/79 - 7/6/79 - 7/8/79 - 7/10/79 - 7/11/79 7/13/79 - 7/15/79

THE PLAN TO PROVIDE THIS DATA HAS NOT BEEN FORMULATED.

(REQUESTER - PLS)

JRT - 11
8/14/78



DATA PROFILE FROM S/C 1

DAY 31 - 34: ALL DATA 115.2KB

* DAY 35 - 51: 1/2 HOUR OF 115.2KB FOLLOWED BY 1-1/2 HOUR OF 7.2KB

* DAY 52 - 53: 1 HOUR OF 7.2KB FOLLOWED BY 3 HOURS OF 115.2KB

DAY 54 - 62: 22 HOURS OF 115.2KB, 1-1/4 HOURS OF 67.2KB, AND
3/4 HOURS OF 89.6KB

STATION 43 IS \approx 1/2 HOUR OF 89.6KB WITH THE REST
OF THE TIME AT 115.2KB

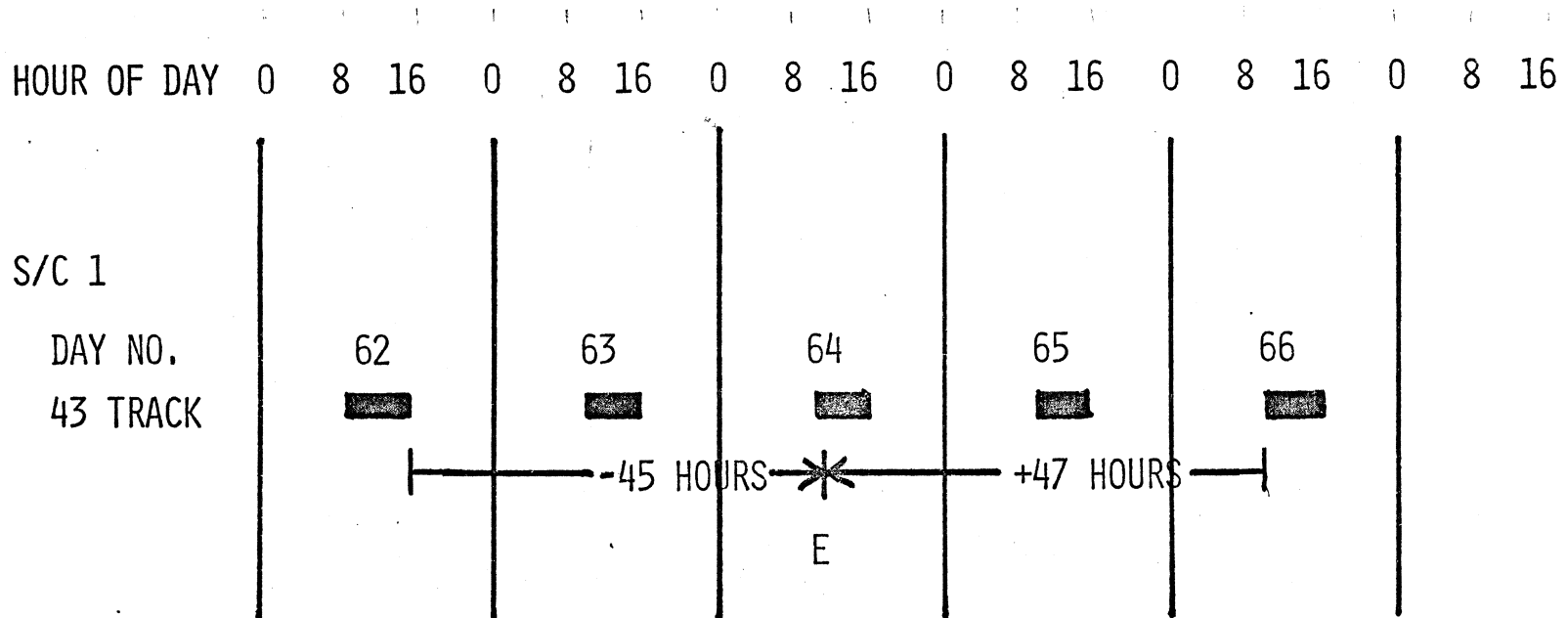
DAY 63 - 65: 115.2KB

* WORST CASE

JRT - 12
8/14/78

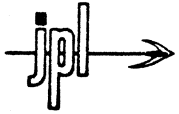


STATION 43 COVERAGE
AROUND CLOSEST APPROACH



JRT- 13

8/14/78



A S S U M P T I O N S

- * NOMINAL TRACK OF DSS 43 WILL NOT EXCEED 4 HOURS WHEN LARGE MAJORITY OF DATA FROM SPACECRAFT IS ABOVE 7.2KB.

- * HEALTHY SPACECRAFT WITH LITTLE OR NO PROBLEMS REQUIRING LARGE USAGE OF 360/75 CAPACITY.

- * CLEAN GCF DATA LINES.

- * NO HARDWARE PROBLEM THAT WOULD ELIMINATE PROCESSING DATA FROM TWO DSS.

- * NO HARDWARE PROBLEM THAT WOULD LIMIT DSS CAPABILITY OF SUPPORTING BOTH S AND X BAND TELEMETRY.

- * 4 HOUR QEDRS FOR PRA ARE DURING DSS 14 PASS.

JRT - 14

8/14/78



T T S - N E R T / N O R T P R O C E S S I N G

* ENCOUNTER SPACECRAFT

PLANNED: 16 HR/DAY - WEEK DAYS

8 HR/DAY - WEEK ENDS

(24 HRS/DAY WILL BE PROVIDED FOR SHORT TERM
HIGH ACTIVITY PERIODS. THIS IS AN OPEN ITEM
AND A SCHEDULE NEEDS TO BE DEVELOPED.)

* CRUISE SPACECRAFT

NO CHANGE FROM CURRENT OPERATION.

JRT - 15

8/14/78



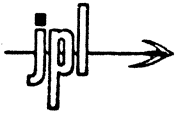
S / C I DATA AVAILABILITY

DAY 31 - 34

- 1) MCT REAL TIME ENGINEERING
DSS 14 AND 63: X BAND
DSS 43 : S BAND
- 2) SDT VOLATILE DISPLAY - SAME AS MCT
- 3) ALL DATA RECEIVED AT JPL IN ERT ORDER FOR EACH STATION.
- 4) NERT PROCESSING ONLY ON DATA FROM THE DSS WHILE TRACKING SPACECRAFT.
(NO NERT PROCESSING ON DELAYED DSS 43 DATA.)

JRT - 16

8/14/78



S / C 1 DATA AVAILABILITY
DAY 31 - 34 (CONT'D)

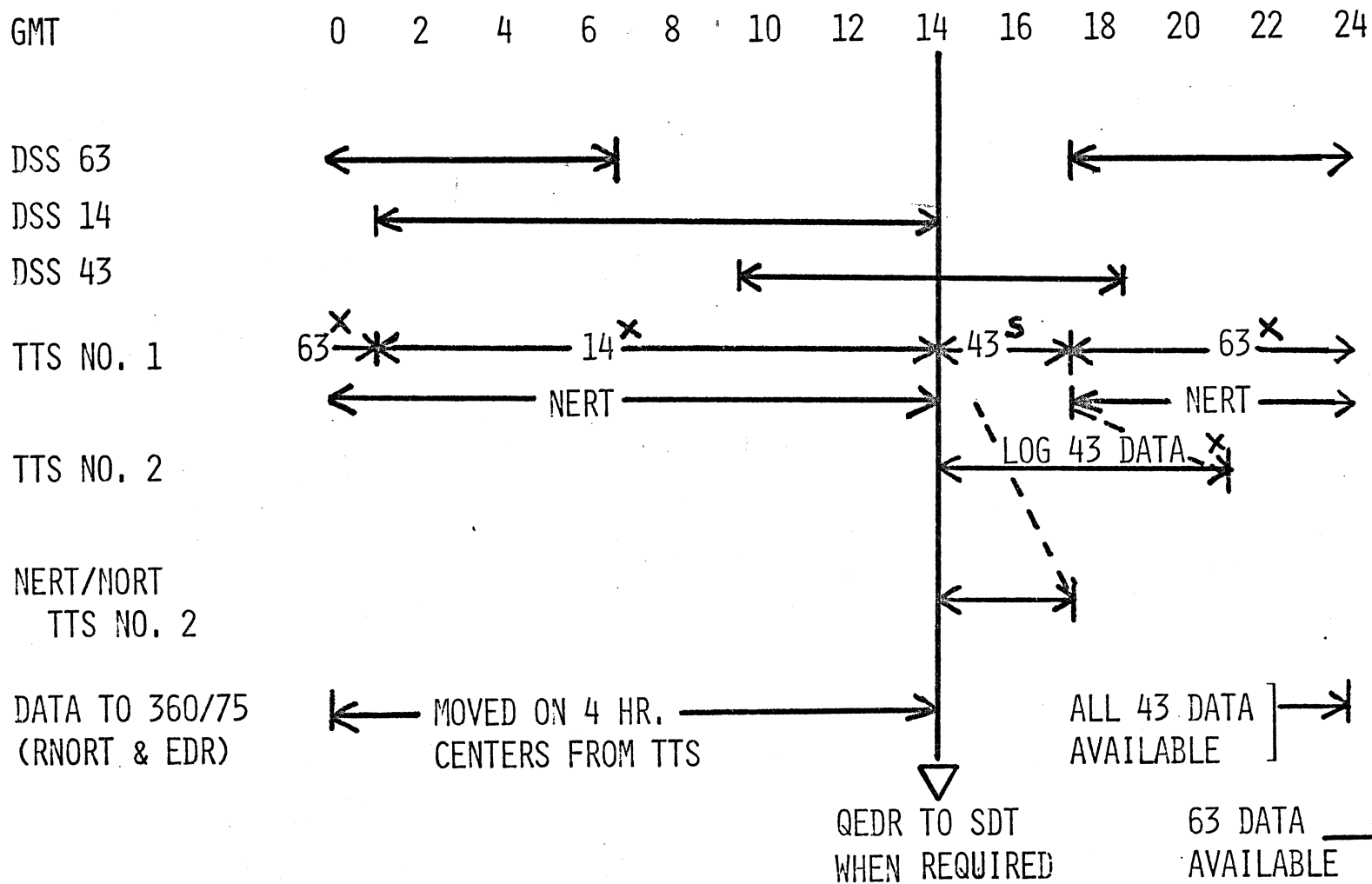
- 5) ALL DATA RECEIVED AT JPL PLACED ON 360/75 FOR RNORT AND EDR GENERATION. (INCLUDES DELAYED DSS 43 DATA.)
- 6) MTIS WILL PROCESS ISS DATA IN PARALLEL WITH TTS.
- 7) NOMINAL DELAY FOR RNORT DATA IS:
 - DSS 14 - 4 HOURS
 - DSS 43 - REPLAY AND DSS 63 OVERLAP TIME - 7 HOURS
 - DSS 63 - NON-OVERLAP WITH DSS 43 DATA RETURN TO JPL - 4 HOURS
- 8) QEDRs TO SDT PER REQUIREMENT.

JRT - 17

8/14/78



S / C 1 TYPICAL DAY (31 - 34)



JRT-18
8/14/78



S / C 1 DATA AVAILABILITY
DAY 35 - 51

*because of
7.2
2 1536
7200
482 1536
7200
30075*

- 1) MCT REAL TIME ENGINEERING
DSS 14 AND 63: X BAND
DSS 43 : X BAND WHEN DATA RATE IS 7.2KB
S BAND WHEN DATA RATE IS 115.2KB

- 2) SDT A) VOLATILE DISPLAY - SAME AS MCT
B) NERT CAN BE PROVIDED ON ALL DATA EXCEPT 115.2KB
FROM DSS 43.

- 3) CREATE SEPARATE FILES WHEN DATA RATE CHANGES OVER DSS 43 PASS.

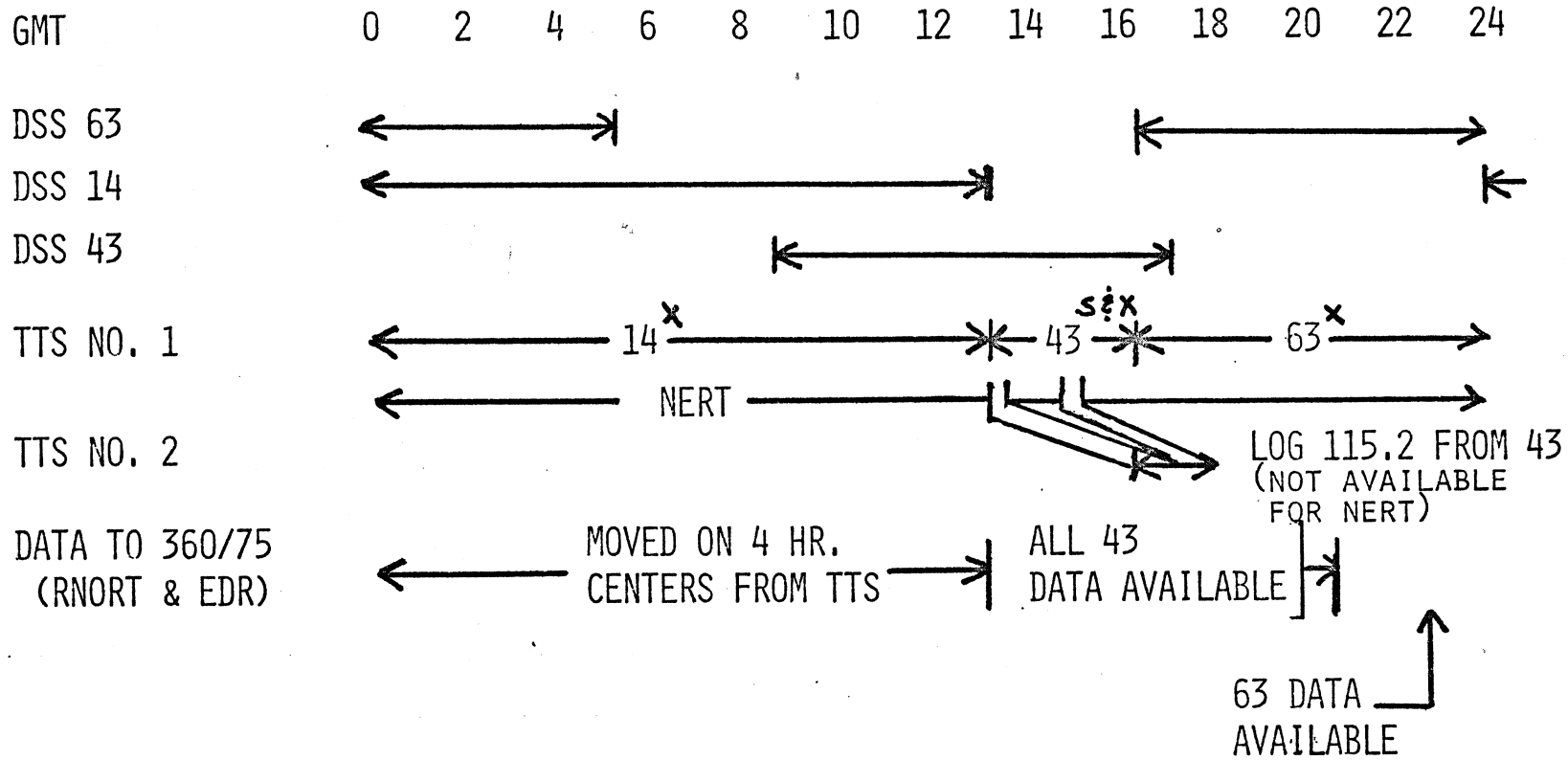
- 4) DSS 43 TRANSMITS, TTS LOGS 115.2KB DATA AFTER 43 TRACK ENDS.

- 5) NO DSS 43 DATA AVAILABLE FOR EDR OR RNORT UNTIL 4 HOURS AFTER TRACK.

JRT - 19
8/14/78



S / C 1 TYPICAL DAY (35 - 51)



▽
QEDR TO SDR
WHEN REQUIRED

JRT - 20
8/14/78



S / C 1 DATA AVAILABILITY

DAY 52 - 62

IDENTIAL TO DAY 31 - 34 EXCEPT:

- 1) OPNAV DATA IS PROCESSED OUT OF SEQUENCE BY MTIS.
- 2) DATA PROVIDED WITHIN 7 HOURS FOR RNORT AND EDR.
- 3) QEDRs (OR FINAL EDR) AVAILABLE AT 09:00 AND 21:00 HOURS (GMT).
FOR DAY 57 - 62 (TAPES WILL COVER ≈ 12 HOURS EACH:
02:00 → 14:00 AND 14:00 → 02:00).

JRT - 21

8/14/78



S / C 1 DATA AVAILABILITY

DAY 63 - 65

- 1) MCT REAL TIME ENGINEERING
DSS 14 AND 63: X BAND
DSS 43 : S BAND

- 2) SDT VOLATILE DISPLAYS SAME AS MCT
NERT: DSS 14 AND 63
NERT/NORT: DSS 43
(TTS NO. 2) ≈ 1/3 OF DATA USING LATEST AVAILABLE
IN A STATION REPLAY MODE. (20 MINUTES
OUT OF EVERY HOUR.)

- 3) DATA FROM DSS 43 TRANSMITTED TO JPL AND LOGGED BY TTS NO. 2 WHEN
DSS 63 PASS BEGINS. THIS DATA DOES NOT GO TO RNORT OR QEDR.

JRT - 22

8/14/78



S U M M A R Y

- * RNORT AND QEDR DATA REQUIRED WITHIN ONE HOUR FOR DAY 57 THROUGH DAY 70 WILL TYPICALLY BE AVAILABLE WITHIN 7 HOURS.

- * NORMAL FINAL EDRs ARE PLANNED TO BE DELIVERED WITHIN 30 DAYS.
OUT OF SEQUENCE DATA FROM DSS 43 FOR DAYS 63 - 65 IS PLANNED TO BE AVAILABLE ONLY IN FINAL EDR FORM.

- * IF OUT OF SEQUENCE DATA FROM DSS 43 IS REQUIRED EARLIER:
 - 1) CHANGE EDR PRODUCTION PRIORITY
 - 2) CHANGE STRATEGY OF DATA RETURN FROM DSS 43

- * GS-3 DATA WILL NOT BE EXTRACTED FROM THE IMAGING DATA PLAYED BACK FROM THE SPACECRAFT TAPE RECORDER DURING THE OBSERVATORY PHASE.

- * THE PLAN TO HANDLE PLAYBACK DATA AND AMOUNT OF TTS NERT PROCESSING NEEDS TO BE DEVELOPED.

JRT - 23

8/14/78