INCOMING
NRL SPECIAL PROJECTS CONTROL NUMBER

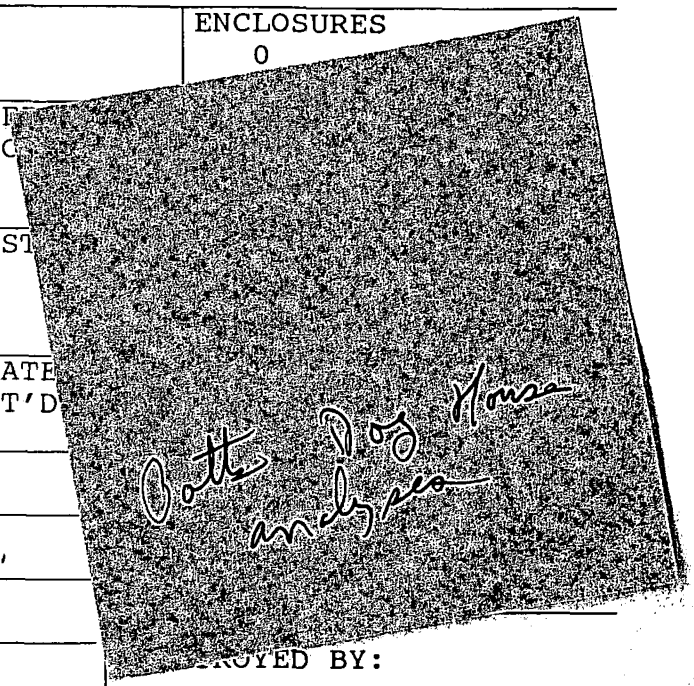
B1165-92

~~TS~~/BB

DATE
681018

ORIGINATOR	SERIAL NO. MESSAGESOCT68	ENCLOSURES 0
RECEIVED 681021	COPY NUMBERS 1	RECD H/C
SUBJECT DOG HOUSE TIMER		DIST

ROUTE TO	COPY NO.	W/ ENCL	SIGNATURE	DATE OUT	DATE RET'D
1298	1	0			
			Ronald L Botte	11/5/97	"



DESTROYED BY:

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DATE -

FINISH FILE

NRL INCOMING DOCUMENT
B1165-92
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MESSAGESOCT68

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BT
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TOR 0928
21
ID-3[illegible]-68

5-614 [illegible]

5610

DE YFNHRA 7 2921337
R 181350Z
FM [redacted]
TO DIRNSA
INFO COMNAVSECGRU
COMNAVINTCOM
YSNKLDC/NRL
ZEM
~~T O P S E C R E T~~ BBBBB EARPOP BYEMAN CHANNELS
DOG HOUSE TIMER
1. BEAM EMISSION TIME ANALYSIS INDICATES THAT DOG HOUSE IS CONTROLLED BY A REAL-TIME CLOCK OF EXCELLENT STABILITY. OBSERVATION OF THE TIMING METHOD STEMMED FROM AN EFFORT TO DETERMINE THE NUMBER OF RADIATING ELEMENTS AND TO IDENTIFY EACH ELEMENT BY MEANS OF ITS EMISSION TIME FROM REFERENCE. THE FOLLOWING TABLE WAS COMPILED FROM ALL RECENT DOG HOUSE RECORDINGS. COLUMNS READ AS FOLLOWS:
(A) ORBIT NUMBER AND SATELLITE.
(B) DATE OF RECORDING.
(C) GMT OF LAST HIT RECEIVED FROM THE FIRST BEAM AT AZIMUTH 329 DEGREES FROM DOG HOUSE.
→ (D) EMISSION TIME - TIME IN MICROSECONDS AFTER AN EVEN TENTH OF A SECOND AT WHICH THE FIRST BEAM AT 329 AZIMUTH IS EMITTING. WAVE TRAVEL TIME TO THE SATELLITE AND TO [redacted] IS SUBTRACTED. NO ALLOWANCE WAS MADE FOR TURN-AROUND TIME IN THE SATELLITE OR FOR TIME DELAY THROUGH THE RECEIVING SYSTEM. AGAIN, TIME IS FOR THE LAST HIT IN A STABLE STREAM. GREATER PRECISION WOULD BE ACHIEVED BY COMPARING ALL THE HITS IN A GIVEN STREAM.
(E) DATE AMD TIME OF PREVIOUS CHECK AND RESET OF THE TIME CODE GENERATOR.
(F) DRIFT RATE IN MILLISECONDS PER DAY OF THE TIME CODE GENERATOR AT TIME OF LATEST SETTING.

(A)	(B)	(C)	(D)	(E)	(F)
5594D	6 JUL	NO HITS AT AZIMUTH 329			
5594C		0548:19	60559	5 JUL 1350Z	-0.09
5788C	20 JUL	0417:41	61161	19 JUL 0850Z	-0.32
5788D		NO HITS AT AZIMUTH 329			
6920C	9 OCT	1154:25	61074	7 OCT 0830Z	-0.57
6920D		1154:50	61086		
6921C	9 OCT	1340:47	60965		
6921D		1341:08	60972		
6933C	10 OCT	1017:31	60021		
6933D		1017:57	60023		
6948C	11 OCT	1211:39	60869	11 OCT 0900Z	-0.50
6948D		1212:04	60854		

2. THE TIME PULSE IS PROVIDED BY AN ASTRODATA MODEL 6140-500 TIME CODE GENERATOR WHICH IS OPERATED FROM AN EXTERNAL FREQUENCY STANDARD. THE EXTERNAL STANDARD IS AN AN/URQ-10 PRECISION OSCILLATOR WHICH IS CAPABLE OF A STABILITY OF ONE PART IN TEN TO THE MINUS TENTH.
3. THE TIME CODE GENERATOR IS SET BY SYNCHRONIZING WITH THE BROADCAST FROM MSF ENGLAND ON THE 10 MC/S FREQUENCY. IN SETTING THE TIME CODE GENERATOR NO ALLOWANCE IS MADE FOR THE PROPAGATION PATH FROM MSF TO [redacted] THEREFORE A FAIRLY CONSTANT DEVIATION FROM REAL TIME IS PRESENT IN COLUMN (D).
450

NNNNV

[redacted] 811 ✓
817 Issue.

[redacted]

TOR 0918
10-18-68

Handle via BYEMAN
Control System

DE YFNHRA 4 2911009
R 171017Z
FM [redacted]
TO DIRNSA
INFO COMNAVSECGRU
COMNAVINTCOM
YSNKLDC/NRL
ZEM
~~T O P S E C R E T~~ BBBBB EARPOP BYEMAN CHANNELS
DOG HOUSE CHARACTERISTICS
A. MY 152110Z
1. THIS REPORT IS BASED ON ANALYSIS OF THE DIGITAL RECORDING OF [redacted] MADE ON 9 OCTOBER DURING ORBIT 6920 OF 7105 CHARLIE AND DELTA. EQUATOR CROSSING WAS ABOUT 63 DEGREES WEST WITH CHARLIE LEADING BY 100 NAUTICAL MILES.
2. COLUMN HEADINGS ARE AS FOLLOWS:
(A) SPECIFIC SATELLITE (C OR D) WITH A REFERENCE DIGIT.
(B) GMT WHEN SATELLITE WAS FIRST ILLUMINATED BY THE SPECIFIC BEAM.
(C) DURATION OF ILLUMINATION IN SECONDS.
(D) SATELLITE AZIMUTH RANGE FROM DOG HOUSE.
(E) SATELLITE ELEVATION RANGE FROM DOG HOUSE.
(F) TRUE TIME IN MICROSECONDS AT WHICH DOG HOUSE IS EMITTING THE SPECIFIC BEAM. ALL TIMES WITHIN ONE CYCLE WITH REFERENCE TIMES OF ZERO FOR THE BEAM AT 328 DEGREES AZIMUTH (C3 AND D2).

(A)	(B)	(C)	(D)	(E)	(F)
C1	1152:56	19.3	320.0 - 321.8	7.4 - 8.5	49500 ABOUT
C2	1153:54	7.5	325.9 - 326.7	10.8 - 11.3	11364 X
C3	1154:14	10.8	328.2 - 329.5	12.0 - 12.7	REFERENCE —
C4	1154:26	9.1	329.7 - 330.8	12.8 - 13.3	15816 XX
C5	1156:48	9.5	353.3 - 355.3	21.1 - 21.6	21628
C6	1156:52	6.0	354.3 - 355.3	21.3 - 21.6	40611
D1	1154:20	5.4	325.9 - 326.5	10.8 - 11.2	11360 X
D2	1154:40	9.7	328.2 - 329.4	12.1 - 12.7	REFERENCE —
D3	1154:52	8.5	329.7 - 330.8	12.8 - 13.3	15806 XX
D4	1157:13	11.1	353.0 - 355.4	21.1 - 21.6	21612
D5	1157:14	10.7	353.2 - 355.5	21.1 - 21.6	40553

3. THE DESCRIPTIVE TERMS DEFINED IN REF A ARE USED TO EXPLAIN THE PARTS ABOVE.
C1 - SLANT RANGE FROM DOG HOUSE TO CHARLIE AT UP-TIME WAS 1567 NM. INTERCEPT WAS IRREGULAR WITH BROKEN CW FOR ENTIRE 19.3 SEC. ILLUMINATIONS HIT WITHIN A RANGE OF 3.2 MILLISECONDS ON EITHER SIDE OF THE INDICATED TIME FROM REFERENCE.
C2 - STEADY.
C3 - IRREGULAR WITH BROKEN CW FOR 4.0 SEC, THEN STEADY WITH BROKEN CW FOR 6.8 SEC.
C4 - IRREGULAR WITH BROKEN CW FOR 4.0 SEC, THEN STEADY WITH BROKEN CW FOR 5.1 SEC. NO OVERLAP WITH C3.
C5 - IRREGULAR WITH BROKEN CW FOR 4.8 SEC. STEADY WITH BROKEN CW FOR 4.7 SEC. DUAL BEAM FOR LAST 6.0 SEC.
C6 - SECOND BEAM IS STEADY THROUGHOUT WITH BROKEN CW. USUAL DISPLACEMENT OF 18983 MICROSECONDS AFTER HITS IN C5.
D1 - STEADY. PHASED WITH C2. UP-TIME SLANT RANGE OF 1385 NM.
D2 - IRREGULAR WITH BROKEN CW FOR 3.6 SEC. STEADY WITH BROKEN CW FOR 6.1 SEC. PHASED WITH C3.
D3 - IRREGULAR WITH BROKEN CW FOR 3.6 SEC. STEADY WITH BROKEN CW FOR 4.9 SEC. NO OVERLAP WITH D2.
D4 - IRREGULAR WITH BROKEN CW FOR 2.0 SEC. STEADY AND IRREGULAR WITH BROKEN CW FOR 4.0 SEC, THEN STEADY WITH BROKEN CW FOR 5.1 SEC. DUAL BEAM FOR LAST 10.3 SEC. PHASED WITH C5.
D5 - STEADY THROUGHOUT WITH BROKEN CW. PHASED WITH C6. HITS FROM D5 FOLLOW THOSE IN D4 BY 18941 MICROSECONDS. DOWN-TIME SLANT RANGE OF 1038 NM.
4. BY TAKING MIDPOINT OF AZIMUTH RANGE FOR BORESIGHT OF A BEAM AND COMPARING CHANGE IN BORESIGHT WITH DIFFERENCE FROM REFERENCE IN MICROSECONDS A ROUGH INDICATION OF SECTOR WIDTH IS DERIVED. ONLY STEADY INTERCEPT WAS CONSIDERED IN MAKING COMPARISONS.

PAIR COMPARED	BORESIGHT DIFFERENCE	TIME DIFFERENCE	SECTOR WIDTH	SECTOR
C3, C2	2.78	11364	24.46	NW
D2, D1	2.81	11360	24.74	NW
C5, C4	24.44	94188	25.91	NNW
D4, D3	23.99	94194	25.46	NNW

720

NNNNTWX135
/152110Z
BT
XXXXX
[redacted] 797

TOR 0910
10-16-68
5614
5610 JF

DE YFNHRA 15 2892107
R 152110Z
FM [redacted]
TO DIRNSA
INFO COMNAVSECGRU
COMNAVINTCOM
YSNKLDC/NRL
ZEM
~~T O P S E C R E T~~ BBBBB EARPOP BYEMAN CHANNELS SECTION ONE OF TWO
DOG HOUSE CHARACTERISTICS
1. THIS REPORT IS BASED ON ANALYSIS OF THE DIGITAL RECORDING OF [redacted] MADE ON 9 OCTOBER DURING ORBIT 6921 OF 7105 CHARLIE AND DELTA. THE SATELLITES CROSSED THE EQUATOR AT ABOUT 89 DEGREES WEST WITH CHARLIE LEADING BY 100 NAUTICAL MILES.
2. THE FOLLOWING DEFINED TERMS WILL BE USED TO DESCRIBE RECURRING PATTERNS ON THE RECORDING.
(A) IRREGULAR - HITS DEVIATE FROM A TIGHT 100 MILLISECOND RECURRENCE INTERVAL FROM A FEW DOZEN TO A FEW HUNDRED MICROSECONDS. IT IS THOUGHT LIKELY THAT IRREGULAR INTERCEPT IS RECEIVED WHEN THE SATELLITE IS IN THE UNSTABLE PORTION OF THE MAIN LOBE OF THE RADIATING ANTENNA ELEMENT.
(B) STEADY - HITS ARRIVE IN EXACT 10 CPS PHASE. A SLIGHT DOPPLER SHIFT IN THE INTERVAL BETWEEN HITS PRECISELY MATCHES THE COMPUTED SHIFT IN WAVE TRAVEL TIME FROM THE DOG HOUSE TO THE SATELLITE TO [redacted] DURING THE VARIOUS STEADY SECTIONS OF INTERCEPT. UNLESS NOTED BELOW, FEW CYCLES ARE MISSED DURING THE SPECIFIED SPAN OF STEADY INTERCEPT.
(C) BROKEN CW - USED TO DESCRIBE A PATTERN IN WHICH A HIT FROM DOG HOUSE WILL BE FOLLOWED BY A SHORT INTERVAL OF RANDOM ILLUMINATIONS. BELIEVED TO BE THE EFFECT OF THE SATELLITE ONE-SHOT DEVICE RETRIGGERING ON RISES OF THE CONTINUOUS WAVE AS LONG AS THE AMPLITUDE STAYS ABOVE THRESHOLD. RETRIGGERING IS RANDOM, BUT IS CONFINED TO A TYPICAL DURATION OF ONLY 1.3 MILLISECONDS. BROKEN CW IS EXHIBITED BOTH DURING IRREGULAR AND STEADY INTERCEPT AS NOTED BELOW.
(D) DUAL BEAM - WITHIN A TENTH OF A SECOND THE SATELLITE IS ILLUMINATED TWICE AT A DISPLACEMENT MANY TIMES GREATER THAN OBSERVED SPANS OF BROKEN CW. EACH OF THE BEAMS IS USUALLY ACCOMPANIED BY BROKEN CW.
(E) PHASED - HITS ON DELTA OCCURRING AT AN INTEGRAL MULTIPLE OF 100 MILLISECOND INTERVALS AFTER EARLIER HITS ON CHARLIE AT THE SAME AZIMUTH AND ELEVATION.
3. THE FOLLOWING TABLE LISTS AZIMUTH AND ELEVATION OF THE SPECIFIED SATELLITE FROM DOG HOUSE. TIME IS WHEN A PARTICULAR ELEMENT OF THE ANTENNA BEGAN TO ILLUMINATE THE SATELLITE, WHETHER IRREGULAR OR STEADY.

PART	GMT	BEAM DURATION	AZIMUTH RANGE	ELEVATION RANGE
C1	1337:49	50.7 SEC	322.1 - 323.8	1.6 - 4.7
D1	1340:05	6.4	326.3 - 326.5	8.8 - 9.3
C2	1340:19	27.7	328.2 - 329.9	11.8 - 14.2
C3	1340:32	30.6	329.0 - 330.9	12.9 - 15.6
D2	1340:46	22.0	328.3 - 329.6	11.9 - 13.8
D3	1341:13	14.8	329.9 - 330.9	14.3 - 15.6
C4	1342:59	2.4	342.9 - 343.3	28.9 - 29.2
C5	1343:56	7.8	351.8 - 353.6	35.9 - 37.1
C6	1344:02	4.1	355.6 - 356.7	38.3 - 39.0
C7	1344:12	3.7	358.5 - 359.6	40.0 - 40.5
C8	1344:16	11.6	359.7 - 3.4	40.6 - 42.4
D4	1344:17	3.1	352.9 - 353.7	36.8 - 37.3
C9	1344:20	7.5	1.0 - 3.5	41.3 - 42.4
D5	1344:31	1.0	356.6 - 356.8	39.1 - 39.2
D6	1344:37	6.3	358.3 - 0.2	40.0 - 41.0
D7	1344:42	11.8	359.8 - 3.7	40.8 - 43.1
D8	1344:45	9.0	0.7 - 3.7	41.3 - 42.7

640

TWX 134
/152110Z
BT
XXXXX
[redacted] 796

Handle via BYEMAN
Control System

~~TOP SECRET~~

DE YFNHRA 16 2892107
R 152110Z
FM [redacted]
TO DIRNSA
INFO COMNAVSECGRU
COMNAVINTCOM
YSNKLDC/NRL
ZEM

TOR 0900
10-16-68
5614
5610

~~T O P S E C R E T~~ BBBBB EARPOP BYEMAN CHANNELS FINAL SECTION OF TWO DOG HOUSE CHARACTERISTICS

4. SLANT RANGE FROM DOG HOUSE TO THE SATELLITE IS 1832 NM AT C1, 695 NM AT C9, 1470 AT D1 AND 693 AT D8.

5. THE PARTS SPECIFIED ABOVE HAD THE FOLLOWING CHARACTERISTICS. ANY TIME COMPARISONS BELOW OR IN PARAGRAPH 6 ARE VALID SINCE WAVE TRAVEL TIME HAS BEEN SUBTRACTED FROM DATA ARRIVAL TIME.

C1 - IRREGULAR WITH BROKEN CW. NO MORE THAN 2 CONSECUTIVE HITS. ALL HITS WITHIN A RANGE OF 3.7 MILLISECONDS OF BEING IN PHASE.

D1 - STEADY.

C2 - IRREGULAR WITH BROKEN CW FOR 7.4 SEC, THEN STEADY WITH BROKEN CW FOR REMAINING 20.3 SEC. DUAL BEAM FOR LAST 14.6 (3:.

C3 - THE SECOND BEAM BEGINS IRREGULAR WITH BROKEN CW. STEADY WITH BROKEN CW AFTER 17.1 SEC AND REMAINS SO FOR REMAINING 13.4 SEC. DURING OVERLAP HITS IN C2 PRECEDE THOSE IN C3 BY 15813 MICROSECONDS.

D2 - IRREGULAR WITH BROKEN CW FOR 8.2 SEC, THEN STEADY WITH BROKEN CW FOR REMAINING 13.8 SEC. PHASED WITH C2.

D3 - IRREGULAR WITH BROKEN CW FOR 2.8 SEC, THEN STEADY WITH BROKEN CW FOR 12.0 SEC. PHASED WITH C3, NO OVERLAP WITH D2, BUT THE HITS ARE 15805 MICROSECONDS OUT OF PHASE WITH D2.

C4 - IRREGULAR FOR 2.4 SEC. ONLY 6 HITS.

C5 - STEADY FOR 7.8 SEC.

C6 - IRREGULAR FOR 4.1 SEC. (9,)6 7 HITS.

C7 - IRREGULAR FOR 1.4 SEC, THEN STEADY WITH BROKEN CW FOR REMAINING 2.6 SEC.

C8 - IRREGULAR WITH BROKEN CW FOR 6.2 SEC, THEN STEADY WITH BROKEN CW FOR 5.4 SEC. DUAL BEAM FOR LAST 7.2 SEC.

D4 - STEADY FOR 3.1 SEC. PHASED WITH C5.

C9 - IRREGULAR WITH BROKEN CW FOR 1.5 SEC, THEN STEADY WITH BROKEN CW FOR LAST 6.0 SEC. ILLUMINATIONS FROM THIS BEAM FOLLOW THOSE IN C8 BY 18952 MICROSECONDS.

D5 - STEADY. ONLY 2 HITS 1 SEC APART. PHASED WITH C6.

D6 - IRREGULAR WITH BROKEN CW FOR 2.3 SEC, THEN STEADY WITH BROKEN CW FOR REMAINING 4.0 SEC. PHASED WITH C7.

D7 - IRREGULAR WITH BROKEN CW FOR 4.6 SECJM STEADY WITH BROKEN CW FOR REMAINING 7.2 SEC. PHASED WITH C8. DUAL BEAM FOR FINAL 9.0 SEC.

D8 - IRREGULAR FOR 3.1 SEC WITH BROKEN CW. 5.9 SEC STEADY WITH BROKEN CW. PHASED WITH C9. ILLUMINATIONS FROM THIS BEAM FOLLOW THOSE IN D7 BY 18950 MICROSECONDS.

6. IN ORDER TO DEVELOP A CHARLIE/DELTA COMPOSITE OF DOG HOUSE CHARACTERISTICS AT DIFFERENT POINTS OF AZIMUTH A TABLE WAS PREPARED TO COMPARE RADIATING TIMES. THE EMISSION TIME AT DOG HOUSE IS WITH RESPECT TO AN ARBITRARILY ASSIGNED ZERO REFERENCE TIME FOR DATA COLLECTED AT AZIMUTH 328.2 TO 329.9 DEGREES (C2 AND D2). EMISSION TIMES ARE IN MICROSECONDS FROM REFERENCE TIME AND WERE DEVELOPED FROM STEADY INTERCEPT EXCEPT IN THE CASE OF SECTION 1.

SECTION	AZIMUTH	EMISSION	SOURCE
1	322.1 - 323.8	ABOUT 40260	C1
2	326.3 - 326.5	11365	D1 X
3	328.2 - 329.9	REFERENCE TIME	C2,D2
4	329.0 - 330.9	15809	C3,D3XX
5	342.9 - 343.3	49542	C4
6	351.8 - 353.7	36400	C5,D4
7	355.6 - 356.8		

 PARTS SPECIFIED ABOVE HAD THE FOLLOWING CHARACTERISTICS.

ANY TIME COMPARISONS BELOW OR IN PARAGRAPH 6 ARE VALID SINCE WAVE TRAVEL TIME HAS BEEN SUBTRACTED FROM DATA ARRIVAL TIME.

C1 - IRREGULAR WITH BROKEN CW. NO MORE THAN 2 CONSECUTIVE HITS. ALL HITS WITHIN A RANGE OF 3.7 MILLISECONDS OF BEING IN PHASE.

D1 - STEADY.

C2 - IRREGULAR WITH BROKEN CW FOR 7.4 SEC, THEN STEADY WITH BROKEN CW FOR REMAINING 20.3 SEC. DUAL BEAM FOR LAST 14.6 (3:.

C3 - THE SECOND BEAM BEGINS IRREGULAR WITH BROKEN CW. STEADY WITH BROKEN CW AFTER 17.1 SEC AND REMAINS SO FOR REMAINING 13.4 SEC. DURING OVERLAP HITS IN C2 PRECEDE THOSE IN C3 BY 15813 MICROSECONDS.

D2 - IRREGULAR WITH BROKEN CW FOR 8.2 SEC, THEN STEADY WITH BROKEN CW FOR REMAINING 13.8 SEC. PHASED WITH C2.

D3 - IRREGULAR WITH BROKEN CW FOR 2.8 SEC, THEN STEADY WITH BROKEN CW FOR 12.0 SEC. PHASED WITH C3, NO OVERLAP WITH D2, BUT THE HITS ARE 15805 MICROSECONDS OUT OF PHASE WITH D2.

C4 - IRREGULAR FOR 2.4 SEC. ONLY 6 HITS.

C5 - STEADY FOR 7.8 SEC.

C6 - IRREGULAR FOR 4.1 SEC. (9,)6 7 HITS.

C7 - IRREGULAR FOR 1.4 SEC, THEN STEADY WITH BROKEN CW FOR REMAINING 2.6 SEC.

C8 - IRREGULAR WITH BROKEN CW FOR 6.2 SEC, THEN STEADY WITH BROKEN CW FOR 5.4 SEC. DUAL BEAM FOR LAST 7.2 SEC.

D4 - STEADY FOR 3.1 SEC. PHASED WITH C5.

C9 - IRREGULAR WITH BROKEN CW FOR 1.5 SEC, THEN STEADY WITH BROKEN CW FOR LAST 6.0 SEC. ILLUMINATIONS FROM THIS BEAM FOLLOW THOSE IN C8 BY 18952 MICROSECONDS.

D5 - STEADY. ONLY 2 HITS 1 SEC APART. PHASED WITH C6.

D6 - IRREGULAR WITH BROKEN CW FOR 2.3 SEC, THEN STEADY WITH BROKEN CW FOR REMAINING 4.0 SEC. PHASED WITH C7.

D7 - IRREGULAR WITH BROKEN CW FOR 4.6 SECJM STEADY WITH BROKEN CW FOR REMAINING 7.2 SEC. PHASED WITH C8. DUAL BEAM FOR FINAL 9.0 SEC.

D8 - IRREGULAR FOR 3.1 SEC WITH BROKEN CW. 5.9 SEC STEADY WITH BROKEN CW. PHASED WITH C9. ILLUMINATIONS FROM THIS BEAM FOLLOW THOSE IN D7 BY 18950 MICROSECONDS.

6. IN ORDER TO DEVELOP A CHARLIE/DELTA COMPOSITE OF DOG HOUSE CHARACTERISTICS AT DIFFERENT POINTS OF AZIMUTH A TABLE WAS PREPARED TO COMPARE RADIATING TIMES. THE EMISSION TIME AT DOG HOUSE IS WITH RESPECT TO AN ARBITRARILY ASSIGNED ZERO REFERENCE TIME FOR DATA COLLECTED AT AZIMUTH 328.2 TO 329.9 DEGREES (C2 AND D2). EMISSION TIMES ARE IN MICROSECONDS FROM REFERENCE TIME AND WERE DEVELOPED FROM STEADY INTERCEPT EXCEPT IN THE CASE OF SECTION 1.

SECTION	AZIMUTH	EMISSION	SOURCE
1	322.1 - 323.8	ABOUT 40260	C1
2	326.3 - 326.5	11365	D1 X
3	328.2 - 329.9	REFERENCE TIME	C2,D2
4	329.0 - 330.9	15809	C3,D3XX
5	342.9 - 343.3	49542	C4
6	351.8 - 353.7	36400	C5,D4
7	355.6 - 356.8	35	C6,D5
8	358.3 - 0.2	15840	C7,D6
9	359.7 - 3.7	21627	C8,D7
10	0.7 - 3.7	48577	C9,D8

7. SOME RELATIONSHIPS FROM THE COMPOSITE TABLE.

(A) ALMOST SIMULTANEOUS EMISSIONS AT SECTIONS 3 AND 7.

(B) ALMOST SIMULTANEOUS EMISSIONS AT SECTIONS 4 AND 8.

(C) ALTHOUGH DOG HOUSE IS PRESUMED TO BE SCANNING COUNTER-CLOCKWISE, WESTERLY ELEMENTS ARE EMITTING FIRST IN THE CASE OF SECTION 7 PRECEDING SECTION 8 BY 15805 MICROSECONDS AND SECTION 8 PRECEDING SECTION 9 BY 5787 MICROSECONDS.

(D) SECTIONS 7 AND 8 HAVE THE SAME PHASE RELATIONSHIP AS SECTIONS 3 AND 4. THIS 15.8 MILLISECOND DISPLACEMENT HAS BEEN NOTED IN PREVIOUS REPORTS ON INTERCEPT AT AZIMUTH 329 DEGREES.

(E) DUAL BEAM CHARACTERISTICS NOTED IN SECTIONS 8 AND 10 ARE IDENTICAL WITH THOSE PREVIOUS

E REPORTED AT ABOUT AZIMUTH 355 DEGREES. DURING THIS PASS THE SATELLITES PASSED MUCH CLOSER TO DOG HOUSE AND SEEM TO HAVE ENCOUNTERED A DIFFERENT BEAM ORIENTATION AT THE HIGHER ELEVATION.

(F) NOTED THAT 61 PERCENT OF UP-TIME OCCURRED AT THE DUAL BEAM AZIMUTHS AND THAT THE DATA WAS MUCH MORE DENSE. AS NOTED IN PREVIOUS REPORTS IT SEEMS CURIOUS THAT MOST POPPY INTERCEPT OF DOG HOUSE TAKES PLACE AT THESE SECTORS.

800