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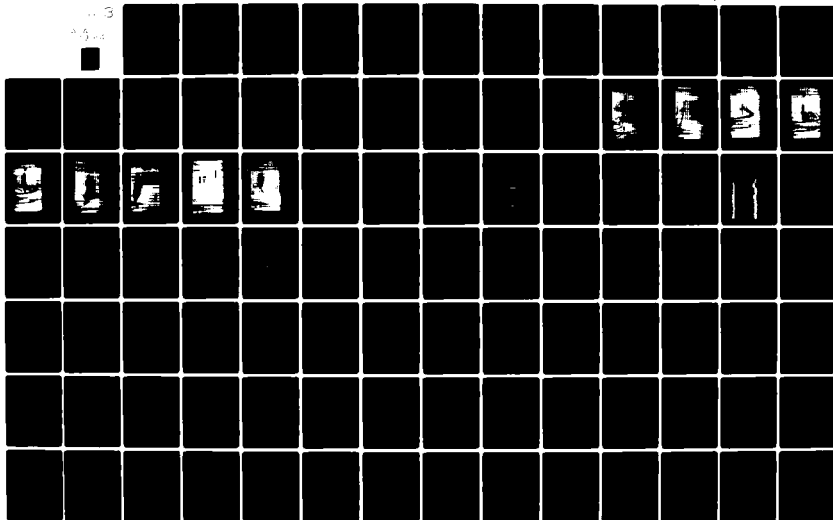
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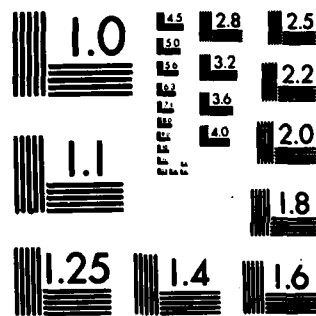
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**ISIS TOPSIDE SOUNDER DATA GATHERED
ON KWAJALEIN ATOLL DURING THE
SUMMERS OF 1977 AND 1978**

Gordon J. Fulks
Mission Research Corporation
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31 October 1980

Final Report for Period 10 January 1977-31 October 1980

CONTRACT No. DNA 001-77-C-0096

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REPORT DOCUMENTATION PAGE		READ INSTRUCTIONS BEFORE COMPLETING FORM
1. REPORT NUMBER (18) DNA 5339F	2. GOVT ACCESSION NO. AD-A091845	3. RECIPIENT'S CATALOG NUMBER (9)
4. TITLE (and Subtitle) ISIS TOPSIDE SOUNDER DATA GATHERED ON KWAJALEIN ATOLL DURING THE SUMMERS OF 1977 AND 1978.		5. DATE OF REPORT & PERIOD COVERED Final Report for Period 10 Jan 77-31 Oct 80.
7. AUTHOR(s) (10) Gordon J./Fulks		6. PERFORMING ORG. REPORT NUMBER (14) MRC-R-548
9. PERFORMING ORGANIZATION NAME AND ADDRESS Mission Research Corporation PO Drawer 719 Santa Barbara, California 93102		8. CONTRACT OR GRANT NUMBER(s) (15) DNA 001-77-C-0096
11. CONTROLLING OFFICE NAME AND ADDRESS Director Defense Nuclear Agency Washington, D.C. 20305		10. PROGRAM ELEMENT, PROJECT, TASK AREA & WORK UNIT NUMBERS Subtask (16) I25AAXYX960-01
14. MONITORING AGENCY NAME & ADDRESS (if different from Controlling Office)		12. REPORT DATE (17) X960 (11) 31 October 1980
		13. NUMBER OF PAGES (12) 287
		15. SECURITY CLASS (of this report) UNCLASSIFIED
15a. DECLASSIFICATION DOWNGRADING SCHEDULE		
16. DISTRIBUTION STATEMENT (of this Report) Approved for public release; distribution unlimited.		
17. DISTRIBUTION STATEMENT (of the abstract entered in Block 20, if different from Report)		
18. SUPPLEMENTARY NOTES This work sponsored by the Defense Nuclear Agency under RDT&E RMSS Code B322077464 I25AAXYX96001 H2590D.		
19. KEY WORDS (Continue on reverse side if necessary and identify by block number) Topside Ionosphere Equatorial Ionosphere ISIS Topside Sounders Equatorial Anomaly Ionograms Ionospheric Irregularities Signal Scintillations Conjugate Echoes Spread F Ionospheric Bubbles		
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20. ABSTRACT (continued)

Preliminary data analysis shows that the active ionospheric region producing both severe signal scintillations and severe spread-F is coincident with the equatorial anomaly region. As this region rises in the post-sunset period and then rapidly descends, "exploded traces" appear on many equatorial ionograms. These field-aligned structures which are identified as plumes and may be related to equatorial bubbles, extend along the magnetic field from one conjugate region to the other and prefer the magnetic field line from 15° N to 15° S magnetic latitude. They have a limited east-west extent. Sometimes several can be seen to the east or west of the satellite separated by a smooth ionosphere.

Magnetic field-aligned ducts of depleted ionization are also an irregularity feature seen on low latitude ionograms in the evening. Those occurring within the anomaly region are potentially remnants of bubbles which have risen high on the topside and broken up. Those outside the anomaly region appear before the anomaly region breakup and are thus not directly related to bubbles. However, the mechanism producing them may also play a part in the formation of bubbles.

Mechanisms potentially responsible for the formation of ducts, bubbles, and equatorial plumes involve mismatched Pederson conductivities in the conjugate E-regions, acoustic gravity waves, gradient drift instabilities, and Rayleigh-Taylor instabilities.

The incidence of exploded traces on ISIS ionograms appears correlated with Zürich sunspot numbers. This correlation probably occurs because vertical ionospheric drifts which appear to precipitate exploded traces are correlated with the solar cycle.

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SUMMARY

As part of the DNA Wideband Equatorial program, ISIS topside sounder data was gathered during the summers of 1977 and 1978 on Kwajalein Atoll, Marshall Islands. In addition, signal scintillation information using the VHF satellite telemetry signal was obtained in 1978. This report provides a summary of all the data including a minute by minute description of each of the 252 satellite passes recorded. A preliminary data analysis is also reported. While some conclusions are of a preliminary nature, several useful generalizations can be made.

The active ionospheric region producing both severe signal scintillations and severe spread-F is confined to that region about the magnetic equator known as the "equatorial anomaly" region (15° N to 15° S magnetic latitude). Because of the close geographical correspondence between the disturbed and anomaly regions as well as the fact that these regions appear larger or smaller together and have a similar diurnal dependence suggests that they have a common origin. Such a conclusion has also been reached by other investigators. The ISIS data as well as other measurements show that the topside ionosphere rises sharply near sunset as the equatorial anomaly becomes pronounced and assumes a double peaked appearance. Shortly thereafter, around 2000 local time (LT), the ionosphere begins to descend and spread develops with characteristic "exploded traces" appearing on topside ionograms. These distinctive traces are different from the spread traces observed at other times or locations. They are well correlated with the initial breaking up of the ionosphere and with strong VHF signal scintillations.

Exploded traces represent the initial phase of equatorial plumes which may have their origin in equatorial bubbles. These traces indicate that the disturbed ionosphere below the satellite consists of a layer of field-

aligned irregularities. The ionosphere above and below the disturbed region is generally smooth although exploded traces are sometimes observed at several altitudes simultaneously. While these traces extend along the magnetic field from one conjugate region to the other, they usually have a limited (perhaps 50 km) east-west extent. Occasionally, remote exploded traces are observed indicating a separate plume displaced hundreds of kilometers to the east or west of the satellite.

Because the ionospheric plasma is free to move along the magnetic field but unable to readily diffuse perpendicular to the field, exploded traces or plumes extend from near or below the F-layer peak in one hemisphere to the conjugate point in the opposite hemisphere. These plumes produce their strongest satellite signal scintillations in the region where they penetrate the peak of the F-layer, usually near 15° N or S.

Exploded traces apparently develop in response to the sinking of the ionosphere near 2000 LT. Bubbles rising from the bottomside probably play a large part in creating these traces but may not be the sole cause of them. ISIS cannot readily detect the bubbles directly but can detect the irregularities associated with them. These irregularities are thought to be created near the bubbles by an incompressible mixing of high and low density regions.

Most exploded traces are observed along a particular magnetic field L-shell ($L \sim 1.12$) while only a few are observed on lower L-shells. This suggests that either: 1) most bubbles rise from the bottomside principally near 15° N or 15° S magnetic latitude and are less prevalent at the magnetic equator, or 2) bubbles rise rapidly at all latitudes within the anomaly region and slow their ascent or stabilize on the L-shell with $L \sim 1.12$.

Ducted sounder echoes are another interesting irregularity feature which develops in the early evening low latitude ionosphere. These appear as multiple or conjugate echoes on ionograms and represent field-aligned tubes of

slightly depleted ionization. Two classes of ducted echoes can be distinguished on the basis of their location. Those occurring on field lines within the anomaly region are thought to be the late time remnants of bubbles. These bubbles have risen to the topside and broken up into "anti-striations" or ducts. Another type of ducted echo, which appears just before the equatorial ionosphere breaks up into exploded traces, is located just outside of the anomaly region. These ducts are not considered manifestations of bubbles but may have a common origin with bubbles.

Several mechanisms probably contribute to the formation of ducts, bubbles, and plumes although the precise contribution of each mechanism is not known. Ducts occurring outside the anomaly region are thought to be caused by mismatched Pederson conductivities in the conjugate E-regions giving rise to field-aligned currents which in turn generate significant irregularities in the E-region at night. These irregularities are then transferred to the F-region by electric fields until the formation of a deep E-F density valley near 2200 LT. This is the time when the number of ducts is observed to level off. Another process that may contribute to triggering and perhaps amplifying both duct and bubble formation involves acoustic gravity waves, traveling ionospheric disturbances, and the spatial resonance mechanism. Gradient drift instabilities driven by a cross-field neutral wind have the potential of breaking up the ionosphere as it sinks near 2000 LT or as bubbles rise through the otherwise smooth plasma. Finally, Rayleigh-Taylor instabilities apparently play a large part in amplifying perturbations on the steep bottomside into full scale bubbles.

The greater incidence of exploded traces or plumes in 1978 compared with 1977 correlates with solar activity indicated by Zurich sunspot numbers. Because exploded traces appear to develop in response to the gross vertical movement of the equatorial ionosphere and such movement varies substantially with the solar cycle, it is not surprising that the incidence of exploded traces varies with the degree of solar activity.

PREFACE

The author would like to thank the Communications Research Centre (Government of Canada) and Battelle Northwest Laboratories for considerable assistance with this project. Bill Campbell, Dave Boulding, and Jerry Berndt provided substantial support. Help from others, including the Kwajalein Missile Range and SRI International, is gratefully acknowledged.

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SECTION 1 INTRODUCTION

During the summers of 1977 and 1978, the Defense Nuclear Agency (DNA) sponsored "Wideband Equatorial" campaigns at the Kwajalein Missile Range in the Marshall Islands. The purpose of these campaigns was to investigate the highly disturbed nighttime equatorial ionosphere. Such disturbances have severe effects on satellite signals, producing both amplitude and phase scintillations at frequencies exceeding 1 GHz. The principal experiment on Kwajalein involved observations of these scintillations using transmissions from the DNA "Wideband" satellite.^{1,2,3,4} Other experiments attempted to define the nature of the disturbed ionosphere producing the scintillations. Because a variety of measurements was made more or less simultaneously, a unique and valuable data base was accumulated. While the full value of the data collected by each experiment will be realized when integrated with the other experiments, such correlation has not yet been possible in many cases.

Experiments in addition to Wideband which collected data during the campaign included monitoring the VHF satellite beacon on the synchronous satellite, ATS-6, for scintillations, probing ionospheric irregularities with a high power VHF/UHF radar, measuring ionospheric neutral wind velocities with a Fabrey-Perot interferometer, taking in situ ionospheric measurements with the Atmospheric Explorer satellite and with rocket-borne payloads, measuring bottomside ionospheric characteristics with a bottomside sounder and measuring both topside ionospheric characteristics and signal scintillations using topside sounder satellites. Table 1 provides additional details on these experiments.

Table 1. Experiments conducted during the 1977 and 1978 DNA Wideband equatorial campaign.

NAME	ORGANIZATION	CONTACT	EXPERIMENT	COVERAGE DURING CAMPAIGNS
WIDEBAND	SRI	Robert Livingston	Satellite signal scintillations from VHF thru S-Band	Most days and nights near local noon and midnight
ATS-6	SRI	Robert Livingston	Satellite signal scintillations at VHF	Continuous during evenings
ALTAIR	MIT-LL SRI	Dave Towle Roland Tsunoda	Ionospheric irregularities	Several evenings only
FABREY-PEROT	U. of Pittsburgh	Manfred Biondi	Neutral winds in the ionosphere	Continuous most evenings
ROCKET EXPERIMENTS	Utah State AFGL NRL	Kay Baker R. Narcissi Ed Szuszcwicz	In situ measurements	Essentially none
ATMOSPHERIC EXPLORER	NASA	Henry Brinton	In situ measurements	A few evenings
DIGISONDE	U. of Lowell	Bodo Reinisch	Bottomside sounder	Nearly continuous
ISIS I&II	MRC	Gordon Fulks	Topside sounder and VHF scintillations	~ 4 satellite passes most evenings ~ 2 passes most mornings

This paper reports on the last of these experiments: the topside sounder and signal scintillation data from ISIS I and II (International Satellite for Ionospheric Studies). These satellites, launched in 1969 and 1971, have provided large quantities of high quality data on the topside ionosphere. ISIS II is equipped with a variety of experiments including a swept frequency sounder, fixed frequency sounder, VLF experiment, energetic particle detectors, soft particle spectrometer, ion mass spectrometer, Langmuir probe, retarding potential analyzer, beacon, cosmic noise detector, atomic oxygen red line photometer, and auroral scanner.⁵ ISIS I has the same experiments with the exception of the red line photometer and auroral scanner. While some of these experiments are no longer functional or are marginally functional, both the swept frequency and fixed frequency sounders operate as well today as they did nearly a decade ago.

Both of the ISIS satellites are in high inclination (88°) polar orbits enabling them to scan the ionosphere from the poles to the equator. ISIS II has a nearly circular orbit 1400 km high while ISIS I has an elliptical orbit varying from a perigee of about 600 km to an apogee of about 3500 km. Both satellites look down on most of the topside ionosphere. They pass through only the much less dense high altitude regions. Hence, the ability of the ISIS sounders to scan the entire topside ionosphere beneath the satellite was of more interest to the Kwajalein campaign than the in situ capabilities of the satellite.

Table 2 provides a summary of basic satellite characteristics, Table 3 describes the sounders, and Table 4 describes the other experiments on board the satellites.

Because both ISIS satellites are in nearly sun-synchronous polar orbits, the local times at which they cross the equator during the day and night change very slowly. Both drift about four minutes earlier each day. Over the several week duration of the Kwajalein campaigns, the satellites only

Table 2. Summary of ISIS II spacecraft characteristics (adapted from Reference 5).

SPACECRAFT SIZE

Shape	approximates an oblate spheroid
Height	1.19 m
Diameter	1.27 m
Weight	261 kg

ORBIT

Approximately 1400 km circular
Inclination 88.7° prograde

STABILIZATION

Spin stabilized

ATTITUDE SENSING

Six-probe flux-gate magnetometer
Digital solar aspect sensor

SPIN AND ATTITUDE CONTROL SYSTEM

Normal spin rate is near 3 rpm with a capability of changing the spin axis into either of two configurations:

- a) Spin axis in the orbit plane
- b) Spin axis in cartwheel configuration

POWER SYSTEM

11,008 solar cells
3 nickel-cadmium batteries
5 main dc to dc converters
4 hours/day operation in 70 percent sunlight
2 consecutive pole-to-pole passes

Table 2. Summary of ISIS II spacecraft characteristics (adapted from Reference 5) (continued).

COMMAND SYSTEM

Multiple digital tone AM system
 2 command receivers connected redundantly
 216 command capability

TELEMETRY SYSTEM

Transmitter # 1

Frequency	136.080 MHz with 100 kHz bandwidth
Power	4 watts
Modulation	FM video (sounder and VLF) FM/PAM/PDM (housekeeping data) FM/PCM (Auroral photometer)

Transmitter #2

Frequency	136.59 MHz with 50 kHz bandwidth
Power	2 watts
Modulation	PM/PCM (experiments and housekeeping)

Transmitter #3

Frequency	401.75 MHz with 300 kHz bandwidth
Power	4 watts
Modulation	FM and PCM

Table 3. ISIS II topside sounder characteristics (adapted from Reference 5).

SWEPT FREQUENCY SOUNDER

Power output 400 watt at PRF 45 pps
 Antennas Two crossed dipoles 73 m and 19 m tip to tip

Frequency range

Normal sweep 0.1 to 10 MHz in 10 sec.

Extended sweep 0.1 to 20 MHz in 20 sec.

<u>Frequency range</u>	<u>Sweep rate</u>
0.1 to 2.0 MHz	0.375 MHz/sec.
2.0 to 5.0 MHz	1.125 MHz/sec.
5.0 to 20.0 MHz	1.5 MHz/sec.

Frequency markers

0.1, 0.25, 0.5, 0.75, 1.0, 1.25, 1.5, 1.75, 2.0, 3.0, 4.0, 5.0,
 6.0, 7.0, 8.0, 9.0, 10.0, 12.0, 14.0, 16.0, 18.0, 20.0

Frequency resolution between markers is ± 8 kHz.

Range marker

11.11 m sec. after zero range mark (not on ISIS I)

FIXED FREQUENCY SOUNDER

6 fixed frequencies are available by command:

(0.12, 0.48, 1.0, 1.95, 4.0, and 9.303 MHz)

These occur either during the flyback period of the sounder sweep or for a full sounder frame period on alternate frames.

Table 4. Summary of other experiments on ISIS II (adapted from Reference 5).

VLF EXPERIMENT

Receiver for radio noise studies (.05 to 30 kHz)

Optional onboard receiver for ion resonance studies

ENERGETIC PARTICLE DETECTORS

Detectors to measure electron and proton intensity, angular distributions, and energy spectra

SOFT PARTICLE SPECTROMETER

Electrostatic analyzer to measure directional intensity and energy spectra of protons and electrons from 10 eV to 10 keV

ION MASS SPECTROMETER

Magnetic spectrometer to measure positive ion mass (1-64 amu)

LANGMUIR PROBE

Two cylindrical electrostatic probes at opposite ends of the spacecraft to measure electron density and temperature

RETARDING POTENTIAL ANALYZER

Direct measurement of electron temperature, ion temperature, ion composition and charged particle density

BEACON

Two 100 mW beacons to investigate ionospheric irregularities (136.410 and 137.950 MHz)

COSMIC NOISE

Monitors background radio noise levels due to galactic, solar, and ionospheric sources using AGC of sounder receiver (0.1 to 16 MHz)

Table 4. Summary of other experiments on ISIS II (adapted from Reference 5) (continued).

ATOMIC OXYGEN RED LINE PHOTOMETER (NOT ON ISIS I)

Maps global distribution in the intensity of the 6300 Å emission from atomic oxygen

AURORAL SCANNER (NOT ON ISIS I)

Maps the distribution of auroral emissions at 5577 and 3914 Å on the dark side of the earth.

observed the ionosphere during a very limited period of local times. Fortunately, the evening period for both ISIS I and II during 1977 coincided with the early development of spread F. During 1978, ISIS II saw the period just prior to the onset of spread while ISIS I saw the period just after. The morning passes were also well timed showing the residual spread from the night before as well as the development of a strong daytime ionosphere.

While the satellite sounders provided details on ionospheric structure, the strength of the satellite telemetry signal provided simultaneous information on ionospheric scintillation at VHF. The sounders and telemetry signal usually looked at different regions of the ionosphere. The sounders principally viewed the ionosphere beneath the satellite while the telemetry signal, traveling on a line-of-sight to the receivers on Kwajalein, penetrated the peak ionospheric electron density at a different location. Only when the satellite traveled directly overhead did the two view the same ionosphere. However, the simultaneity of the measurements and their occasional spatial coincidence produced a rare look at the ionospheric structure accompanying scintillations.

Two hundred fifty two ISIS passes were recorded during the two summer campaigns on Kwajalein. Of these, about two thirds were evening passes and one third morning passes. An attempt was made to record every high angle pass over Kwajalein and quite a few more distant low angle passes. Not every attempt was successful; some passes were missed because of equipment failures, interference from other radio sources such as the Altair radar, and interference from severe ionospheric scintillations. During 1978, a strip chart recording was made of the receiver AGC voltage during most passes. This provided a direct measure of telemetry signal scintillations.

Although the ISIS satellites have been in existence for many years, the data base collected on Kwajalein is thought to be one of the more complete and detailed records of the highly disturbed nighttime topside equatorial ionosphere.

It is the intent of this paper to report on the data collected rather than to present conclusions. While it has been possible to examine all of the data, it has not been possible to analyze that data in a quantitative fashion. One preliminary analysis technique that is useful but has not been done is a "true height analysis" of the ionograms. This translates measured time delay into true height above the ground (or below the satellite) and changes ionograms into plots of electron density versus height. Without the use of this technique, one can still ascertain ionosphere structure but only in a more qualitative way.

Following the section summarizing the data is a section labeled "Preliminary Conclusions." This contains various observations drawn from a preliminary analysis of the data. It is intended to present ideas requiring further study rather than hard conclusions.

SECTION 2

DATA SUMMARY

This section contains a general description of the ionograms and signal scintillation records from the ISIS passes observed on Kwajalein. It does not contain any information from the other experiments on board the satellites, because such information was of less interest. The appendix contains a minute by minute summary of each pass.

All of the ionograms, originally recorded in analog fashion on magnetic tape, have been processed into photographs as a first step in the data reduction. The signal scintillation information was recorded on strip charts and is readily usable in this form. All of the data from the other experiments is still recorded on the original magnetic tapes and has not been examined.

2.1 TYPES OF IONOGRAMS

Figures 1 through 9 show sample ionograms from the data. These are intended to be typical of the various types of ionograms. While ionograms are rich in variety and detail, they can be categorized on the basis of prominent features. Table 5 lists the prominent features that are thought important in this study. It also gives the abbreviation codes that are used to label the sample ionograms and that are used later in the appendix.

Figure 1 shows a typical smooth daytime ionogram. The smooth ordinary and extraordinary traces are clearly visible from zero apparent range at the satellite to the peak of the F-layer hundreds of kilometers below. At still higher frequencies, both ordinary and extraordinary earth echoes can be seen. These appear to be 1500 or 1600 km below the satellite when, in fact,

SMOOTH DAYTIME IONOGRAM

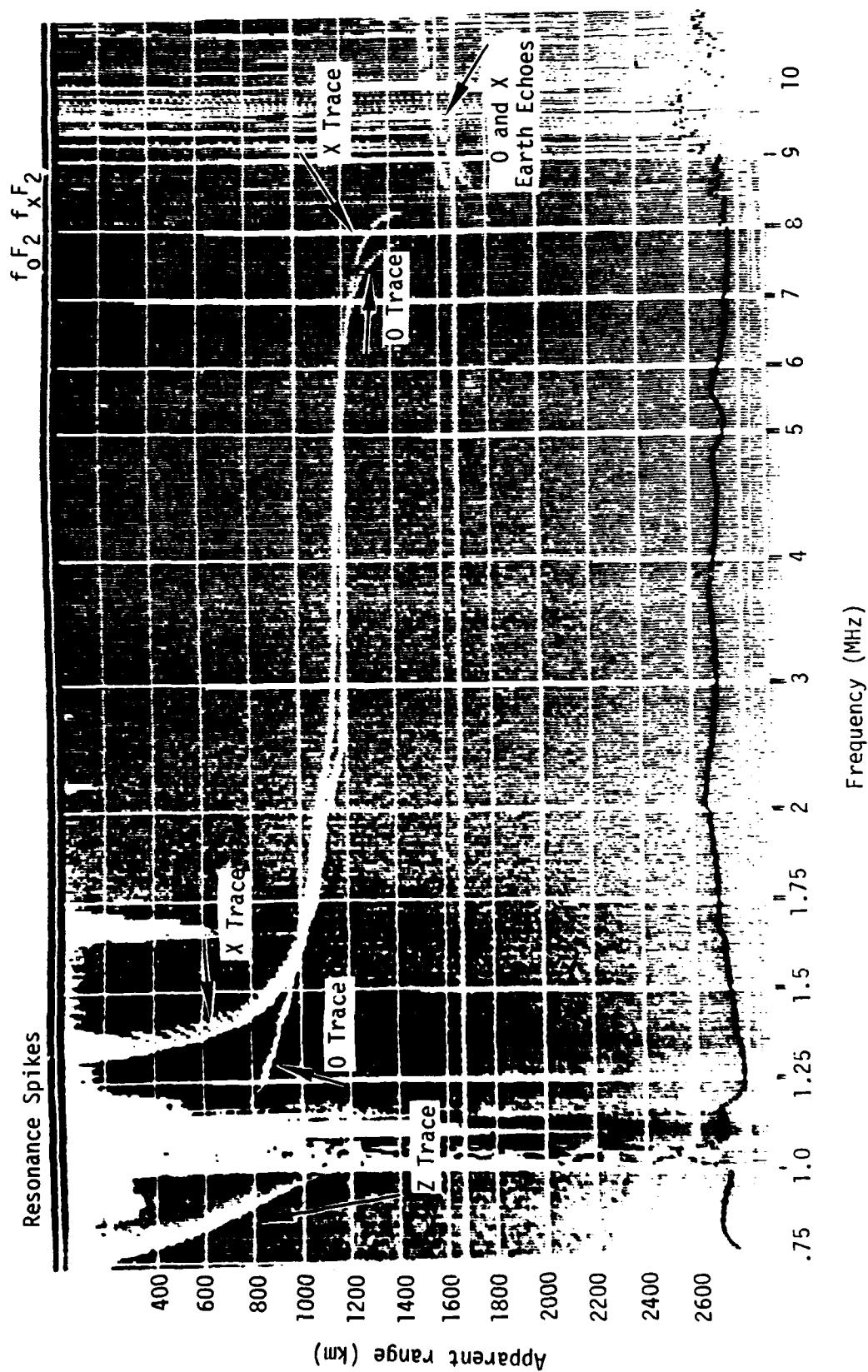


Figure 1. ISIS II 1978 Day 210 1858:52 Z 0635 LT (24° N, 174° E, 1433 km high)
Smooth daytime ionogram. Labels: SM, ER 8.1

SMOOTH EARLY EVENING IONOGRAM

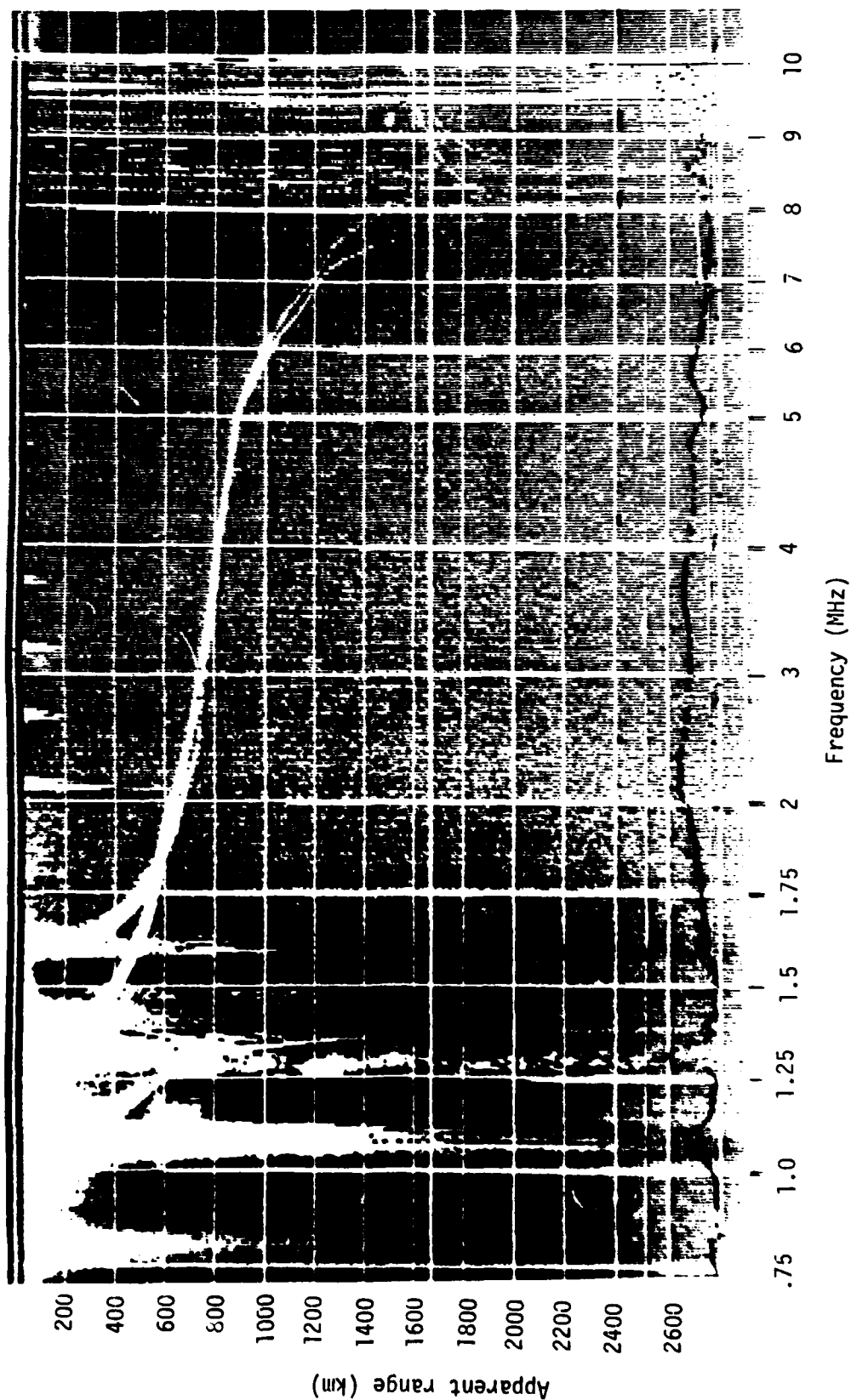


Figure 2. ISIS II 1978 Day 210 0648:02 Z 1840 LT (1° N, 178° E, 1369 km high).
Smooth early evening ionogram. Labels: SM,ER 7.9

MULTIPLE ECHOES

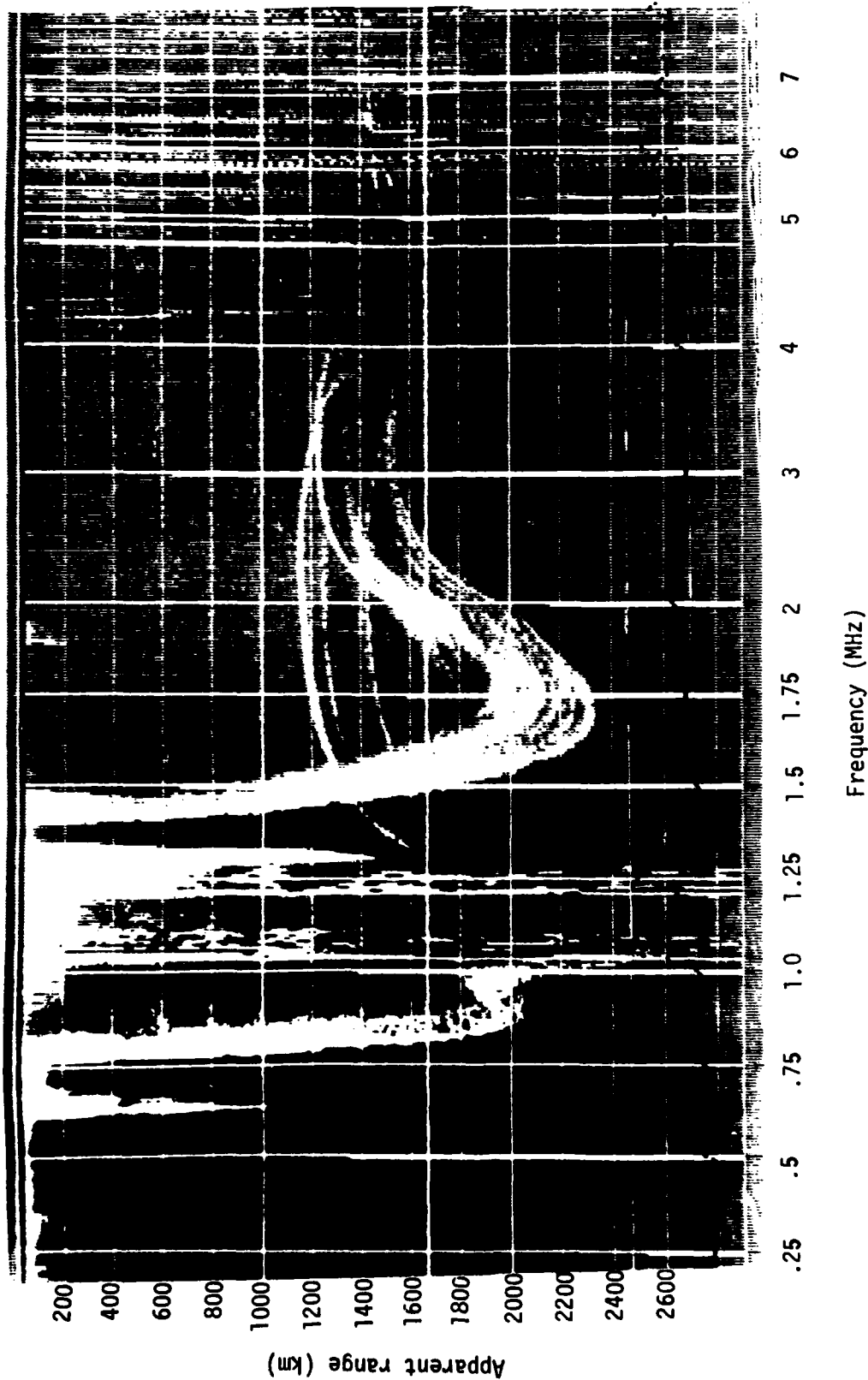


Figure 3. ISIS II 1977 Day 237 0834:39 Z 2035 LT (34° N, 180° E, 1381 km high). Multiple echoes (usually observed outside of the equatorial anomaly region). Primary traces are smooth. Labels: SM,ME,ER 4.2

MULTIPLE ECHOES -- CONJUGATE ECHOES

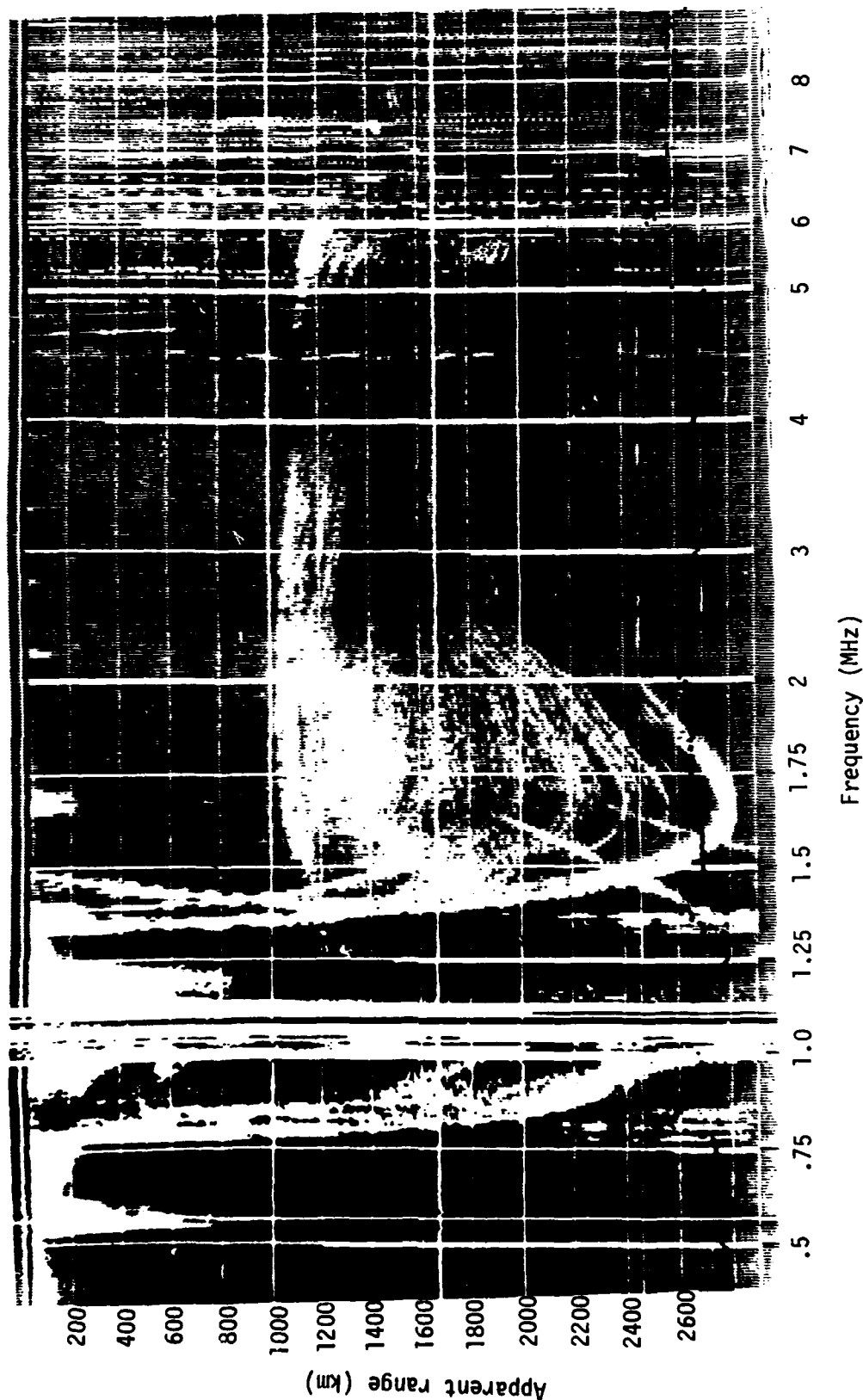


Figure 4. ISIS II 1977 Day 236 0946:24 Z 2034 LT (21° N, 162° E, 1392 km high). Multiple echoes and some conjugate echoes. Although the closely spaced multiple echoes near the primary traces make them look spread, the primary traces are still considered smooth. Labels: SM, ME, CE(1.5) ~6

CONJUGATE ECHOES

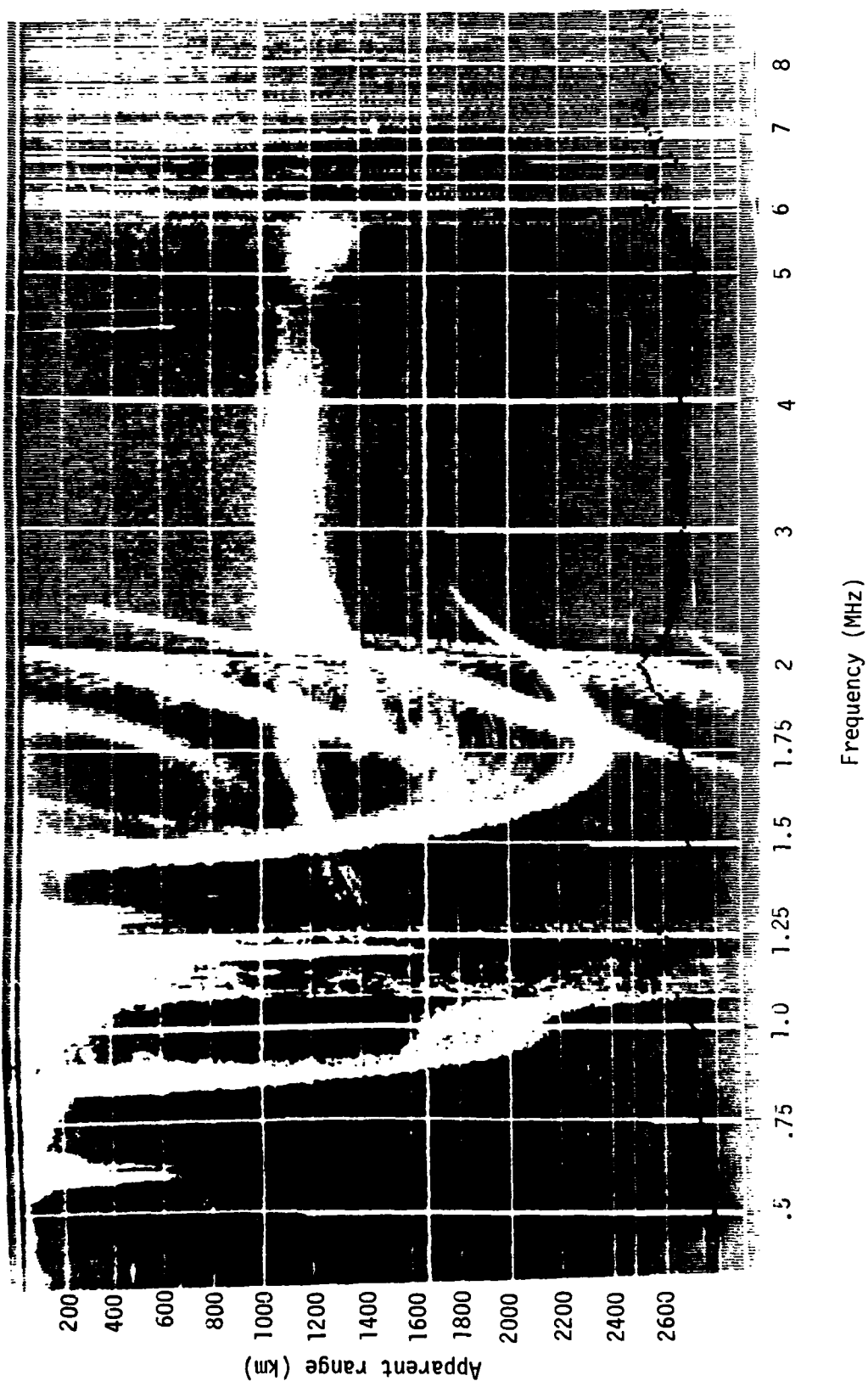


Figure 5. ISIS II 1977 Day 236 0948:59 Z 2037 LT (29° N, 162° E, 1386 km high). Strong conjugate echoes overlaid on multiple echoes. The primary echoes are still considered to be smooth. Labels: SM, ME, CE(1.8), ER 6.0

MASSIVE EARLY MORNING SPREAD

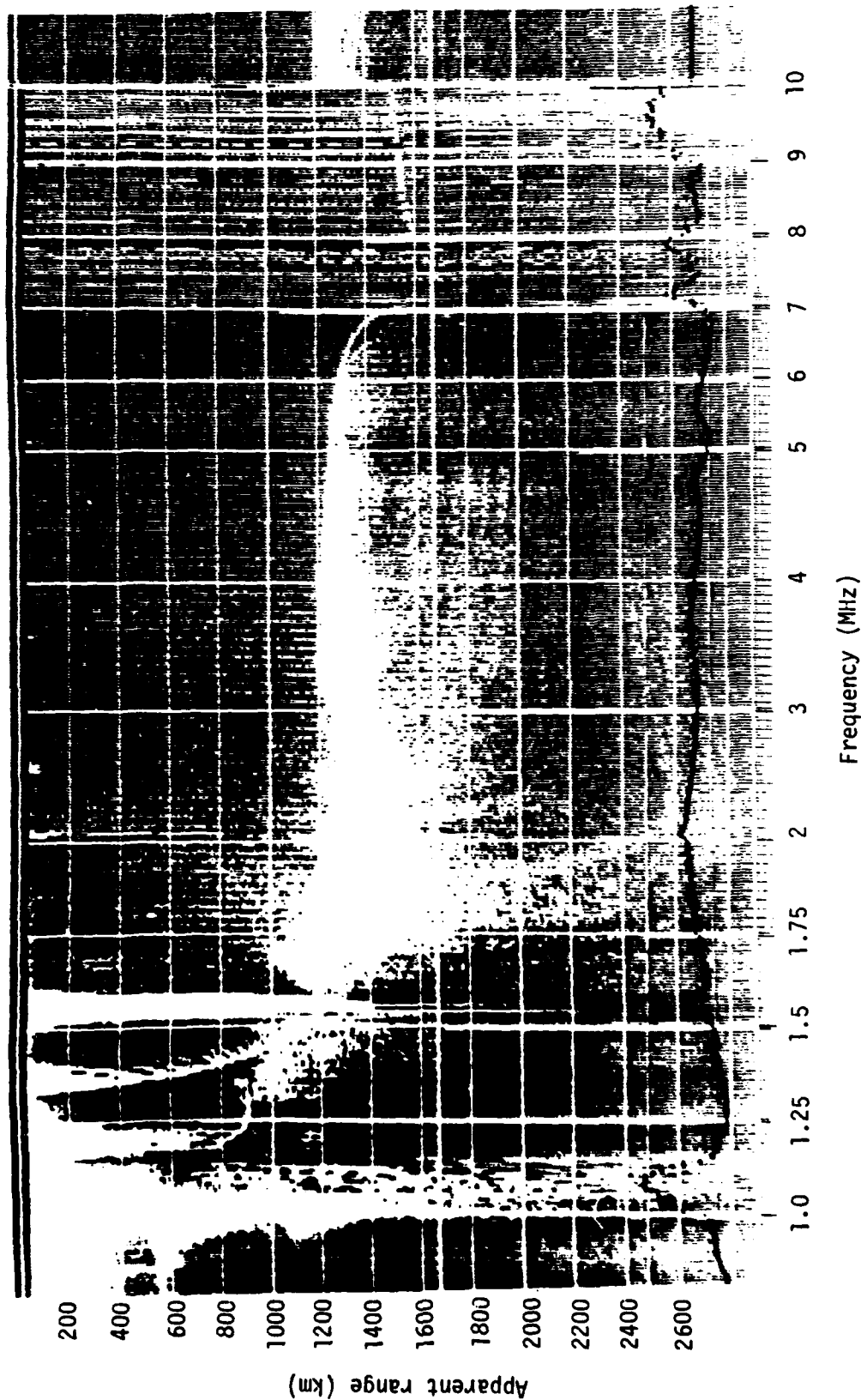


Figure 6. ISIS II 1978 Day 210 1904:23 Z 0636 LT (7° N, 173° E, 1435 km high).
 Massive daytime spread probably left over from the night before.
 Multiple echoes are also visible and somewhat difficult to distinguish from the spread. Labels: VVSP,STV,ME,ER 6.8

MASSIVE NIGHTTIME SPREAD

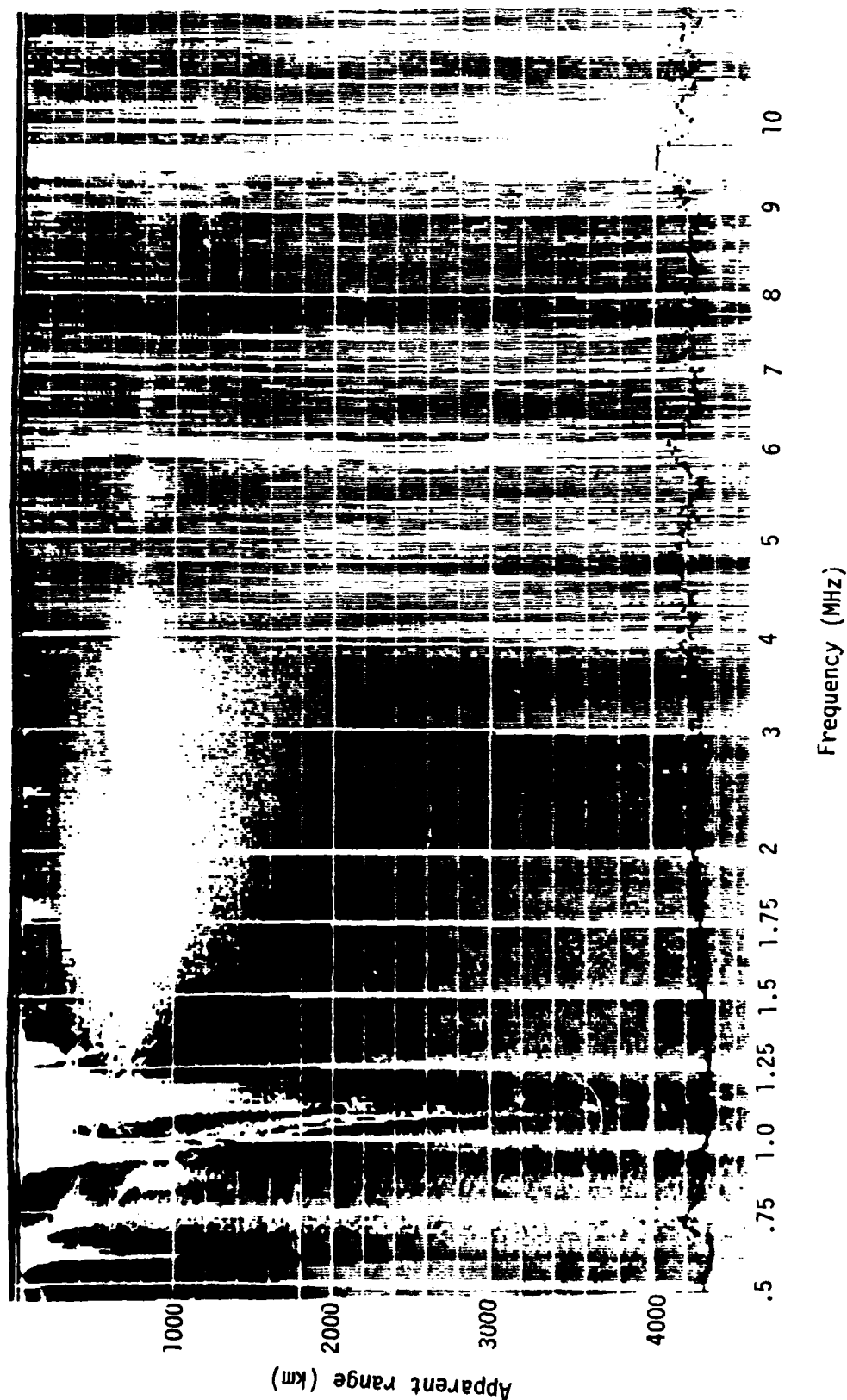


Figure 7 ISIS I 1977 Day 237 1036:37 Z 2225 LT (3° N, 177° E, 1080 km high).
Massive nighttime spread observed at close range. Hints of a
relatively smooth ionosphere are visible at less than 1.25 and
more than 4.5 MHz. Labels: WSP, STV >7.5

EXPLODED TRACE -- REMOTE SPREAD

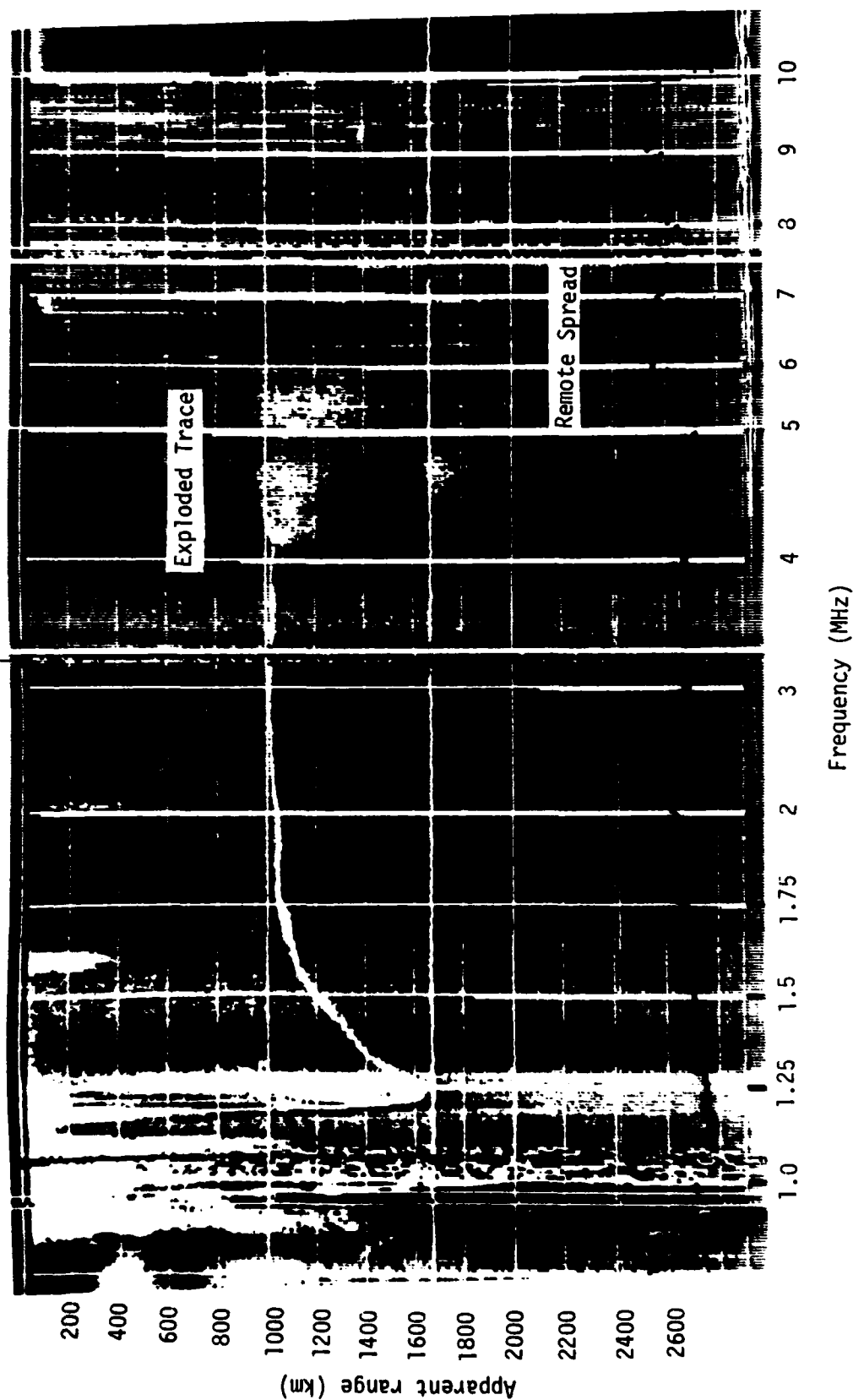


Figure 8. ISIS II 1977 Day 228 1021 Z 2109 LT (6° N, 162° E, 1415 km high).
Exploded trace and remote spread. Labels: VSP,STV,ET(4.1),RS ≥6

EXPLODED TRACE (PLUME)

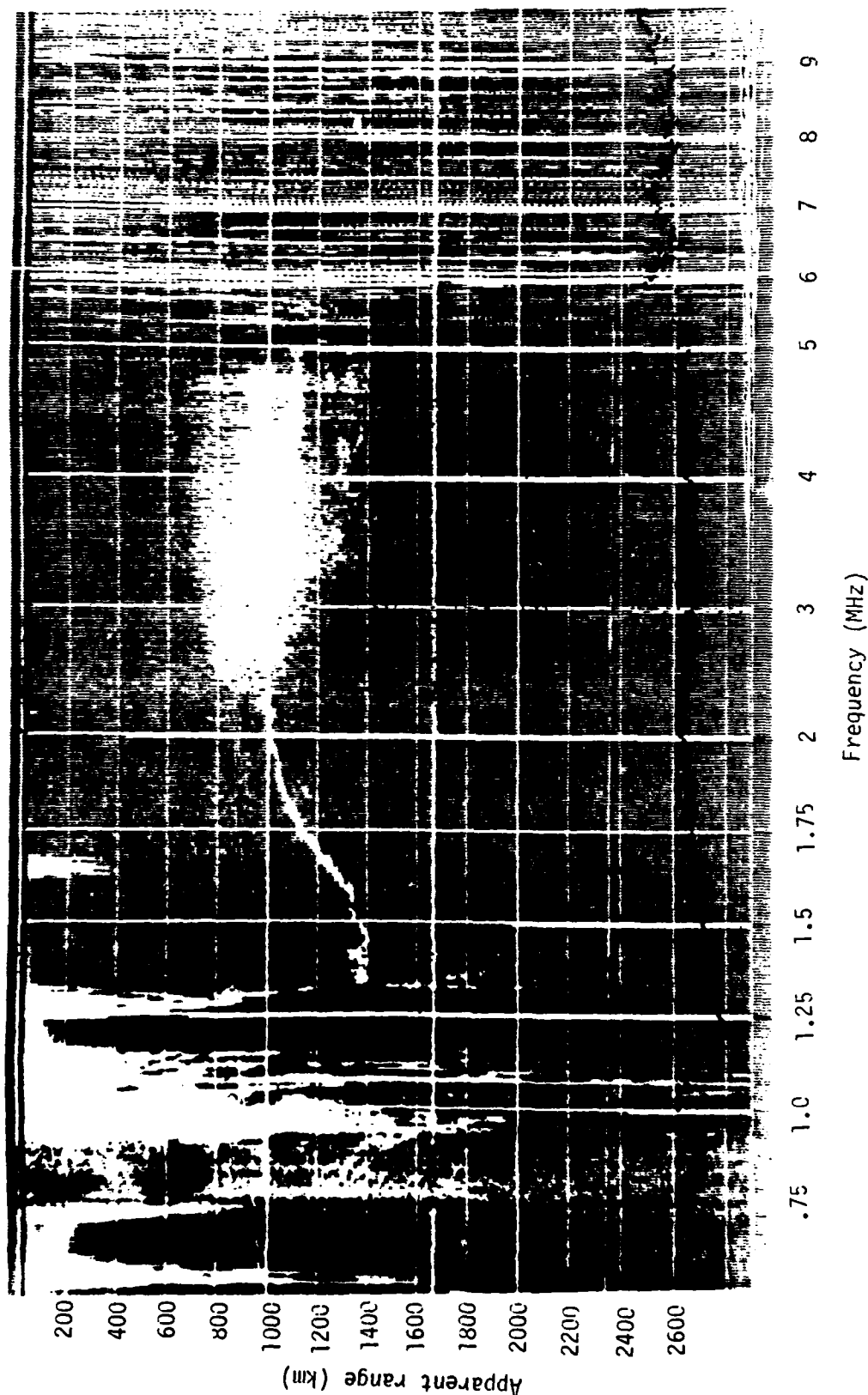


Figure 9. ISIS II 1977 Day 229 1058 Z 2106 LT (4° N, 152° E, 1415 km high).
Exploded trace showing spread layer well above (and perhaps below)
the smooth trace. Labels: WVSP,STV,ET(2.3) ≥ 5.0

Table 5. Terminology used to describe ISIS topside ionograms.

SM = SMOOTH TRACE(S)
ER = EARTH RETURN(S)
ME = MULTIPLE ECHOES
CE = CONJUGATE ECHOES
OFF = SATELLITE OFF
M = MISSING DATA

WSP = WEAKLY SPREAD TRACE
SP = SPREAD TRACE
VSP = VERY SPREAD TRACE
VVSP = VERY VERY SPREAD TRACE
ET = EXPLODED TRACE
RSP = REMOTE SPREAD
STV = SMOOTH TRACE VISIBLE (DESPITE SPREAD)
NP = NEAR PEAK OF F-LAYER

All numbers used in Table 7 refer to frequency in MHz.

the earth is only 1400 km down. The apparent range is always greater than or equal to the real range and, in some cases, much greater than the real range. The resonance spikes occur because the satellite sounder is immersed in the ionosphere and excites various plasma modes at the satellite. These modes contain information on the weak ionosphere near the satellite and are generally of less interest to this study than the higher density regions below. The coded labels refer to those listed in Table 5, and the number is an estimate (in MHz) of the peak or critical frequency of the F-layer. This peak frequency is taken for convenience as an average of the X and O maximum frequencies. Hence, Figure 1 is labeled as having a smooth trace, earth echoes and a critical frequency of 8.1 MHz.

Figure 2, showing a smooth early evening ionosphere, is similar to Figure 1 except that the topside ionosphere is much higher. When the electron density gradient is steep, the X and O traces are nearly horizontal, and a single value can be used for the height of the topside ionosphere. Under these circumstances, the apparent range is close to the true range. In Figure 2, this steep gradient occurs at an apparent range of about 800 km corresponding to a topside height of about 600 km above the earth's surface. Figure 1, in contrast, shows a topside height of only about 200 km.

Because the satellite sounder broadcasts and receives sounding pulses through an essentially isotropic antenna system, returns are theoretically possible from any region of the ionosphere within sight of the satellite. When the ionosphere is perfectly smooth, mirror-like reflections back to the satellite can only come from directly below. The result in this case is one set of traces such as those shown in Figures 1 and 2. However, if the layers of constant electron density have features such as peaks, valleys, ducts, or other irregularities, multiple echoes are possible. Figure 3 shows the multiple echoes appearing as a series of X and O traces occurring at progressively greater range from the satellite. These have been seen at all magnetic latitudes but are most prevalent just outside the equatorial anomaly

region which extends from about 15° N to 15° S magnetic latitude. Although the equatorial anomaly is a peak in electron density space and may contribute to multiple echoes, many of the echoes appear to come from propagation down magnetic field-aligned ducts. These ducts are generally located below the satellite and may represent enhanced or depleted electron densities.⁷

If the satellite happens to be inside a duct, strong "conjugate echoes" are observed. These are a type of multiple echo involving ducting of sounder radio waves from one magnetic conjugate region to the other. Figure 4 shows an ionogram with both multiple and conjugate echoes. The conjugate echo involving propagation from the satellite to the nearby conjugate region is seen as the strong multiple echo at the largest apparent range. Other conjugate echoes involving ducting to the opposite hemisphere are seen near 1.5 MHz.

Figure 5 shows very prominent conjugate echoes overlaid on multiple echoes. References 8 and 9 provide a detailed explanation of these using Figure 10. Basically, when the satellite enters a magnetic field-aligned tube with a slightly depleted electron density relative to the surrounding ionosphere, some of the sounder pulses become trapped in this tube and echo back and forth from one conjugate region to the other. This trapping prevents the normal divergence loss of the radio wave energy and produces a strong return each time the pulse passes the satellite. When the apparent range of a conjugate echo exceeds the display capability of the ionogram, the echo is nevertheless overlaid on the ionogram as shown in Figure 10. Conjugate echoes can occur any time of the day or night but are more prevalent at night when the ionosphere is disturbed.

Figure 5 also shows that many closely spaced multiple echoes can make otherwise smooth primary traces appear spread. We arbitrarily choose not to call this "spread" because of its apparent multiple echo origins and because other more amorphous spread appears to be significantly different.

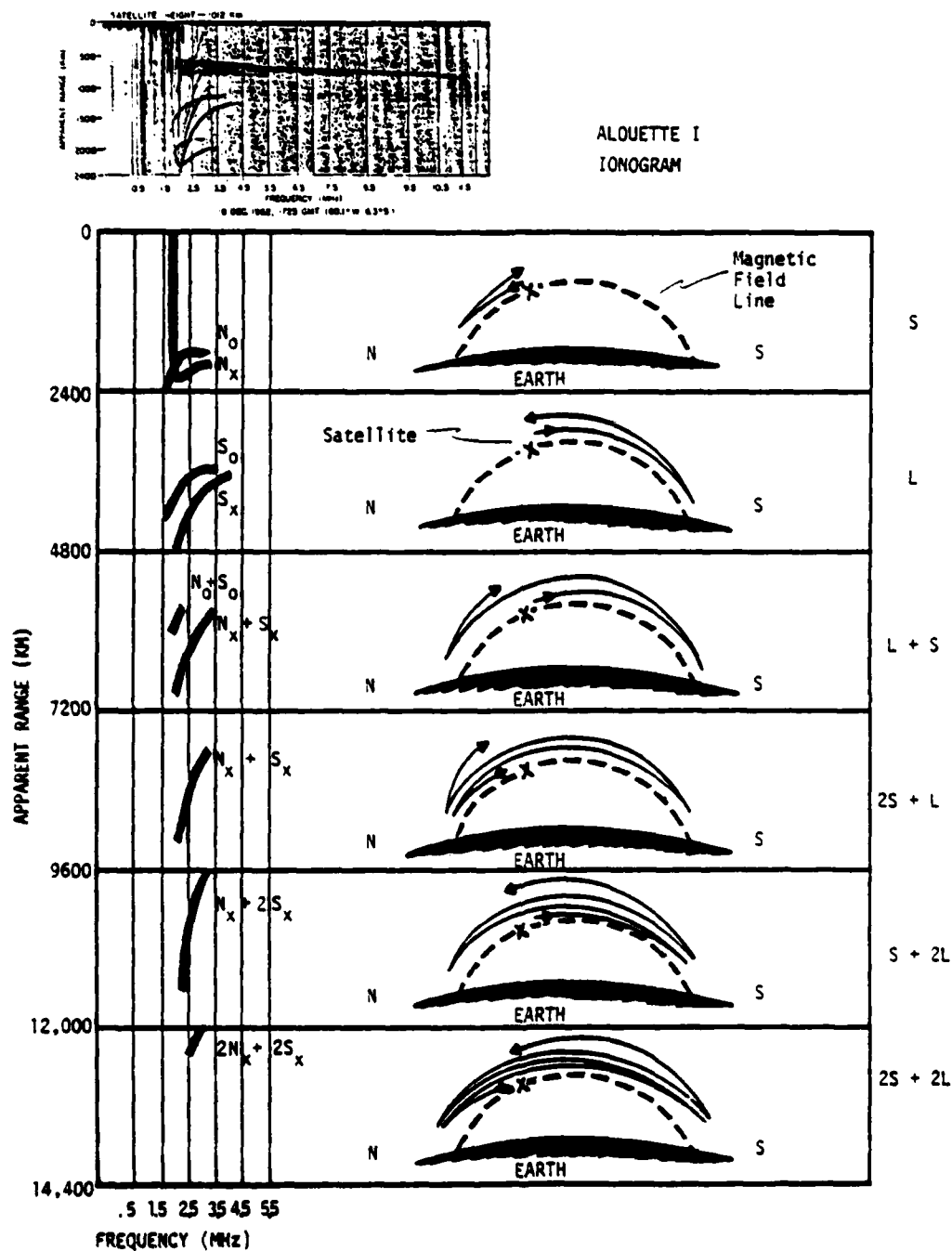


Figure 10. Illustration of the origin of conjugate echoes on an Alouette ionogram. L and S in the right margin refer to long and short paths. (From References 8 and 9).

Figure 6 shows massive daytime spread existing, for the most part, below the partially visible smooth primary traces. Some multiple echoes are visible and contribute to the spread but are not the obvious cause of much of it. In order to distinguish the degree of the spread, a qualitative label is assigned. This particular figure shows about the most spread observed and is labeled "very, very spread." Such massive daytime spread is unusual (in contrast to nighttime spread) and only seen early in the morning just after sunrise. It may be left over from a very active night or formed near dawn. While nighttime spread can be correlated with signal scintillations, daytime spread appears to have little or no relation to signal scintillations.

Figure 7 shows massive nighttime spread observed by ISIS I. This is more amorphous than the daytime spread and appears both above and below the smooth trace. Such massive spread is also labeled "very, very spread."

Because some types of spread (e.g., Figure 7) can be correlated with signal scintillations while other types cannot (e.g., Figure 6), it is important to look for unique features of the spread related to scintillations.

Figure 8 shows one important feature which appears mostly in the early evening before the ionosphere has completely broken up. We call it an "exploded trace" because of its appearance on the ionogram. In this figure, the completely smooth X-trace abruptly explodes at about 4.1 MHz into a very spread trace. The spread occurs both above and below the smooth trace. The spread occurring above the smooth trace must necessarily be located above the otherwise smooth ionosphere at that electron density. On the other hand, the spread beneath the smooth trace can either be below the smooth ionosphere or off to the side and not directly below the satellite. Some spread noted in Figure 8 is clearly off to the side and is labeled "remote spread."

Exploded traces are well correlated with signal scintillations and with the early development of spread. Furthermore, they only occur within the equatorial anomaly region where the severely disturbed ionosphere develops. They are thought to provide important information on the ionospheric processes leading to the breakup of the equatorial ionosphere. Exploded traces are discussed further in the next section.

Figure 9 shows another more pronounced exploded trace located over the magnetic equator. This one occurs at 2.3 MHz. During a given pass, most exploded traces appear to follow the magnetic field line connecting the north and south boundaries of the equatorial anomaly region. In some cases (not shown), several exploded traces can be seen at different frequencies. The one at the lowest frequency will appear to be on the field line connecting the boundaries of the anomaly region, while others will be on field lines interior to that region. Occasionally, remote spread echoes will also show exploded traces.

2.2 TYPES OF SIGNAL SCINTILLATION RECORDS

Figures 11 and 12 show typical strip chart recordings of the AGC voltage from the 136 MHz FM or PM receivers used to receive the telemetry signals from ISIS. By recording this voltage, a measure of amplitude scintillation is obtained. Table 6 shows the descriptive terms used to characterize these records and the abbreviations for the terms used in the data summary. Characterization of the records was not entirely straightforward, because periodic Faraday and antenna pattern fading made otherwise quiet passes look disturbed. In Figure 11 the slow fades with a period of several minutes are thought to come from Faraday rotation of the telemetry signal. This causes the out of phase behavior between the two receivers. The shorter period fades which occur in phase between the two receivers are due to the rotation of the satellite telemetry antenna. Any periodic fading was ignored in the analysis. Hence, some amplitude scintillation may have been ignored, especially during the daytime. Long period, slow fading may also have been ignored. Strong,

SCINTILLATION RECORD AT 136 MHz

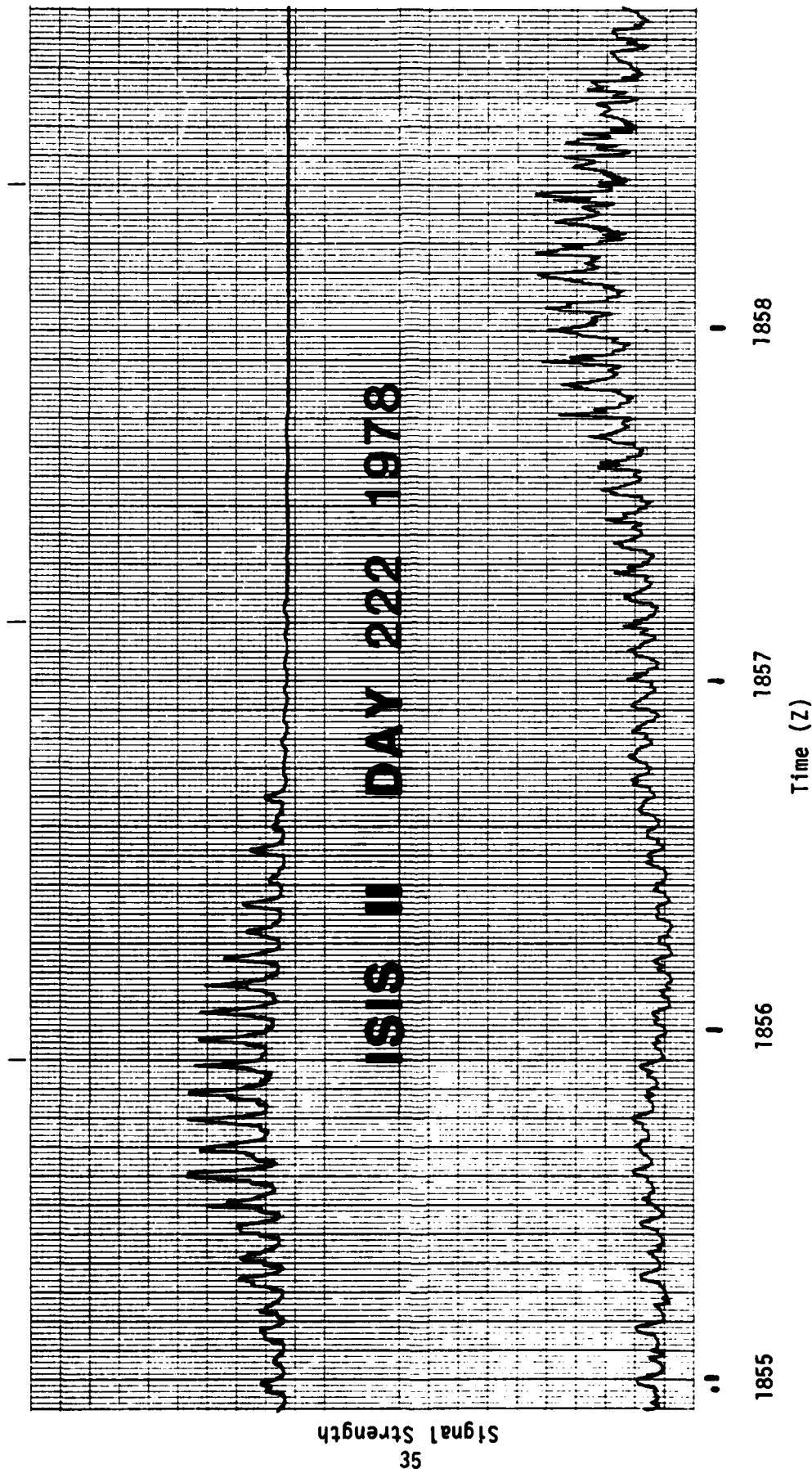


Figure 11. VHF signal scintillation record during a quiet period. The two traces show the AGC voltages from the two FM receivers. The traces have different zero values. For a given trace, higher values imply weaker signals. The receivers were connected to the antenna system such that one received right circular polarization and the other left circular polarization. Both AGC responses were set at 1 sec.

SCINTILLATION RECORD AT 136 MHZ

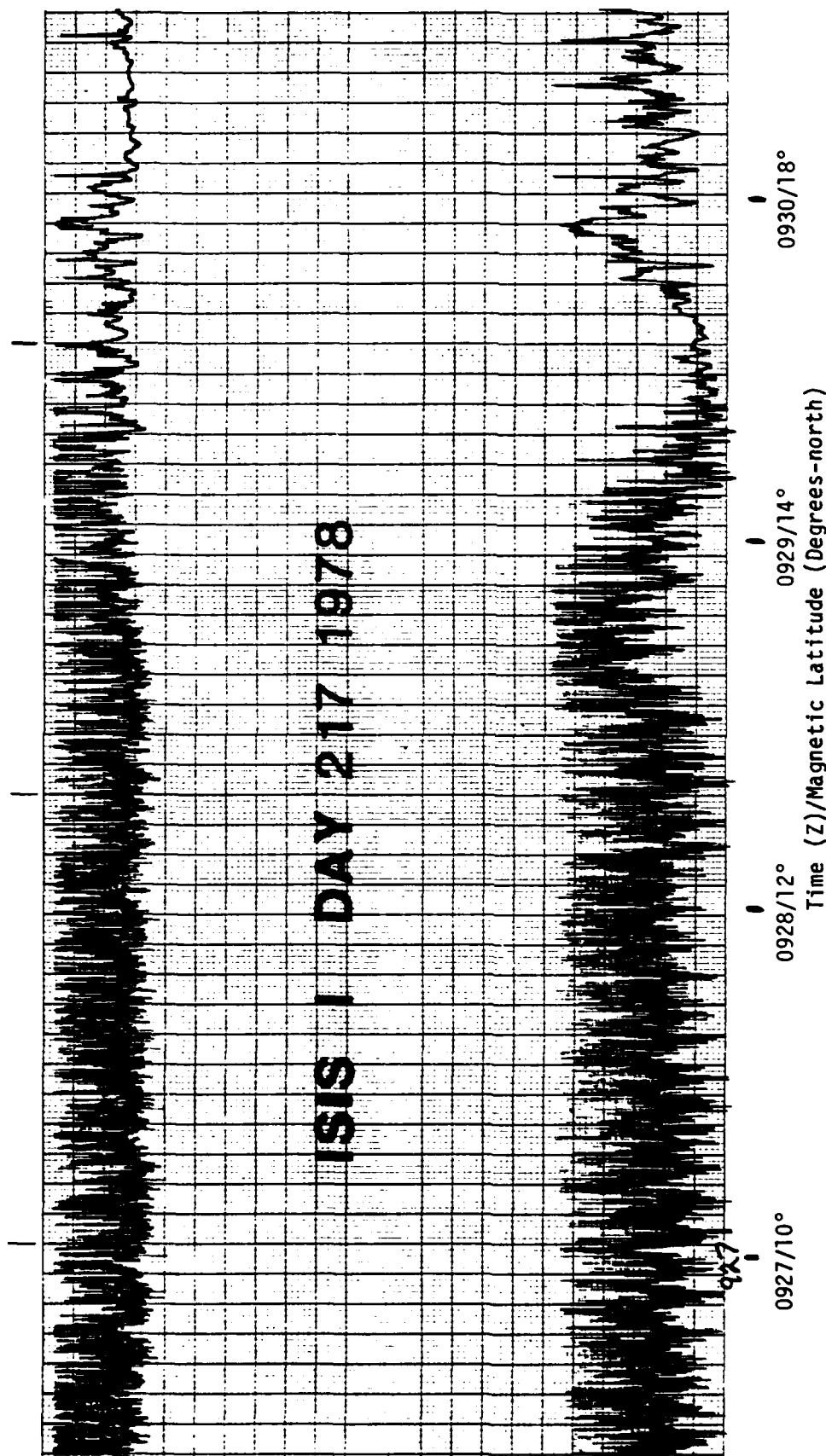


Figure 12. VHF signal scintillation record during a disturbed period. The top trace shows the AGC voltage from one of the PM receivers while the bottom trace is from one of the FM receivers. Both receivers were operating with a 10 msec AGC response. The magnetic latitude scale refers to the location of the point where the telemetry signal penetrated a 300 km altitude.

1

Table 6. Terminology used to describe ISIS signal scintillation strip chart recordings. Scintillation refers to amplitude scintillation at 136 MHz.

Q = QUIET SIGNAL (No apparent scintillation)
WS = WEAK SCINTILLATION (Slow, shallow fades)
SC = SCINTILLATION (Moderate speed, deeper fades)
SSC = STRONG SCINTILLATION (Fast, deep fades)
VSSC = VERY STRONG SCINTILLATION (Very fast, deep fades)
SAT = SATURATED SCINTILLATION (Extremely fast, deep fades)

rapid scintillations have a distinctive character as shown in Figure 12 and are easily noted. Quantitative calibrations of the AGC voltages were performed but have not been folded into the present analysis. Typical strong scintillations involved amplitude fades of 30 dB. The differences between the categories of scintillation are qualitative and arbitrary. On a given pass, such categories allow one to distinguish changing levels of scintillation as the satellite moves through the disturbed region.

SECTION 3

PRELIMINARY CONCLUSIONS

This section presents conclusions developed from a preliminary look at the data. These conclusions are considered tentative.

Ionograms are very detailed pictures of the ionosphere. However, it is not always possible to ascribe one unique ionospheric structure to a given ionogram. In the simple case of reflections from below the satellite, the structure is usually clear, but, when oblique echoes are involved, the problem is often very complex. Unfortunately, the spread ionograms correlated with signal scintillations fall more into the latter category than the former. Furthermore, ISIS satellite passes occur only rarely and do not last more than about 20 minutes. This means that it is not possible to watch the time development of severe spread. Such development can only be inferred from statistical studies of many passes.

On the other hand, ISIS provides excellent geographical coverage along the magnetic field. Latitudinal variations in the ionosphere are readily apparent.

3.1 EQUATORIAL ANOMALY

The most pronounced and interesting latitudinal variation near the equator is the "equatorial anomaly."¹⁰ Early evening ISIS II data from 1978 consistently shows the peak electron density rising sharply as the satellite approaches the magnetic equator from about 15° N or 15° S. (Kwajalein is a few degrees north of the magnetic equator.) Once inside this region, the peak

density falls somewhat near the magnetic equator. The solid curve in Figure 13 shows the effect. Later in the evening, this effect is harder to see as the ionograms become severely spread. By late evening or early morning, the anomaly region has substantially disappeared to the extent that little or no peak in the electron density may be seen near the magnetic equator. With morning and the rising sun, the peak reappears initially as a single peak without the camel-back appearance (dashed curve). This effect has been known for over thirty years¹⁰ and studied extensively.¹¹⁻¹⁶ It has been explained in terms of the upwelling of ionization at the equator, the "equatorial fountain." An $\vec{E} \times \vec{B}$ drift apparently forces ionization upward at the equator across magnetic field lines. Once at an altitude less than or equal to about 700 km, the plasma begins to diffuse down under the influence of gravity along the magnetic field. Because the field line at 700 km reaches down to the peak of the F-layer at 15° N and 15° S, the ionization tends to accumulate at these points producing the solid curve in Figure 13.¹⁶⁻²¹ Although the equatorial anomaly is shown as symmetric about the magnetic equator in Figure 13, significant asymmetries sometimes exist.

Taken alone, the equatorial anomaly is a curious effect without obvious consequences. From the observations reported here, it seems much more significant. For instance, the anomaly region contains all of the severe spread. When the satellite moves out of this region, the ionograms change abruptly from spread to multiple echoes or smooth. Signal scintillation records display a similarly abrupt change at this boundary from severe scintillation within the region to quiet outside (see Figure 12). Often a peak in the scintillation intensity is observed at these boundaries. The exploded traces of spread ionograms appear strongly field-aligned and prefer the field line forming the boundary of the anomaly region. Figure 14 shows another view of the equatorial ionosphere with the anomaly region shaded. Occasionally, the region is larger or smaller than shown (by as much as 5 degrees), and occasionally, it is asymmetric.

EQUATORIAL ANOMALY

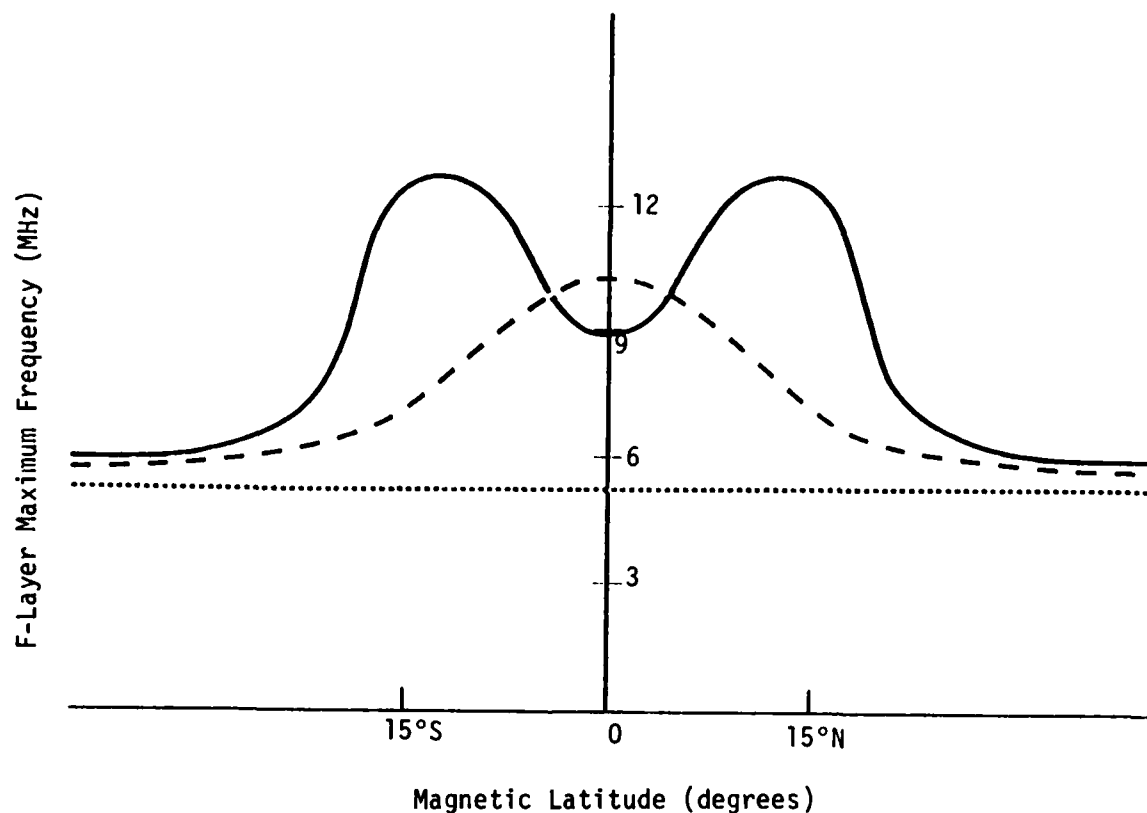


Figure 13. Nominal variation of the F-layer maximum frequency with magnetic latitude. The solid curve shows the equatorial anomaly which develops in late afternoon. The dotted curve is for late evening while the dashed curve applies to morning conditions.

EQUATORIAL ANOMALY REGION

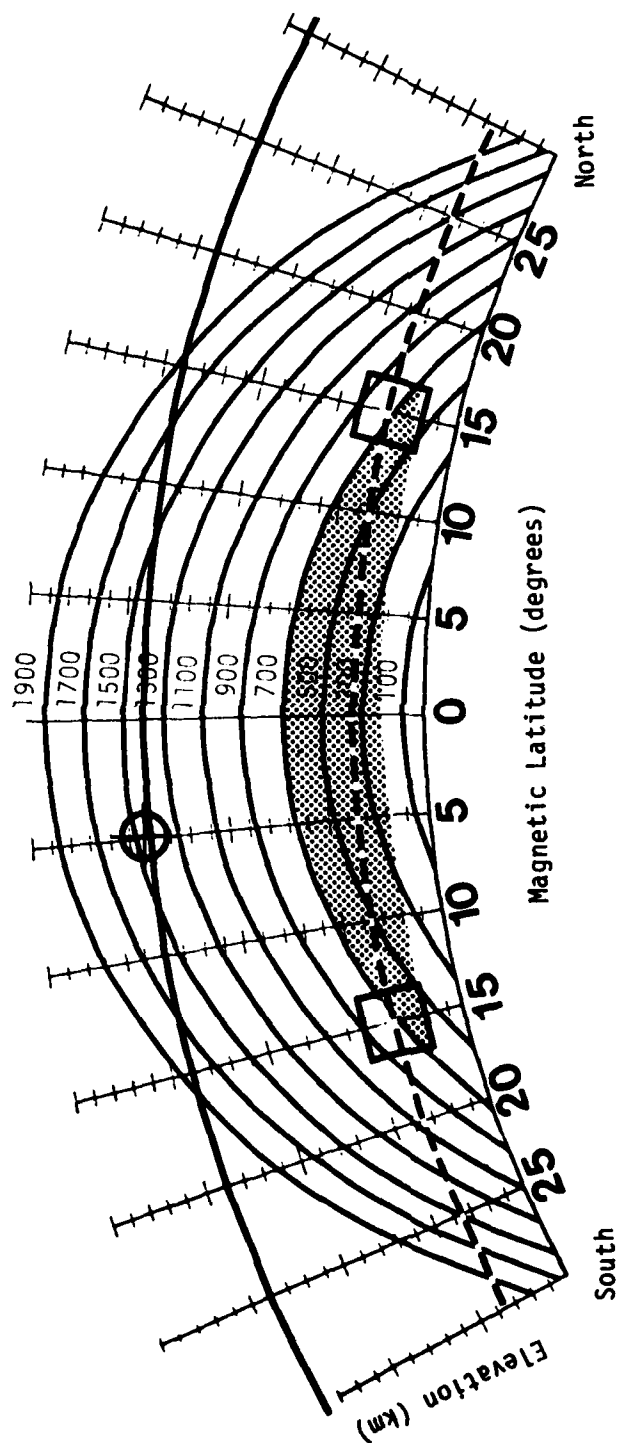


Figure 14. Cross sectional view of the equatorial region in a north-south plane showing magnetic field lines and the usual extent of the equatorial anomaly region (shaded). The squares show where the strongest scintillation is observed, and the circle at 1400 km denotes ISIS II. The dashed line indicates the approximate location of the peak of the F-layer while the solid line at 1400 km indicates the orbit of ISIS II.

3.2 EXPLODED TRACES

Exploded traces were noted in the early days of topside sounders (although not by that name). Reference 22 discusses one such trace shown in Figure 15. The true height analysis shown indicates that the spread amounts to a relatively thin layer of overdense irregularities about 40 km thick above the otherwise smooth ionosphere. This layer has a limited east-west but long north-south extent. Reference 22 supposes that the irregularities produce overdense reflections but are sufficiently sparse that some of the sounder signal can penetrate to the smooth ionosphere below.

In contrast, Reference 23 views these irregularities as basically underdense, producing radio wave reflections because their cross sections are small compared to the wavelengths of the sounder radio waves. The irregularities then need not differ greatly in density from the surrounding plasma. They can be either slight enhancements or depletions. Because only partial reflection of the radio wave occurs at any particular irregularity, the irregularities can be closely packed and yet still partially transparent to the sounder radio waves. In situ rocket measurements of equatorial ionospheric and barium cloud irregularities show numerous irregularities along an arbitrary rocket trajectory. Because numerous overdense irregularities could not produce the semi-transparent ionosphere observed on ionograms, it is likely that underdense reflections account for many of exploded traces observed in the equatorial ionosphere. References 7, 24, and 25 provide further support for underdense reflections.

The magnetic field-aligned nature of exploded traces suggests that the irregularities are also field-aligned. This would imply that reflections (underdense or overdense) should show considerable aspect sensitivity. Indeed, the ISIS satellites appear to principally see irregularities existing in the east-west plane through the satellite and not the north-south plane. Figure 8, for instance, shows two separate exploded traces. Based on successive

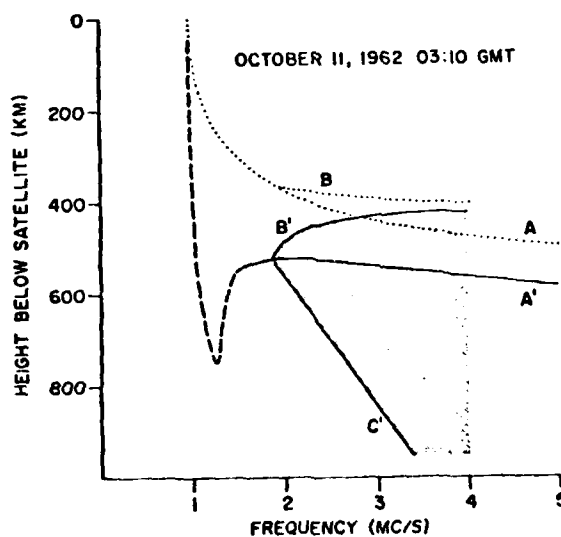


Figure 15. Analysis of an exploded trace appearing on an early Alouette ionogram. The virtual height data is shown by the solid lines, dashed lines, and shading. The true height profile is shown as a dotted line assuming all the reflections to be from overdense ionization (not necessarily correct). (From Reference 22.)

ionograms, it is clear that these traces are separated east-west and have a very long north-south extent. Because Figure 8 does not show a large range extent for either trace but clearly shows their east-west separation, it appears that aspect sensitive reflection from field-aligned irregularities is occurring.

Within the last two years, other investigators have studied exploded traces and proposed that these are, in fact, "bubbles" rising from the bottom-side of the F-layer.^{26,27,28} Such bubbles would be enormous with diameters of 30 to 60 km and lengths of hundreds of kilometers along the magnetic field. Unfortunately, the evidence from ISIS (or the older Alouette satellites) is chiefly circumstantial. Exploded traces exist in the same time frame and geographical region as bubbles are believed to exist. Furthermore, bubbles involve depleted electron densities and potential irregularities in the vicinity of the bubble while exploded traces involve irregularities and potential depletions. Hence, exploded traces suggest and are probably related to bubbles. However, ISIS does not provide convincing information to prove that large scale bite-outs in electron density or substantial depletions exist. Furthermore, ISIS does not clearly establish whether such bubbles or exploded traces are rising.

Perhaps it would be best to characterize the features producing exploded traces as equatorial "plumes." Large irregularity patches are accurately referred to as plumes but may or may not involve bubbles.

3.3 MAGNETIC FIELD-ALIGNED DUCTS

Reference 28 uses the conjugate echoes observed by ISIS to argue for bubbles. While it has been known for years that these echoes are due to field-aligned tubes of depleted ionization^{8,9}, it is misleading to use ISIS data to call them bubbles and to thereby imply a rising nature. These ducts exist, both inside and outside of the anomaly region shown in Figure 14 and can occur at times of day when no bubbles are ever seen. Some of the ducts

may be remnants of bubbles. Other ducts, especially those along magnetic L-shells with $L \gtrsim 1.2$ are probably not remnants of bubbles but may be caused by some of the same processes involved with bubbles.

Reference 26 shows that the ducts observed by topside sounders increase in number after sunset and steadily decrease during the daytime. This diurnal dependence of the ducts as well as their location near the magnetic equator suggests that they are at least a part of the same process producing bubbles. The time dependence of ducts is somewhat different for $L \gtrsim 1.2$ than for $L \lesssim 1.2$. $L \lesssim 1.2$ corresponds approximately to the anomaly region of Figure 14 while $L \gtrsim 1.2$ corresponds to the volume outside this region. According to Reference 27, $L \gtrsim 1.2$ are formed between 2000 and 2200 local time and then remain essentially constant throughout the night. In contrast, those ducts with $L \lesssim 1.2$ increasingly appear from 2000 to 0200 local time and decrease slowly thereafter. These appear to be associated with bubbles. They may be the late time high altitude remnants of a large bubble that has risen from the bottomside and broken into many "anti-striations" or ducts.

The ducts occurring outside the anomaly region (those with $L \gtrsim 1.2$) form before any activity is observed in the anomaly region. ISIS II data from Kwajalein in 1978 shows many ducts outside of the anomaly region as early as 1900 local time, while the anomaly region itself is still smooth. Table 8 shows this effect. Multiple echoes and conjugate echoes are interpreted as evidence of ducts and exploded traces as evidence of plumes (see Section 2).

Because ducts with $L \gtrsim 1.2$ form or at least start to form before plumes develop in the anomaly region, these ducts are not thought to be remnants of bubbles. But their formation in the early evening suggests that they may have formation processes in common with bubbles. References 26 and 29 provide an explanation for the formation of these ducts. Mismatched Pedersen

conductivities in the conjugate E-regions are thought to give rise to field-aligned currents which generate significant irregularities in the E-region at night when the E-region density is low. These irregularities are then transferred to the F-region by electric fields until the formation of a deep E-F density valley. This valley forms near 2200 when the number of ducts with $L \geq 1.2$ is observed to level off.

Another process that may be significant in triggering and perhaps amplifying both duct formation for $L \geq 1.2$, bubble formation, and bubble breakup into ducts with $L \leq 1.2$ involves acoustic gravity waves, traveling ionospheric disturbances (TID's), and the spatial resonance mechanism.^{25,30,31} Acoustic gravity waves constitute a spectrum of geophysical noise capable of driving a roughly uniform power spectrum of TIDs with scales extending from the radius of the earth down to the atmospheric scale height. At shorter scales, the spectrum of TIDs is thought to decrease in strength creating a spectrum of field-aligned plasma turbulence below the mean free path of the neutral atmosphere. Such a spectrum of TIDs could provide the perturbation necessary to trigger an appropriate instability mechanism in the equatorial ionosphere. Reference 31 suggests that the spatial resonance mechanism, which occurs when the plasma drift velocity matches the acoustic gravity wave phase velocity, may contribute to the formation of the drifting plumes observed by both sounders and radars. The non-linear break-up of resonance steepened TIDs may give rise to the quasi-periodic structures (multiple echoes) seen in equatorial ionograms.

3.4 BUBBLES

Bubbles have been discussed extensively in the literature in recent years. Reference 32 provided the first strong evidence that rising bite-outs do indeed exist using data from the Atmospheric Explorer satellites. This data showed large bite-outs in electron density on the bottomside of the F-layer, upward movement of ions within the bubbles, and ion constituents

typical of lower altitudes. Radar observations of equatorial irregularities from Jicamarca, Peru suggest that the irregularities form first near the bottom of the F-layer and over a period of hours propagate to the topside.³³ In this latter case, upward motion is inferred but not measured. The process producing the irregularities appears to move upward. Perhaps this process involves ascending bubbles or perhaps some other triggering mechanism that is delayed at higher altitudes.

Since this basic work on bubbles, considerable supporting evidence has been published. References 34 and 35 show computer simulations of bubbles forming on the very steep bottomside of the F-layer due to Rayleigh-Taylor instabilities and buoyantly rising through the peak of the layer into the topside. Data from the Altair radar on Kwajalein Atoll appears to show both the formation of the bite-outs on the bottomside and the subsequent development of a plume of irregularities.³⁶ The rate of the bubble rise is dependent on ionospheric parameters as well as on the density depletion within the bubble. Reference 37 discusses plasma instabilities leading to bubbles, and Reference 38 further discusses the rate of bubble rise. Reference 39 presents additional experimental evidence for field-aligned bite-outs and perhaps bubbles.

Although some bubbles clearly rise rapidly, others may rise slowly or not at all. References 34, 35, and 38 show that a great range of vertical rise velocities are possible including very small velocities. Of course, once the bubble has reached an equilibrium altitude, it cannot rise further.

The Altair radar in operation during the same period as for the observations reported here often saw little or no vertical drift of the irregularities associated with bubbles but a strong eastward drift of the irregularities at 60 to 70 m/sec.⁴⁰ This correlates approximately with the eastward neutral wind observed during the same period.⁴¹ While the data from ISIS cannot directly provide information on the drift of plumes, it can yield information when compared with ground based observations. On several occasions, exploded traces or plumes were spotted to the west of Kwajalein by

ISIS and then later observed by the Altair radar or the Digisonde on Kwajalein. The calculated rate of eastward drift was similar to that measured by Altair.

The fact that exploded traces are most frequently observed along the magnetic field L-shell bounding the anomaly region and infrequently on lower L-shells has potential implications for bubbles. If bubbles are the cause of such traces then either 1) most bubbles rise from the bottomside near 15°N or 15°S magnetic latitude and are less prevalent at the magnetic equator or 2) bubbles rise rapidly at all latitudes within the anomaly region and slow their ascent or stabilize on the L-shell bounding the region. In either case, the strongest scintillations and highest density plumes would be expected at the north or south boundary of the anomaly region where the exploded traces penetrate the peak of the F-layer. Indeed, ISIS frequently observes the strongest scintillation here. This is also where both the Jicamarca and Altair radars observe large backscatter plumes.

3.5 VERTICAL IONOSPHERIC DRIFTS

By examining ISIS ionograms from satellite passes at different local times during the evening, it is possible to infer the gross vertical movement of the ionosphere. Typical early evening ionograms such as Figure 2 taken near 1900 local time show a high smooth topside ionosphere. Later ionograms such as Figures 8 and 9 show a much lower smooth topside broken by an exploded trace. It appears that sinking of the ionosphere and exploded traces or plumes go together. The top of many exploded traces occur near the altitude where the topside was earlier.

Gross movement of the equatorial ionosphere has been well documented. Data from Reference 42 shows the rise of the equatorial ionosphere near sunset (1800 LT) and then its steep fall at 2000 LT. The 1800 rise corresponds with the development of a strong anomaly, and the 2000 fall corres-

ponds with the onset of exploded traces and spread. The rapid sinking of the ionosphere appears related to the rising of bubbles and the formation of plumes.

The sinking of the ionosphere alone has some potential for creating plumes without the need for bubbles. Near 2000 LT the topside is in a transition from a high and rising ionosphere to the west of the observer to a low and sinking ionosphere to the east. Possibly the sinking of the topside occurring at this time is also somewhat non-uniform. Plasma left high can mix with adjacent lower density plasma via the gradient drift instability known to occur in barium ion clouds. Cross-field neutral winds, which are known to exist,⁴¹ are necessary to drive the incompressible mixing of high and low density plasma. To couple the neutral wind to the plasma, a sufficiently large ion-neutral collision frequency is necessary. Because the ion-neutral collision frequency is proportional to the neutral density, neutral winds will be most effective at driving a gradient drift instability in the lower portions of the F-region. Reference 43 has discussed this instability as a possibility for the development of bottomside spread.

Although gravity tends to stabilize the sinking topside, the possibility that a wind driven gradient drift instability plays a part in multiplying irregularities is significant. Even rising bubbles may be broken up by horizontal neutral winds both above and below the peak of the F-layer.

3.6 CORRELATION WITH SOLAR ACTIVITY

Because the 1978 ISIS observations show a considerably greater incidence of exploded traces and severe spread than the 1977 observations, it is interesting to speculate whether this had anything to do with the increase in solar activity observed in recent years. Table 8 shows monthly average Zürich sunspot numbers for selected months.⁴⁴ The summer of 1978 had about twice the number of sunspots (and therefore twice the solar activity) compared with the summer of 1977. Also, the data taken during the first part of the

Kwajalein campaign in August 1977 showed much less ionospheric activity than that taken in late August. This correlates with the moderate increase in solar activity noted.

The connection between solar activity and exploded traces appears to come from vertical ionospheric drifts. As mentioned earlier, these drifts appear to precipitate exploded traces. Reference 42 shows that early evening vertical ionospheric drifts are strongly dependent on the solar cycle. These drifts are pronounced at solar maximum and hardly visible during solar minimum. Hence, the drifts were probably milder in 1977 than 1978, implying fewer exploded traces in 1977 than 1978. This was observed.

The foregoing are conclusions presented as preliminary conclusions. Perhaps the strongest conclusion to be drawn is that the ISIS data contains a great deal of information on ionospheric conditions relevant to scintillations and warrants further study.

Table 7. Monthly average Zürich sunspot numbers for selected months. (from Reference 44)

<u>Date</u>		<u>Zürich Sunspot Number</u>
March	1977	8.0
April		13.2
May		18.4
June		38.4
July		21.2
August		29.9
September		44.1
April	1978	94.7
May		79.3
June		94.1
July		68.4
August		56.7
September		137.3
October		122.8

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APPENDIX
TABLE OF ALL ISIS PASSES

Using the terminology developed in Section 2, Table 8 shows the minute by minute nature of each satellite pass recorded. For 1977, the table includes satellite location and ionogram description as a function of time. For 1978, signal scintillation information is included. The location of the point where the telemetry signal penetrated the peak of the F-layer is indicated, assuming this peak to be at a 300 km altitude.

UNRLL: 3669 ISIS I PASS SUMMARY FOR ROI NADIR FOR 6 AUGUST 1977 DAY 218

RAY	TIME (Z) HR MN SC	SATELLITE LOCATION		DESCRIPTION	IONOGRAM SUMMARY	
		LAT	LONG		F-MAX	MUF
218	1 2 0	35.95	160.93	915		
218	1 3 0	32.27	160.83	970	SM, ME, ER	7.3
218	1 4 0	28.65	160.71	1028	SM, ME, ER	8.0
218	1 5 0	25.08	160.58	1088	SM, ME, ER	8.8
218	1 6 0	21.57	160.44	1151	SM, ME, CE(1.8), ER	9.0
218	1 7 0	18.12	160.30	1217	SM	9.0
218	1 8 0	14.73	160.15	1284	SM, ME, ER	8.9
218	1 9 0	11.39	159.99	1353	SM, ER	-8.5
218	1 10 0	8.12	159.83	1423	SM, ER	7.5
218	1 11 0	4.90	159.67	1494	SM, ER	>6.0
218	1 12 0	1.74	159.51	1565	SM, CE(1.6)	9.4
218	1 13 0	-1.36	159.34	1639	SM, ER	10.3
218	1 14 0	-4.40	159.17	1712	SM, ER	10.1
218	1 15 0	-7.39	159.00	1786	SM, ER	9.0
218	1 16 0	-10.33	158.83	1859	SM, ME	-9.0
218	1 17 0	-13.21	158.66	1932	SM, ME, ER	7.5
218	1 18 0	-16.04	158.50	2005		
218	1 19 0	-18.83	158.33	2078		
218	1 20 0	-21.56	158.16	2150		
218	1 21 0	-24.25	158.00	2221		
218	1 22 0	-26.89	157.83	2290		
218	1 23 0	-29.49	157.67	2359		
218	1 24 0	-32.04	157.52	2427		

OBJECT: 5669 1515 J PASS SUMMARY FOR 1011 RAMIR FUR 5 AUGUST 1977 10Y 21B

DAY	TIME (Z) HR MN SC	SATELLITE LOCATION			DESCRIPTION	IONOGRAM SUMMARY	
		LAT	LONG	ALT KM		F-MAX MIZ	
218	12 58 0	-35.58	161.36	2913			
218	12 59 0	-34.29	161.21	2859			
218	13 0 0	-31.97	161.04	2803			
218	13 1 0	-29.62	160.88	2745	SM, ME, ER		4.5
218	13 2 0	-27.24	160.71	2685	SM, ME		4.0
218	13 3 0	-24.83	160.54	2623	SM, ME		4.5
218	13 4 0	-22.38	160.37	2559	SM, ME, ER		~5.0
218	13 5 0	-19.89	160.20	2495	SM, ME, ER		~5.0
218	13 6 0	-17.37	160.02	2428	SM, ME, ER		~5.0
218	13 7 0	-14.81	159.85	2361	SM, ME, ER		4.5
218	13 8 0	-12.21	159.67	2292	SM, ME		>3.0
218	13 9 0	-9.56	159.50	2222	SM, ME		5.5
218	13 10 0	-6.87	159.32	2151	SM, ME, CE(1.3), ER		~5.0
218	13 11 0	-4.13	159.14	2079	SM, ME		>8.0
218	13 12 0	-1.35	158.97	2006	SM, ME, CE(1.1)		>4.0
218	13 13 0	1.49	158.80	1933	SP, STV, ME, RSP, ET(2)		>5.0
218	13 14 0	4.37	158.62	1860	SP, STV, ME		>6.0
218	13 15 0	7.31	158.45	1786	SP, STV		>6.0
218	13 16 0	10.30	158.28	1713	SP, STV, CE(1.7)		>6.0
218	13 17 0	13.34	158.12	1640	SP, STV, ME		>5.0
218	13 18 0	16.44	157.96	1567	SP, STV, ME, RSP		>3.0
218	13 19 0	19.59	157.80	1495	SP, STV, ME		>3.0
218	13 20 0	22.81	157.65	1423	SM, ME		>3.0
218	13 21 0	26.08	157.51	1353	SM, ME		>3.0
218	13 22 0	29.41	157.37	1204	SM, ME		~4.0
218	13 23 0	32.79	157.25	1217	SM, ME, ER		>3.5
218	13 24 0	36.23	157.13	1151	SM, ME		>3.5

 OBJECT: 3562 1515 I PASS SUMMARY FOR ROI NAME: FOR 2 AUGUST 1977 DAY 219 *****

DAY	TIME (Z) HR MN SC	SATELLITE LOCATION		
		LAT	LONG	ALT KM
219	12 30 0	-35.98	167.31	2853
219	12 31 0	-33.66	167.16	2796
219	12 32 0	-31.31	167.00	2738
219	12 33 0	-28.93	166.83	2678
219	12 34 0	-26.51	166.66	2616
219	12 35 0	-24.06	166.50	2552
219	12 36 0	-21.57	166.32	2487
219	12 37 0	-19.05	166.15	2421
219	12 38 0	-16.48	165.98	2353
219	12 39 0	-13.87	165.80	2284
219	12 40 0	-11.22	165.63	2214
219	12 41 0	-8.53	165.45	2143
219	12 42 0	-5.79	165.28	2071
219	12 43 0	-3.00	165.10	1998
219	12 44 0	-0.16	164.93	1925
219	12 45 0	2.73	164.76	1852
219	12 46 0	5.67	164.59	1779
219	12 47 0	8.67	164.42	1705
219	12 48 0	11.72	164.25	1632
219	12 49 0	14.83	164.09	1559
219	12 50 0	17.99	163.93	1487
219	12 51 0	21.21	163.78	1416
219	12 52 0	24.49	163.63	1345
219	12 53 0	27.82	163.50	1277
219	12 54 0	31.21	163.37	1210
219	12 55 0	34.66	163.25	1145
219	12 56 0	38.17	163.14	1082

TIMING
 INFORMATION
 MISSING

OBJECT: 4669 DATE: 1977 AUGUST 8 FOR: J6Y 230

PASS SUMMARY FOR KILL PAMIR

DAY	TIME (Z) HR MN SC	SATELLITE LOCATION		DESCRIPTION	TONOGRAM SUMMARY	
		LAT	LONG		F-MAX	MIZ
#220*	0 5 0	35.38	173.06			
#220*	0 6 0	31.77	172.95			
#220*	0 7 0	28.22	172.83			
#220*	0 8 0	24.72	172.70	SM, ER		7.0
#220*	0 9 0	21.29	172.55	SM		8.0
#220*	0 10 0	17.91	172.41	SM		9.0
#220*	0 11 0	14.59	172.26	SM, ER		8.6
#220*	0 12 0	11.32	172.10	SM, ER		7.9
#220*	0 13 0	8.12	171.94	SM, ER		7.0
#220*	0 14 0	4.97	171.77	SM, ER		7.3
#220*	0 15 0	1.88	171.61	SM, ER		9.1
#220*	0 16 0	-1.15	171.44	SM, ER		9.5
#220*	0 17 0	-4.13	171.27	SM		>10.0
#220*	0 18 0	-7.05	171.10	SM		>10.0
#220*	0 19 0	-9.93	170.93	SM		>10.0
#220*	0 20 0	-12.75	170.75	SM, ME		8.5
#220*	0 21 0	-15.52	170.58	SM, ME		~7.5
#220*	0 22 0	-18.24	170.41	SM, ME, ER	CE(1.3), ER	6.5
#220*	0 23 0	-20.92	170.25	SM, ME, ER	SM, ME, ER	6.5
#220*	0 24 0	-23.56	170.08	SM, ME, ER	SM, ME, ER	6.0
#220*	0 25 0	-26.15	169.91	SM, ME, ER	SM, ME, ER	>6.0
#220*	0 26 0	-28.70	169.75	SM, ME	SM, ME, CE(1.3)	>7.0
#220*	0 27 0	-31.21	169.59	SM	SM	>6.0
#220*	0 28 0	-33.68	169.43	SM	SM	>6.0

OBJECT: 3569 ISIS I PASS SUMMARY FOR ROI NAMEUR FOR 8 AUGUST 1977 DAY 220

DAY	TIME (Z) HR MN SC		SATELLITE LOCATION			ALT KM	DESCRIPTION	IONOGRAM SUMMARY	
			LAT	LONG	F-MAX MHz				
220	12	2	0	-35.35	173.27	2790	SM, ME	-4.0	
220	12	3	0	-33.00	173.11	2731	SM, ME	3.5	
220	12	4	0	-30.61	172.95	2671	SM, ME	3.5	
220	12	5	0	-28.19	172.78	2609	SM, ME	>3.0	
220	12	6	0	-25.74	172.62	2545	SM, ME	3.3	
220	12	7	0	-23.24	172.45	2480	SM, ME	3.3	
220	12	8	0	-20.71	172.28	2413	SM, ME	3.3	
220	12	9	0	-18.14	172.10	2345	SM, ME, ER	3.1	
220	12	10	0	-15.53	171.93	2276	SM, ME, ER	>3.0	
220	12	11	0	-12.88	171.76	2206	SM, ME	-4.0	
220	12	12	0	-10.18	171.58	2135	SM, ME	>5.0	
220	12	13	0	-7.43	171.41	2063	SM	6.5	
220	12	14	0	-4.64	171.23	1990	SM, ME	6.5	
220	12	15	0	-1.79	171.06	1917	SM	-6.5	
220	12	16	0	1.10	170.89	1844	SM, RSP, ME	>6.0	
220	12	17	0	4.05	170.72	1770	SM, RSP	6.7	
220	12	18	0	7.05	170.55	1697	SM, WSP	6.5	
220	12	19	0	10.11	170.38	1624	SM, ME, WSP, ER	6.0	
220	12	20	0	13.22	170.22	1551	SM, WSP, ER	-6.0	
220	12	21	0	16.39	170.06	1479	SM, ME, ER	5.7	
220	12	22	0	19.62	169.91	1408	SM, ME	5.6	
220	12	23	0	22.90	169.76	1338	SM, ME, ER	5.5	
220	12	24	0	26.24	169.62	1269	SM, ME, SSP	5.0	
220	12	25	0	29.64	169.49	1203	SM, ME, ER	4.5	
220	12	26	0	33.10	169.36	1138	SM, ME, ER	4.6	
220	12	27	0	36.62	169.26	1075	SM, ME, ER	4.6	

OBJECT: 3669 1515 I PASS SUMMARY FOR KUL NABUK FOR 9 AUGUST 1977 DAY 221

DAY	TIME (Z) HR MN SC	SATELLITE LOCATION			ALT KM	DESCRIPTION	IONOGRAM SUMMARY	
		LAT	LONG	F-MAX MHZ				
221	11 34 0	-34.67	179.22	2725				
221	11 35 0	-32.28	179.06	2664				
221	11 36 0	-29.86	178.90	2602				
221	11 37 0	-27.40	178.74	2538				
221	11 38 0	-24.91	178.57	2472				
221	11 39 0	-22.38	178.40	2406				
221	11 40 0	-19.80	178.23	2338				
221	11 41 0	-17.19	178.06	2268				
221	11 42 0	-14.53	177.89	2198				
221	11 43 0	-11.82	177.71	2127				
221	11 44 0	-9.07	177.54	2055				
221	11 45 0	-6.27	177.37	1982				
221	11 46 0	-3.42	177.19	1909				
221	11 47 0	-0.52	177.02	1836				
221	11 48 0	2.43	176.85	1762				
221	11 49 0	5.44	176.68	1689				
221	11 50 0	8.51	176.52	1615				
221	11 51 0	11.62	176.35	1543				
221	11 52 0	14.80	176.19	1471				
221	11 53 0	18.03	176.04	1400				
221	11 54 0	21.33	175.89	1330				
221	11 55 0	24.68	175.74	1262				
221	11 56 0	28.08	175.61	1195				
221	11 57 0	31.55	175.48	1131				
221	11 58 0	35.07	175.37	1068				
221	11 59 0	38.65	175.27	1008				

SM, ME 5.2
SM, ME >7.0
SM, ME >6.0
SM, RSP, ET(3.4) >5.0
SM, RSP, ET(3.2), ER >6.0
SM >6.0
SM, ME >6.0
SM, ME 6.1
SM, ME, ER 5.5
SM, ME, ER 5.5
SM, ME, ER 5.3
SM, ME, ER 5.0
SM, ME, ER 4.8

URGENT: 1659 1515 I PASS SUMMARY FOR K01 NAMUK FOR 9 AUGUST 1977 DAY 221

DAY	TIME (Z) HR MN SC	SATELLITE LOCATION		ALT KM	DESCRIPTION	IONOGRAM SUMMARY	
		LAT	LONG			F-MAX MHz	
#221*	13 44 0	-30.68	146.78	2618			
#221*	13 45 0	-28.23	146.61	2555			
#221*	13 46 0	-25.74	146.45	2490			
#221*	13 47 0	-23.22	146.28	2423			
#221*	13 48 0	-20.66	146.11	2356			
#221*	13 49 0	-18.05	145.94	2287			
#221*	13 50 0	-15.41	145.75	2217			
#221*	13 51 0	-12.71	145.59	2146	SM, ME	4.0	
#221*	13 52 0	-9.97	145.42	2074	SM, ME, ER	3.9	
#221*	13 53 0	-7.19	145.24	2001	SM, ME	4.0	
#221*	13 54 0	-4.35	145.07	1928	SM, ME, WSP	4.2	
#221*	13 55 0	-1.46	144.90	1855	SM, ME, CE(1.5), WSP, ER	4.0	
#221*	13 56 0	1.48	144.73	1781	SM, ME, CE(1.3), WSP	5.0	
#221*	13 57 0	4.47	144.56	1708	SM, ME, CE(1.4), WSP	>4.0	
#221*	13 58 0	7.52	144.39	1635	SM, ME, CE(1.4), ER	>5.0	
#221*	13 59 0	10.62	144.23	1562	SM, ME	>3.0	
#221*	14 0 0	13.78	144.07	1490	SM, ME, WSP	~3.5	
#221*	14 1 0	17.00	143.91	1418	SM, ME, CE(1.2), ER	3.6	
#221*	14 2 0	20.28	143.76	1348	SM, ME, CE(1.7), SP	~4.0	
#221*	14 3 0	23.62	143.61	1280	SP, ME, CE(1.7)	>3.0	
#221*	14 4 0	27.01	143.47	1212	SP, ME, CE(1.5)	>3.0	
#221*	14 5 0	30.46	143.35	1147			

ORRUC1: 3669 JSTIS 1 PASS SUMMARY FOR KUI NAMUK FOR 10 AUGUST 1977 DAY 222

DAY	TIME (Z) HR MN SC	SATELLITE LOCATION		ALT KM	DESCRIPTION	IONOGRAM SUMMARY	
		LAT	LONG			F-MAX	MUF
222	1 16 0	35.97	153.04	1038			
222	1 17 0	32.42	152.93	1099			
222	1 18 0	28.92	152.81	1163			
222	1 19 0	25.49	152.68	1228			
222	1 20 0	22.11	152.54	1296			
222	1 21 0	18.78	152.39	1365			
222	1 22 0	15.52	152.24	1435			
222	1 23 0	12.32	152.08	1507			
222	1 24 0	9.17	151.91	1579	SN, ER	8.7	
222	1 25 0	6.08	151.75	1652	SN, ER	9.4	
222	1 26 0	3.04	151.58	1725	SN, ER	9.8	
222	1 27 0	0.06	151.41	1799	SN, ER	>8.0	
222	1 28 0	-2.87	151.24	1872	SN, ER	10.2	
222	1 29 0	-5.74	151.07	1946	SN, ME	11.0	
222	1 30 0	-8.57	150.89	2019	SN, ME, ER	9.1	
222	1 31 0	-11.34	150.72	2091	SN, ME, ER	8.9	
222	1 32 0	-14.07	150.55	2163	SN, ME, ER	6.9	
222	1 33 0	-16.75	150.38	2233	SN, ME, ER	7.9	
222	1 34 0	-19.39	150.20	2303	SN, ME, ER	8.5	
222	1 35 0	-21.98	150.03	2372	SN, ME, ER	8.2	
222	1 36 0	-24.53	149.87	2439	SN, ME, ER	7.0	
222	1 37 0	-27.05	149.70	2505	SN, ME	>6.0	
222	1 38 0	-29.52	149.54	2570	SN, ME	>4.0	
222	1 39 0	-31.96	149.37	2633	SN, ME	>6.0	

OBJECT: 3669 ISIS I PASS SUMMARY FOR KUI NAMUR FOR 10 AUGUST 1977 DAY 222

DAY	TIME (Z) HR MN SC	SATELLITE LOCATION		ALT KM	DESCRIPTION	IONOGRAM SUMMARY	
		LAT	LONG			F-MAX MHz	
#222*	11 7 0	-31.53	-174.98	2594	SM, ME		>3.0
#222*	11 8 0	-29.06	-175.14	2530	SM, ME		-5.0
#222*	11 9 0	-26.57	-175.31	2465	SM, ME		5.5
#222*	11 10 0	-24.03	-175.47	2398	SM, ME, CE(1.5)		-6.0
#222*	11 11 0	-21.45	-175.64	2330	SP, STV, ET(3.0)		>7.0
#222*	11 12 0	-18.83	-175.81	2260	SP, STV, ET(-3.0)		>6.0
#222*	11 13 0	-16.17	-175.98	2190	SP, STV, ET(2.9)		>5.0
#222*	11 14 0	-13.46	-176.16	2118	WSP, ME, ER		>6.0
#222*	11 15 0	-10.70	-176.33	2046	WSP, ME, ER		>4.0
#222*	11 16 0	-7.90	-176.50	1974	SP, ME, ER		>3.0
#222*	11 17 0	-5.04	-176.67	1901	SM, ME, CE(1.5)		5.5
#222*	11 18 0	-2.13	-176.84	1827	SP, STV, ET(3.0)		-6.0
#222*	11 19 0	0.83	-177.01	1754	SP, STV, ET(-3.0)		>7.0
#222*	11 20 0	3.84	-177.18	1680	SP, STV, ET(2.9)		>6.5
#222*	11 21 0	6.91	-177.35	1607	SP, STV, ET(2.9)		>5.0
#222*	11 22 0	10.04	-177.51	1534	WSP, ME, ER		>6.0
#222*	11 23 0	13.22	-177.67	1463	WSP, ME, ER		>4.0
#222*	11 24 0	16.46	-177.83	1392	SP, ME, ER		>3.0
#222*	11 25 0	19.76	-177.98	1322	SM, ME, CE(1.5)		5.5
#222*	11 26 0	23.12	-178.13	1254	SM, ME		-5.0
#222*	11 27 0	26.53	-178.27	1188	SM, ME, ER		4.4
#222*	11 28 0	30.01	-178.40	1123	SM, ME		-4.0
#222*	11 29 0	33.54	-178.51	1061	SM, ME		>3.0

OBJECT: 3659 ISIS I PASS SUMMARY FOR KUI N0MUK FOR 10 AUGUST 1977 MAY 222

DAY	TIME (Z)			SATELLITE LOCATION			DESCRIPTION	IONOGRAM SUMMARY	F-MAX MIZ
	HR	MIN	SC	LAT	LONG	ALT NM			
222	13	15	0	-32.34	152.89	2611			
222	13	16	0	-29.89	152.73	2547			
222	13	17	0	-27.40	152.57	2482			
222	13	18	0	-24.87	152.40	2415			
222	13	19	0	-22.31	152.23	2348			
222	13	20	0	-19.70	152.06	2279			
222	13	21	0	-17.05	151.89	2208			
222	13	22	0	-14.35	151.72	2137	SSP, ME, ER		~4.0
222	13	23	0	-11.61	151.55	2065	SM, ME		>3.0
222	13	24	0	-8.81	151.38	1993	SM, ME, CE(1.5), ER		>4.0
222	13	25	0	-5.97	151.20	1920	WSP, ME, CE(1.4)		>3.5
222	13	26	0	-3.08	151.03	1846	WSP, ME, ER		>3.0
222	13	27	0	-0.13	150.86	1773	SM, SSP, ME, CE(1.3)		>5.0
222	13	28	0	2.87	150.69	1699	SM, ME		>5.0
222	13	29	0	5.92	150.53	1626	SM, CE(2)		>4.0
222	13	30	0	9.03	150.36	1553	SM, ME		>3.0
222	13	31	0	12.20	150.20	1481	SP, ME, ER		~3.5
222	13	32	0	15.43	150.04	1410	SM, ME, WSP, ER		>3.5
222	13	33	0	18.71	149.89	1340	SM, ME, CE(1.5)		>3.5
222	13	34	0	22.06	149.74	1272	SM, ME		>4.5
222	13	35	0	25.46	149.60	1205	SM, ME, ER		~5.0
222	13	36	0	28.91	149.47	1140			
222	13	37	0	32.43	149.35	1077			

 OBJECT: 4669 ISIS 1 PASS SUMMARY FOR KUI NAMUR FOR 11 AUGUST 1977 DAY 224 *****

DAY	TIME (Z) HR MN SC	SATELLITE LOCATION			DESCRIPTION	IONOGRAM SUMMARY	
		LAT	LONG	ALT KM		F-MAX MIZ	F-MAX MIZ
223	0 47 0	37.50	159.16	1045			
223	0 48 0	33.95	159.05	1166			
223	0 49 0	30.47	158.93	1170	SM		>6.0
223	0 50 0	27.04	158.80	1236	SM		8.7
223	0 51 0	23.62	158.67	1304	SM		>9.0
223	0 52 0	20.35	158.52	1373	SM		9.9
223	0 53 0	17.09	158.37	1444	SM, ER		9.6
223	0 54 0	13.90	158.21	1515	SM, ER		8.7
223	0 55 0	10.76	158.05	1588	SM, ER		8.5
223	0 56 0	7.67	157.88	1661	SM, ER		8.2
223	0 57 0	4.64	157.72	1734	SM		9.7
223	0 58 0	1.67	157.55	1808	SM		10.0
223	0 59 0	-1.25	157.37	1881			
223	1 0 0	-4.12	157.20	1954			
223	1 1 0	-6.94	157.03	2027			
223	1 2 0	-9.71	156.85	2099			
223	1 3 0	-12.43	156.68	2171			
223	1 4 0	-15.11	156.51	2242			
223	1 5 0	-17.74	156.33	2311			
223	1 6 0	-20.33	156.16	2380			
223	1 7 0	-22.88	155.99	2447			
223	1 8 0	-25.39	155.82	2513			
223	1 9 0	-27.86	155.65	2578			
223	1 10 0	-30.30	155.49	2640			
223	1 11 0	-32.70	155.33	2702			

OBJECT: 3669 ISIS I PASS SUMMARY FOR KUI NAMUR FOR 11 AUGUST 1977 DAY 223

DAY	TIME (Z) HR MN SC	SATELLITE LOCATION		ALT KM	DESCRIPTION	IONOGRAM SUMMARY	
		LAT	LONG			F-MAX Mhz	F-MAX Mhz
223	12 46 0	-34.00	159.00	2603			
223	12 47 0	-31.54	158.85	2539			
223	12 48 0	-29.05	158.69	2474			
223	12 49 0	-26.52	158.52	2407			
223	12 50 0	-23.95	158.36	2339			
223	12 51 0	-21.34	158.19	2270			
223	12 52 0	-18.68	158.02	2200			
223	12 53 0	-15.98	157.85	2129			
223	12 54 0	-13.23	157.68	2057	SM, ME, CE(1.5), ER	-4.0	
223	12 55 0	-10.43	157.51	1984	SM, ME, CE(1.8), ER	4.0	
223	12 56 0	-7.58	157.34	1911	SM, ME, ER	-5.0	
223	12 57 0	-4.68	157.17	1838	SM, ME	>6.0	
223	12 58 0	-1.73	157.00	1764	SM, ME	>6.0	
223	12 59 0	1.27	156.83	1691	SM, ME	>6.0	
223	13 0 0	4.34	156.66	1618	SM, ME	>5.0	
223	13 1 0	7.45	156.49	1545	SM, ME	>7.5	
223	13 2 0	10.63	156.33	1473	SM, ME, ER	-7.0	
223	13 3 0	13.86	156.17	1402	SM, ME	4.8	
223	13 4 0	17.15	156.02	1332	SM, ME	>4.5	
223	13 5 0	20.50	155.87	1264	SM, ME	>5.0	
223	13 6 0	23.91	155.73	1197	SM, ME	-5.8	
223	13 7 0	27.38	155.59	1132	SM, ME	>5.0	
223	13 8 0	30.90	155.47	1070			
223	13 9 0	34.48	155.35	1010			

OBJECT: 3669 1515 I PASS SUMMARY FOR ROI NAMUR FOR 12 AUGUST 1977 DAY 224

DAY	TIME (Z) HR MN SC	SATELLITE LOCATION		DESCRIPTION	IONOGRAM SUMMARY	
		LAT	LONG		ALT NM	F-MAX MHZ
224	0 18 0	39.01	165.27			
224	0 19 0	35.48	165.17			
224	0 20 0	32.00	165.05			
224	0 21 0	28.58	164.93			
224	0 22 0	25.21	164.79			
224	0 23 0	21.91	164.65	SM, ER		9.1
224	0 24 0	18.65	164.50	SM		9.3
224	0 25 0	15.47	164.34	SM		9.4
224	0 26 0	12.34	164.18	SM		9.3
224	0 27 0	9.26	164.02	SM, CE(1.4)		9.7
224	0 28 0	6.24	163.85	SM, ER		9.5
224	0 29 0	3.27	163.68	SM		9.4
224	0 30 0	0.35	163.51	SM, ER		9.6
224	0 31 0	-2.51	163.33	SM		>10.0
224	0 32 0	-5.32	163.16	SM		>10.0
224	0 33 0	-8.09	162.99	SM		>10.0
224	0 34 0	-10.80	162.81	SM		9.6
224	0 35 0	-13.48	162.64			
224	0 36 0	-16.10	162.46			
224	0 37 0	-18.69	162.29			
224	0 38 0	-21.23	162.12			
224	0 39 0	-23.74	161.94			
224	0 40 0	-26.21	161.77			
224	0 41 0	-28.64	161.61			
224	0 42 0	-31.04	161.44			
224	0 43 0	-33.41	161.28			
224	0 44 0	-35.74	161.13			

OBJECT: 3659 ISIS I PASS SUMMARY FOR KDI NAMUR FUR 12 AUGUST 1977 MAY 224

UAY	TIME (Z) HR MN SC	SATELLITE LOCATION		ALT KM	DESCRIPTION	IONOGRAM SUMMARY	
		(LAT	LONG			F-MAX	MUF
#224#	12 18 0	-33.19	164.95	2532			
#224#	12 19 0	-30.69	164.81	2466			
#224#	12 20 0	-28.16	164.65	2399			
#224#	12 21 0	-25.58	164.48	2331			
#224#	12 22 0	-22.97	164.32	2262			
#224#	12 23 0	-20.31	164.15	2191			
#224#	12 24 0	-17.60	163.98	2120			
#224#	12 25 0	-14.84	163.81	2048			
#224#	12 26 0	-12.04	163.64	1975			
#224#	12 27 0	-9.19	163.47	1902			
#224#	12 28 0	-6.28	163.30	1829			
#224#	12 29 0	-3.32	163.13	1755			
#224#	12 30 0	-0.31	162.96	1682			
#224#	12 31 0	2.76	162.79	1609			
#224#	12 32 0	5.88	162.63	1536			
#224#	12 33 0	9.07	162.47	1464			
#224#	12 34 0	12.31	162.31	1393			
#224#	12 35 0	15.61	162.15	1324			
#224#	12 36 0	18.96	162.00	1256			
#224#	12 37 0	22.38	161.85	1189			
#224#	12 38 0	25.85	161.72	1125			
#224#	12 39 0	29.39	161.59	1063			
#224#	12 40 0	32.97	161.47	1003			
#224#	12 41 0	36.62	161.37	946			
#224#					SM, ME	4.9	
#224#					SM, ME, ER	6.5	
#224#					SP, ME, ET(3.0)	>5.0	
#224#					VSP, ME, ET(2.0)	>5.0	
#224#					VSP, ME, ET(1.8)	>5.0	
#224#					VSP, STV, ME, ET(1.8)	>7.0	
#224#					VSP, STV, ME, ET(2.1), RSP	>6.0	
#224#					VSP, STV, ME, ET(2.5), RSP	>5.0	
#224#					SP, STV, ME, ET(3.5), RSP	>5.5	
#224#					SM, ME	>5.0	
#224#					VSP, ME	>4.0	
#224#					SP, ME, ER	>5.0	
#224#					SP, ME, CE(1.7)	>4.8	
#224#					SM, ME, ER	5.5	

ORBIT: 3669 ISIS I PASS SUMMARY FOR K0J NAMUR FOR 12 AUGUST 1977 DAY 224

DAY	TIME (Z)			SATELLITE LOCATION		DESCRIPTION	IONOGRAM SUMMARY	
	HR	MM	SS	LAT	LONG		ALT KM	F-MAX MHZ
224	23	50	0	37.00	171.28	1121		
224	23	51	0	33.53	171.17	1186		
224	23	52	0	30.11	171.05	1252		
224	23	53	0	26.76	170.92	1320	SM, ER	9.5
224	23	54	0	23.46	170.78	1390	SM	~11.0
224	23	55	0	20.22	170.63	1461	SM	11.3
224	23	56	0	17.04	170.47	1533	SM	10.7
224	23	57	0	13.91	170.31	1605	SM	>9.0
224	23	58	0	10.84	170.15	1678	SM, ER	8.6
224	23	59	0	7.82	169.98	1752	SM, ER	7.2
225	0	0	0	4.86	169.81	1825	SM, ER	>6.0
225	0	1	0	1.95	169.64	1899	SM, ER	7.2
225	0	2	0	-0.90	169.47	1972	SM	7.8
225	0	3	0	-3.71	169.29	2045	SM	10.0
225	0	4	0	-6.47	169.12	2117	SM	11.0
225	0	5	0	-9.18	168.94	2188	SM	12.0
225	0	6	0	-11.85	168.77	2259	SM	>10.5
225	0	7	0	-14.47	168.59	2328	SM	>10.0
225	0	8	0	-17.05	168.42	2396	SM, ER	9.6
225	0	9	0	-19.59	168.24	2463	SM, ER	8.0
225	0	10	0	-22.09	168.07	2529	SM, ME, ER	7.0
225	0	11	0	-24.56	167.90	2593	M	
225	0	12	0	-26.99	167.73	2656	M	
225	0	13	0	-29.38	167.56	2716	M	
225	0	14	0	-31.75	167.40	2775	SM, ME, ER	~7.0
225	0	15	0	-34.08	167.24	2833		
225	0	16	0	-36.38	167.08	2888		

URGENT: 3669 1515 I PASS SUMMARY FOR K01 NAMUR FUR 13 AUGUST 1977 DAY 225

DAY	TIME (Z) HR MN SC	SATELLITE LOCATION			DESCRIPTION	IONOGRAM SUMMARY	
		LAT	LONG	ALT KM		F-MAX Mhz	
#225*	11 50 0	-32.33	170.92	2458			
#225*	11 51 0	-29.79	170.76	2391			
#225*	11 52 0	-27.21	170.60	2322			
#225*	11 53 0	-24.59	170.44	2253			
#225*	11 54 0	-21.92	170.28	2182			
#225*	11 55 0	-19.21	170.11	2111			
#225*	11 56 0	-16.45	169.94	2039	SM, ME, ER	-4.0	
#225*	11 57 0	-13.64	169.77	1966	SM, ME, ER	-4.0	
#225*	11 58 0	-10.78	169.60	1893	SM, ME, ER	4.0	
#225*	11 59 0	-7.87	169.43	1820	SM, ME	4.2	
#225*	12 0 0	-4.91	169.26	1746	SM, ME	-5.0	
#225*	12 1 0	-1.89	169.10	1673	SM, ER	>6.0	
#225*	12 2 0	1.19	168.93	1600	SM, ER	7.8	
#225*	12 3 0	4.32	168.76	1527	SM	8.2	
#225*	12 4 0	7.51	168.60	1456	SM	>7.0	
#225*	12 5 0	10.76	168.44	1385	SM, ER	>8.0	
#225*	12 6 0	14.07	168.28	1315	SM, ER	9.0	
#225*	12 7 0	17.43	168.13	1247	SM	7.5	
#225*	12 8 0	20.86	167.98	1181	SM, ER	4.6	
#225*	12 9 0	24.34	167.84	1117	SM, ME	4.9	
#225*	12 10 0	27.88	167.71	1055	SM, ME, ER	-4.5	
#225*	12 11 0	31.47	167.59	996	SM, ME	4.5	
#225*	12 12 0	35.12	167.48	940	SM, ME, ER	4.4	

 OBJECT: 3669 ISIS 1 PASS SUMMARY FOR KUI NAMUK FOR 13 AUGUST 1977 DAY 225

DAY	TIME (Z) HR MN SC	SATELLITE LOCATION		DESCRIPTION	IONOGRAM SUMMARY	
		LAT	LONG		ALT KM	F-MAX MHZ
225	23 21 0	38.51	177.39	1129		
225	23 22 0	35.04	177.29	1194		
225	23 23 0	31.64	177.17	1260		
225	23 24 0	28.29	177.04	1329		
225	23 25 0	25.00	176.90	1399		
225	23 26 0	21.77	176.76	1470		
225	23 27 0	18.59	176.60	1542		
225	23 28 0	15.48	176.44	1614		
225	23 29 0	12.41	176.28	1687		
225	23 30 0	9.41	176.12	1761	SM, ER	8.0
225	23 31 0	6.45	175.95	1834	SM	7.9
225	23 32 0	3.55	175.78	1908	SM, ER	8.2
225	23 33 0	0.70	175.60	1981	SM	8.4
225	23 34 0	-2.10	175.43	2054	SM, ER	8.7
225	23 35 0	-4.86	175.25	2126	SM	10.0
225	23 36 0	-7.56	175.08	2197	SM, ER	>11.0
225	23 37 0	-10.23	174.90	2267	SM, ME	>10.5
225	23 38 0	-12.84	174.72	2337	SM, ER	10.9
225	23 39 0	-15.42	174.55	2405	SM, ME, ER	-8.5
225	23 40 0	-17.96	174.37	2472	SM, ME, ER	6.5
225	23 41 0	-20.45	174.20	2537	SM, ME, ER	7.0
225	23 42 0	-22.92	174.02	2601	SM, ME, ER	7.8
225	23 43 0	-25.34	173.85	2663	SM, ME, CE(1.1), ER	-6.8
225	23 44 0	-27.73	173.68	2724	SM, ME	6.4
225	23 45 0	-30.09	173.51	2783	SM, ME, ER	5.8
225	23 46 0	-32.42	173.35	2840	SM, ME, ER	-7.0
225	23 47 0	-34.72	173.19	2895	SM	>5.0
225	23 48 0	-36.99	173.03	2948		

ORBIT: 5669 ISS: 1

PASS SUMMARY FOR KUT RADAR

FOR 15 AUGUST 1977 DAY 227

DAY	TIME (Z)	OR	MN	SC	SATELLITE LOCATION		ALT KM	DESCRIPTION	IONOGRAM SUMMARY	
					LAT	LONG			F-MAX	MUF
8/27/77	10 54	0			-30.44	-177.15	2305			
8/27/77	10 55	0			-27.81	-177.31	2235			
8/27/77	10 56	0			-25.13	-177.47	2164			
8/27/77	10 57	0			-22.41	-177.63	2093			
8/27/77	10 58	0			-19.64	-177.80	2020			
8/27/77	10 59	0			-16.82	-177.96	1947	SM, ME	CE(1.5)	-4.0
8/27/77	11 00	0			-13.95	-178.13	1874	SP, ME		-4.5
8/27/77	11 01	0			-11.03	-178.30	1801	SM, ME	WSP, CE(1.8)	-5.0
8/27/77	11 02	0			-8.05	-178.47	1727	SM, ME	WSP, CE(1.5)	-7.0
8/27/77	11 03	0			-5.01	-178.63	1654	SP, ME	ET(3)	>6.0
8/27/77	11 04	0			-1.93	-178.80	1581	SP, STV, ME	ET(3)	>6.0
8/27/77	11 05	0			1.22	-178.97	1509	WSP, STV, ME	RSP, ET(2.7)	>6.0
8/27/77	11 06	0			4.43	-179.13	1438	VSP, STV, ME	RSP, ET(2.6)	>7.0
8/27/77	11 07	0			7.69	-179.29	1367	SP, STV, ME	ET(3.0)	>6.0
8/27/77	11 08	0			11.01	-179.45	1298	SP, STV, ME	ET(4.2)	>6.0
8/27/77	11 09	0			14.40	-179.60	1231	SP, ME		>5.8
8/27/77	11 10	0			17.84	-179.75	1165	SP, ME, ER		4.8
8/27/77	11 11	0			21.34	-179.90	1101	SM, ME, CE(1.8)		>3.5
8/27/77	11 12	0			24.89	-179.97	1040	SM, ME, ER		>4.0
8/27/77	11 13	0			28.50	-179.84	982	SM, ME		-4.5
8/27/77	11 14	0			32.17	-179.72	926	SM, ME		-4.0

 OBJECT: 60000 ISSUES: 1 PASS SUMMARY FOR 101 HOURS: 10K 15 AUGUST 1977 1000 000

TIME HH MM SS	LAT	LONG	ALT KM	DESCRIPTION	IONOGRAM SUMMARY	
					F-MAX	MUF
0000	13 3 0	28.48	150.56			
0001	13 4 0	26.01	150.40			
0002	13 5 0	23.30	150.24			
0003	13 6 0	20.55	150.08	SM, ME	~4.5	
0004	13 7 0	17.74	149.91	SM, ME	~5.0	
0005	13 8 0	14.68	149.74	SM, ME	~4.5	
0006	13 9 0	11.97	149.58	SM, ME	?	
0007	13 10 0	9.01	149.41	M		
0008	13 11 0	5.99	149.24	VSP, ME	~5.5	
0009	13 12 0	2.91	149.07	SP, ME, CE	~4.0	
0010	13 13 0	0.22	148.91	SP, ME, CE(1.3)	4.5	
0011	13 14 0	3.41	148.75	VSP(<3), STV, ME, ER	4.5	
0012	13 15 0	6.66	148.58	M		
0013	13 16 0	9.95	148.42	SP(<3), STV, ME	~4.0	
0014	13 17 0	13.33	148.27	VSP(<3.5), STV, ME	~4.0	
0015	13 18 0	16.76	148.12	VSP, ME		
0016	13 19 0	20.24	147.97			
0017	13 20 0	23.78	147.83			
0018	13 21 0	27.58	147.70			
0019	13 22 0	31.04	147.58			

OBJECT: 3659 1515 I PASS SUMMARY FOR KDI NAMUR FUR 15 AUGUST 1977 DAY 227

DAY	TIME (Z) HR MN SC	SATELLITE LOCATION		ALT KM	DESCRIPTION	IONOGRAM SUMMARY	
		LAT	LONG			F-MAX MHz	F2-LAYER
#228*	0 32 0	39.12	157.37	1193	SM, ME(<2), ER		8.7
#228*	0 33 0	35.72	157.27	1260	SM, ME(<2), ER		9.0
#228*	0 34 0	32.38	157.15	1328	SM, ME(<2), ER		>8.0
#228*	0 35 0	29.09	157.02	1398	SM, ME(<2)		8.7
#228*	0 36 0	25.86	156.88	1469	SM, ME(<2)		8.1
#228*	0 37 0	22.69	156.73	1541	SM, ER		8.5
#228*	0 38 0	19.57	156.58	1614	SM, ER		>6.0
#228*	0 39 0	16.51	156.42	1687	SM		>7.0
#228*	0 40 0	13.50	156.26	1760	SM		7.0
#228*	0 41 0	10.55	156.09	1834	SM, ER		7.0
#228*	0 42 0	7.64	155.92	1908	SM, ER		8.9
#228*	0 43 0	4.79	155.75	1981	SM, ER		9.0
#228*	0 44 0	1.99	155.57	2053	SM		>10.0
#228*	0 45 0	-0.76	155.40	2125	SM, CE(1.3)		>10.5
#228*	0 46 0	-3.47	155.22	2197	SM, ER		10.8
#228*	0 47 0	-6.13	155.04	2267	SM, ER		>10.0
#228*	0 48 0	-8.75	154.86	2336	SM, ME, ER		8.9
#228*	0 49 0	-11.33	154.69	2405	SM, ER		>5.0
#228*	0 50 0	-13.87	154.51	2471	SM, ME		7.0
#228*	0 51 0	-16.37	154.33	2537	SM, ME		>7.0
#228*	0 52 0	-18.83	154.15	2601	SM, ME		7.2
#228*	0 53 0	-21.26	153.98	2663	SM, ME		
#228*	0 54 0	-23.65	153.80	2724			
#228*	0 55 0	-26.01	153.63	2783			
#228*	0 56 0	-28.34	153.46	2840			
#228*	0 57 0	-30.64	153.29	2895			
#228*	0 58 0	-32.92	153.12	2948			
#228*	0 59 0	-35.17	152.96	2999			

OBJECT: 3669 ISIS I PASS SUMMARY FOR RUI NAMUR FOR 17 AUGUST 1977 DAY 229

DAY	TIME (Z) HR MN SC	SATELLITE LOCATION			ALT KM	DESCRIPTION	IONOGRAM SUMMARY	
		LAT	LONG	F-MAX Mhz				
229	0 3 0	40.62	163.48	1202				
229	0 4 0	37.22	163.38	1269				
229	0 5 0	33.89	163.27	1337	SM, ER		8.1	
229	0 6 0	30.61	163.14	1407	SM		9.0	
229	0 7 0	27.39	163.01	1479	SM, ER		8.9	
229	0 8 0	24.22	162.86	1551	SM, ER		9.5	
229	0 9 0	21.11	162.71	1623	SM		>9.0	
229	0 10 0	18.06	162.55	1697	SM		-10.0	
229	0 11 0	15.06	162.39	1770	SM		9.1	
229	0 12 0	12.11	162.22	1844	SM, ER		8.0	
229	0 13 0	9.22	162.05	1917	SM		7.5	
229	0 14 0	6.37	161.88	1990	SM, ER		8.0	
229	0 15 0	3.58	161.71	2063	SM, ER		8.8	
229	0 16 0	0.83	161.53	2135	SM		9.2	
229	0 17 0	-1.87	161.35	2206	SM		9.8	
229	0 18 0	-4.53	161.18	2276	SM		>10.0	
229	0 19 0	-7.14	161.00	2346	SM		>10.0	
229	0 20 0	-9.72	160.82	2414	SM		>10.0	
229	0 21 0	-12.25	160.64	2480	SM, NE, CE(1.4)		>10.0	
229	0 22 0	-14.74	160.46	2545	SM, ME, ER		9.0	
229	0 23 0	-17.20	160.28	2609	SM, ME, ER		8.9	
229	0 24 0	-19.63	160.10	2671	SM, ME, ER		8.1	
229	0 25 0	-22.02	159.93	2732	SM, ME, ER		8.3	
229	0 26 0	-24.37	159.75	2790	SM, ME, CE(1.3)		8.0	
229	0 27 0	-26.70	159.58	2847	SM, ME, CE(1.3)		>7.5	
229	0 28 0	-29.00	159.41	2902	SM, ME, ER		7.3	
229	0 29 0	-31.27	159.24	2955	SM, ME		7.4	
229	0 30 0	-33.52	159.07	3005	SM, ME		6.5	
229	0 31 0	-35.74	158.91	3054	SM, ME, ER		6.3	

DAY	TIME (Z)			SATELLITE LOCATION		ALT KM	DESCRIPTION	IONOGRAM SUMMARY	
	HR	MM	SEC	LAT	LONG			F-MAX MHz	
229	12	5	0	31.87	162.80	2234			
229	12	6	0	-29.19	162.65	2164			
229	12	7	0	-26.47	162.49	2092			
229	12	8	0	-23.70	162.33	2020			
229	12	9	0	-20.88	162.17	1947			
229	12	10	0	-18.01	162.01	1874		SM, ME, ER	4.0
229	12	11	0	-15.09	161.84	1800		SM, ME	5.0
229	12	12	0	-12.11	161.68	1727		SM, ME	5.0
229	12	13	0	-9.08	161.51	1654		SP, STV, ME, ET(1.7)	>5.8
229	12	14	0	-5.99	161.35	1581		VSP, STV, ME, RSP, ET(1.6)	>6.0
229	12	15	0	-2.85	161.18	1509		WSP, STV, RSP, ET(1.2)	>6.0
229	12	16	0	0.36	161.02	1437		WSP, RSP, ME	>5.0
229	12	17	0	3.62	160.86	1367		WSP, RSP, ET(1.1)	>6.0
229	12	18	0	6.95	160.70	1298		WSP, RSP	>6.0
229	12	19	0	10.33	160.54	1230		WSP, RSP	>6.0
229	12	20	0	13.77	160.39	1165		WSP, STV, ET(1.6)	>5.0
229	12	21	0	17.27	160.24	1101		WSP, STV, ET(1.6)	>6.0
229	12	22	0	20.83	160.09	1040		VSP, STV, ET(1.8)	>7.0
229	12	23	0	24.45	159.96	982		SM, ER	7.3
229	12	24	0	28.12	159.83	926		SM, ER	6.9
229	12	25	0	31.84	159.71	874		SM, ER	6.9
229	12	26	0	35.61	159.61	825		SM	6.8

 TITLE: 5629 1515 L PASS SUMMARY FOR EUT MORTAR FOR 17 AUGUST 1977 DAY 29 *****

DAY	TIME (Z) HR MD SE	SATELLITE LOCATION			DESCRIPTION	IONOGRAM SUMMARY	
		LAT	LONG	ALT NM		F-MAX MHz	F2
209	23 59 0	42.10	169.59	1211			
209	23 55 0	38.71	169.50	1278	SM, ER		5.5
209	23 56 0	35.39	169.39	1347	SM, ER		6.3
209	23 57 0	32.12	169.26	1417	SM		7.0
209	23 58 0	28.90	169.13	1488	SM, ER		7.9
209	23 59 0	25.75	168.99	1560	SM, ER		8.9
209	23 40 0	22.65	168.84	1633	SM		9.9
209	23 41 0	19.60	168.68	1707	SM		10.0
209	23 42 0	16.61	168.52	1780	SM, ER		9.2
209	23 43 0	13.67	168.36	1854	SM, ER		8.0
209	23 44 0	10.78	168.19	1927	SM, ER		7.5
209	23 45 0	7.94	168.02	2000	SM, ER		7.6
209	23 46 0	5.16	167.84	2073	SM, ER		7.6
209	23 47 0	2.41	167.67	2145	SM		9.0
209	23 48 0	-0.28	167.49	2216	SM		10.0
209	23 49 0	-2.93	167.31	2286	SM		>10.0
209	23 50 0	-5.54	167.13	2355	SM, ME		>10.0
209	23 51 0	-8.11	166.95	2423	SM, ME		>10.0
209	23 52 0	-10.64	166.77	2489	SM, ME		>10.0
209	23 53 0	-13.13	166.59	2554	SM	ER	>10.0
209	23 54 0	-15.58	166.41	2618	SM, ME, ER		-8.0
209	23 55 0	-18.00	166.23	2679	SM, ME, ER		6.8
209	23 56 0	-20.39	166.05	2740	SM, ME, ER		-8.0
209	23 57 0	-22.74	165.88	2798	SM, ER		-7.0
209	23 58 0	-25.06	165.70	2854	SM, ME, CE(1.2)		-7.5
209	23 59 0	-27.35	165.53	2909	SM, ME		>6.0
209	0 0 0	-29.63	165.36	2962	SM		-7.0
209	0 1 0	-31.87	165.19	3012	SM		>5.0
209	0 2 0	-34.09	165.02	3060	SM, ER		-6.0
209	0 3 0	-36.39	164.86	3107	SM, ER		5.6
209	0 4 0	-38.43	164.70	3151	SM, ER		5.7

OBJECT: 3669 ISIS I PASS SUMMARY FOR R01 HAMUR FUR 18 AUGUST 1977 DAY 230

DAY	TIME (Z) HR MN SC	SATELLITE LOCATION			DESCRIPTION	IONOGRAM SUMMARY	
		LAT	LONG	ALT KM		F-MAX MHz	F2-LAYER
230	23 6 0	40.20	175.61	1287	SM, ME, CE(1.6)	6.5	
230	23 7 0	36.88	175.50	1356	SM, ME, CE(1.8), ER	7.0	
230	23 8 0	33.62	175.38	1427	SM, ME, ER	7.0	
230	23 9 0	30.41	175.25	1498	SM, ME, CE(1.5), ER	7.7	
230	23 10 0	27.27	175.11	1570	SM, ME(<2), ER	8.0	
230	23 11 0	24.17	174.97	1643	SM, CE(1.6), ER	8.3	
230	23 12 0	21.14	174.81	1717	SM, CE(1.7), ER	9.1	
230	23 13 0	18.15	174.65	1790	SM, CE(1.6), ER	9.0	
230	23 14 0	15.22	174.49	1864	SM	-8.0	
230	23 15 0	12.34	174.32	1937	SM, CE(1.4), ER	7.7	
230	23 16 0	9.51	174.15	2010	SM, ER	6.6	
230	23 17 0	6.73	173.98	2083	SM, ER	6.4	
230	23 18 0	3.99	173.80	2154	SM, ER	6.9	
230	23 19 0	1.30	173.62	2225	SM, ER	8.0	
230	23 20 0	-1.34	173.44	2295	SM, CE(1.4)	>7.9	
230	23 21 0	-3.94	173.26	2364	SM, CE(1.4)	>9.5	
230	23 22 0	-6.51	173.08	2432			
230	23 23 0	-9.03	172.90	2498			
230	23 24 0	-11.52	172.72	2563			
230	23 25 0	-13.96	172.54	2626			
230	23 26 0	-16.38	172.36	2688			
230	23 27 0	-18.76	172.18	2748			
230	23 28 0	-21.11	172.00	2806			
230	23 29 0	-23.43	171.83	2862			
230	23 30 0	-25.73	171.65	2916			
230	23 31 0	-27.99	171.48	2969			
230	23 32 0	-30.23	171.31	3019			
230	23 33 0	-32.45	171.14	3067			
230	23 34 0	-34.64	170.97	3113			
230	23 35 0	-36.81	170.81	3157			

DEBUT: 3669 1515 I PASS SUMMARY FOR F01 HANUK FOR 19 AUGUST 1977 MAY 231

DAY	TIME (Z) HR MN SC	SATELLITE LOCATION			ALT KM	DESCRIPTION	IONOGRAM SUMMARY	
		LAT	LONG	F-MAX			MUF	
231	11 09 0	-29.61	174.74	2072				
231	11 10 0	-26.83	174.58	2000				
231	11 11 0	-24.00	174.43	1927	SM, ME, CE(1.7), ER	3.8		
231	11 12 0	-21.11	174.27	1853	SM, ME, ER	3.8		
231	11 13 0	-18.18	174.11	1780	SM, ME, ER	3.8		
231	11 14 0	-15.19	173.94	1707	SM, ME, ER	-4.0		
231	11 15 0	-12.14	173.78	1634	SM, ME	4.5		
231	11 16 0	-9.04	173.62	1561	WSP, ME, ET?(5.2)	>6.0		
231	11 17 0	-5.87	173.45	1489	WSP, ME	>7.5		
231	11 18 0	-2.65	173.29	1418	SP, STV, ME, RSP, ET(2.5)	>7.0		
231	11 19 0	0.63	173.13	1348	WSP, STV, ME, RSP, ET(2.0)	>6.0		
231	11 20 0	3.97	172.97	1279	WSP, STV, RSP, ET(1.8)	>6.0		
231	11 21 0	7.37	172.81	1212	WSP, STV, RSP, ET(2.0)	>7.0		
231	11 22 0	10.83	172.66	1147	VSP, STV, RSP, ET(2.8), ER	-7.2		
231	11 23 0	14.35	172.51	1084	WSP(>5), ME, CE(1.3)	>6.0		
231	11 24 0	17.92	172.36	1024	SM, ME, ER	-5.0		
231	11 25 0	21.55	172.22	966	SM, ME, ER	>3.5		
231	11 26 0	25.24	172.09	912	SM, ME, ER	-3.8		
231	11 27 0	28.98	171.97	860	SM, ME	3.8		
231	11 28 0	32.76	171.85	812	VSP, ME	-4.0		

OBJECT: 3669 1515 I PASS SUMMARY FOR KDI NAMUR FOR 19 AUGUST 1977 DAY 231

DAY	TIME (Z)		SATELLITE LOCATION		DESCRIPTION	IONOGRAM SUMMARY	
	HR	MM SS	LAT	LONG		ALT NM	F-MAX MIZ
231	22	38 0	38.37	-178.38	1366		
231	22	39 0	35.11	-178.50	1436		
231	22	40 0	31.92	-178.62	1508	SM	8.3
231	22	41 0	28.78	-178.76	1580	SM	8.6
231	22	42 0	25.70	-178.91	1653	SM	9.5
231	22	43 0	22.67	-179.06	1727	SM	9.4
231	22	44 0	19.69	-179.22	1800	SM	9.1
231	22	45 0	16.77	-179.38	1874	SM, CE(1.6)	8.6
231	22	46 0	13.89	-179.55	1947	SM, ER	8.2
231	22	47 0	11.07	-179.72	2020	SM, ER	7.5
231	22	48 0	8.30	-179.89	2093	SM, ER	6.8
231	22	49 0	5.57	-179.94	2164	SM, CE(1.2), ER	6.8
231	22	50 0	2.88	-179.76	2235	SM, ER	7.0
231	22	51 0	0.25	-179.58	2305	SM	>7.0
231	22	52 0	-2.35	-179.40	2374		
231	22	53 0	-4.91	-179.22	2441		
231	22	54 0	-7.43	-179.04	2507		
231	22	55 0	-9.91	-178.85	2572		
231	22	56 0	-12.35	-178.67	2635		
231	22	57 0	-14.76	-178.49	2696		
231	22	58 0	-17.14	-178.31	2756		
231	22	59 0	-19.49	-178.13	2814		
231	23	0 0	-21.81	-177.95	2870		
231	23	1 0	-24.10	-177.77	2924		
231	23	2 0	-26.36	-177.60	2976		
231	23	3 0	-28.60	-177.42	3026		
231	23	4 0	-30.81	-177.25	3074		
231	23	5 0	-33.00	-177.08	3119		
231	23	6 0	-35.17	-176.92	3163		
231	23	7 0	-37.52	-176.76	3204		

ORBIT: 3659 ISIS 1 PASS SUMMARY FOR K01 NAMUK FOR 20 AUGUST 1977 DAY 252

DAY	TIME (Z) HR MN SC	SATELLITE LOCATION		ALT KM	DESCRIPTION	IONOGRAM SUMMARY	
		LAT	LONG			F-MIN MIZ	F-MAX MIZ
#232*	12 51 0	-23.58	148.27	1862			
#232*	12 52 0	-20.65	148.11	1789			
#232*	12 53 0	-17.67	147.95	1715			
#232*	12 54 0	-14.63	147.79	1642			
#232*	12 55 0	-11.53	147.63	1569			
#232*	12 56 0	-8.39	147.46	1497			
#232*	12 57 0	-5.17	147.30	1426	SM, ME	>6.5	
#232*	12 58 0	-1.89	147.14	1356	WSP, ME, ET(5.2)	>6.0	
#232*	12 59 0	1.44	146.98	1287	SP, STV, ME, ET(3.0)	>5.0	
#232*	13 0 0	4.83	146.82	1220	VSP, STV, ET(2.7)	>6.0	
#232*	13 1 0	8.29	146.67	1155	VSP, STV, ET(2.7)	7.8	
#232*	13 2 0	11.80	146.51	1092	VSP, STV, ET(2.9), ER	>6.0	
#232*	13 3 0	15.37	146.36	1031	WSP, ET(4.4)	>6.0	
#232*	13 4 0	18.99	146.22	973	SM, ER	4.7	
#232*	13 5 0	22.67	146.09	918	SM, ME, ER	>5.0	
#232*	13 6 0	26.41	145.96	866	SM, ME, ER	5.2	

OBJECT: 3669 ISIS I PASS SUMMARY FOR ROI NAHUK FOR 21 AUGUST 1977 DAY 233

DAY	TIME (Z)		SATELLITE LOCATION			ALT NM	DESCRIPTION	IONOGRAM SUMMARY	
	HR	MIN	LAT	LONG	F-MAX			MUF	
#233#	0	17	0	40.87	155.58	1358	SM, ME(<2), CE(1.6)	>6.0	
#233#	0	18	0	37.61	155.48	1428	SM, ME(<2), ER	7.9	
#233#	0	19	0	34.41	155.36	1500	SM, ME(<2)	7.8	
#233#	0	20	0	31.27	155.23	1572	SM, ME(<2), CE(1.4), ER	8.1	
#233#	0	21	0	28.18	155.09	1645	SM, ME(<2), CE(1.6), ER	9.1	
#233#	0	22	0	25.15	154.94	1718	SM, CE(1.3)	9.6	
#233#	0	23	0	22.16	154.79	1792	SM, ER	9.5	
#233#	0	24	0	19.24	154.63	1865	SM, ER	9.1	
#233#	0	25	0	16.36	154.46	1939	SM, ER	~8.0	
#233#	0	26	0	13.53	154.29	2012	SM, ER	7.2	
#233#	0	27	0	10.75	154.12	2084	SM, ER	6.5	
#233#	0	28	0	8.02	153.95	2156	SM, CE(1.7)	~7.0	
#233#	0	29	0	5.33	153.77	2227	SM	9.0	
#233#	0	30	0	2.68	153.59	2297	SM	9.9	
#233#	0	31	0	0.08	153.41	2366	SM	>10.0	
#233#	0	32	0	-2.48	153.23	2433	SM	>10.0	
#233#	0	33	0	-5.00	153.05	2500	SM, CE(1.5)	>10.0	
#233#	0	34	0	-7.49	152.87	2564	SM, ME	>10.0	
#233#	0	35	0	-9.94	152.68	2628	SM, ME	>10.0	
#233#	0	36	0	-12.35	152.50	2689	SM, ME	9.7	
#233#	0	37	0	-14.74	152.32	2749	SM, ME, CE(1.3), ER	8.8	
#233#	0	38	0	-17.09	152.14	2807	SM, ME, CE(1.1), ER	7.2	
#233#	0	39	0	-19.41	151.96	2863	SM, ME, ER	>5.0	
#233#	0	40	0	-21.70	151.78	2918	SM, ME, ER	~8.0	
#233#	0	41	0	-23.97	151.60	2970	SM, ME	>5.0	
#233#	0	42	0	-26.21	151.42	3020	SM, ME	~7.0	
#233#	0	43	0	-28.43	151.25	3068	SM, ME	>6.0	
#233#	0	44	0	-30.62	151.08	3114	SM, ME		
#233#	0	45	0	-32.79	150.91	3158	SM, ME		
#233#	0	46	0	-34.95	150.74	3199	SM, ME		

OBJECT: 3649 ISIS I PASS SUMMARY FOR KOI HAMUR FOR 21 AUGUST 1977 DAY 23

DAY	TIME (Z) HR MN SC	SATELLITE LOCATION			DESCRIPTION	IONOGRAM SUMMARY	
		LAT	LONG	ALT KM		F-MAX MHz	
#233*	10 14 0	-24.18	-173.48	1832			
#233*	10 15 0	-21.23	-173.63	1759	SM, ME, ER		>5.0
#233*	10 16 0	-18.22	-173.79	1686	SM, ME, RSP		>5.0
#233*	10 17 0	-15.16	-173.95	1613	SP, STV, ME, RSP, ET(3.0)		>6.5
#233*	10 18 0	-12.04	-174.11	1540	VSP, STV, RSP, ET(1.9)		>6.0
#233*	10 19 0	-8.86	-174.27	1468	VSP, STV, RSP, ET(1.7)		>6.0
#233*	10 20 0	-5.63	-174.44	1398	VSP, STV, RSP, ET(1.5)		>7.0
#233*	10 21 0	-2.33	-174.60	1328	VSP, STV, RSP, ET(1.5), ER		7.1
#233*	10 22 0	1.03	-174.76	1260	VWSP, STV, ET(1.7)		>6.0
#233*	10 23 0	4.45	-174.91	1194	VWSP, STV, RSP, ET(1.7)		>6.0
#233*	10 24 0	7.92	-175.07	1129	VSP, STV, RSP, ET(2.3)		>6.0
#233*	10 25 0	11.46	-175.22	1067	SP, STV, RSP, ET(4.0)		>9.0
#233*	10 26 0	15.05	-175.37	1007	SM		>7.0
#233*	10 27 0	18.70	-175.51	951			
#233*	10 28 0	22.40	-175.65	897			
#233*	10 29 0	26.16	-175.78	846			
#233*	10 30 0	29.96	-175.90	800			

#233*	12 21 0	-27.99	154.55	1925			
#233*	12 22 0	25.11	154.40	1851	SM, ME, ER		-5.0
#233*	12 23 0	-22.18	154.24	1778	SM, ME, CE(1.6), ER		4.2
#233*	12 24 0	-19.18	154.08	1705	SM, ME, CE(1.8), ER		4.4
#233*	12 25 0	-16.14	153.92	1632	SM, ME, ER		4.4
#233*	12 26 0	-13.03	153.76	1559	SM, ME, ER		4.0
#233*	12 27 0	-9.87	153.60	1487	SM, ME, ER		-6.5
#233*	12 28 0	-6.65	153.44	1416	SM, ME		-8.5
#233*	12 29 0	-3.37	153.28	1346	SM, ER		8.9
#233*	12 30 0	-0.03	153.12	1277	SM, ER		8.0
#233*	12 31 0	3.38	152.96	1211	SM, ER		7.2
#233*	12 32 0	6.84	152.80	1146	SM, ER		7.3
#233*	12 33 0	10.36	152.65	1083	SM, ER		7.2
#233*	12 34 0	13.94	152.50	1023	SM, ER		>6.0
#233*	12 35 0	17.57	152.36	965	SM, ER		5.1
#233*	12 36 0	21.26	152.22	910	SM, ME, ER		4.7
#233*	12 37 0	25.00	152.09	859	SM, ME		4.4
#233*	12 38 0	28.79	151.97	811			

FOR 21 AUGUST 1977 DAY 233

PASS SUMMARY FOR FOI NAME:

OBJECT: 3669 ISIS I

DAY	TIME (Z) HR MN SC	SATELLITE LOCATION			DESCRIPTION	IONOGRAM SUMMARY	
		LAT	LONG	ALT KM		F-MAX MHZ	
233	23 48 0	42.34	161.69	1368			
233	23 49 0	39.09	161.59	1438	SM, ER		6.7
233	23 50 0	35.90	161.48	1510	SM		7.0
233	23 51 0	32.76	161.35	1582	SM, ER		7.4
233	23 52 0	29.68	161.21	1655	SM, ER		>7.5
233	23 53 0	26.66	161.07	1729	SM, CE(1.6)		>5.0
233	23 54 0	23.69	160.92	1802	SM		>7.0
233	23 55 0	20.77	160.76	1876	SM		>8.0
233	23 56 0	17.90	160.59	1949	SM		8.5
233	23 57 0	15.07	160.43	2022	SM, ER		8.5
233	23 58 0	12.30	160.26	2095	SM, ER		8.3
233	23 59 0	9.57	160.08	2166	SM		>5.0
234	0 0 0	6.89	159.91	2237	SM		?
234	0 1 0	4.25	159.73	2307	SM		>9.0
234	0 2 0	1.66	159.55	2376	SM		>10.0
234	0 3 0	-0.90	159.37	2443	SM, ER		9.4
234	0 4 0	-3.42	159.18	2509	SM		>5.0
234	0 5 0	-5.90	159.00	2574	SM		
234	0 6 0	-8.34	158.82	2637			
234	0 7 0	-10.75	158.63	2698			
234	0 8 0	-13.13	158.45	2758			
234	0 9 0	-15.48	158.27	2815			
234	0 10 0	-17.79	158.09	2871			
234	0 11 0	-20.08	157.90	2925			
234	0 12 0	-22.35	157.72	2977			
234	0 13 0	-24.59	157.55	3027			
234	0 14 0	-26.80	157.37	3075			
234	0 15 0	-28.99	157.19	3120			
234	0 16 0	-31.16	157.02	3164			
234	0 17 0	-33.31	156.85	3205			
234	0 18 0	-35.44	156.69	3244			
234	0 19 0	-37.56	156.53	3280			

OBJECT: 3669 ISIS I PASS SUMMARY FOR ROI NAMUR FOR 22 AUGUST 1977 DAY 234

DAY	TIME (Z) HR MN SC	SATELLITE LOCATION		ALT KM	DESCRIPTION	IONOGRAM SUMMARY	
		LAT	LONG				F-MAX MIZ
#234*	11 52 0	-29.52	160.67	1914			
#234*	11 53 0	-26.63	160.52	1841			
#234*	11 54 0	-23.69	160.37	1767			
#234*	11 55 0	-20.69	160.21	1694			
#234*	11 56 0	-17.64	160.06	1621	SM, ME, CE(1.8), ER		4.3
#234*	11 57 0	-14.52	159.90	1548	SM, ME, ER		4.2
#234*	11 58 0	-11.35	159.74	1476	SM, ME, ER		4.5
#234*	11 59 0	-8.12	159.58	1406	SM, ME		>5.0
#234*	12 0 0	-4.83	159.42	1336	SM		>9.5
#234*	12 1 0	-1.48	159.26	1268	SM, RSP		>9.5
#234*	12 2 0	1.93	159.10	1201	SM, RSP, ER		9.0
#234*	12 3 0	5.40	158.94	1136	SM, RSP, ER		8.2
#234*	12 4 0	8.93	158.79	1074	SM, ER		8.0
#234*	12 5 0	12.51	158.64	1014	SM		8.2
#234*	12 6 0	16.16	158.49	957	SM, ER		8.0
#234*	12 7 0	19.86	158.35	903	SM		6.0
#234*	12 8 0	23.61	158.22	852	SM, ER		5.1
#234*	12 9 0	27.41	158.09	805	SM, ME, ER		4.5
#234*	12 10 0	31.25	157.98	761	SM, ME		4.2

OBJECT: 3669 ISIS I PASS SUMMARY FOR RDI NAMUR FOR 22 AUGUST 1977 DAY 234

DAY	TIME (Z) HR MN SC	SATELLITE LOCATION		DESCRIPTION	IONOGRAM SUMMARY	
		LAT	LONG		ALT NM	F-MAX MHz
234	23 19 0	43.80	167.79			
234	23 20 0	40.56	167.70		1378	
234	23 21 0	37.38	167.59		1449	
234	23 22 0	34.25	167.47		1521	
234	23 23 0	31.18	167.34		1593	
234	23 24 0	28.17	167.19		1666	
234	23 25 0	25.20	167.04		1740	
234	23 26 0	22.29	166.89		1813	
234	23 27 0	19.43	166.73		1887	
234	23 28 0	16.61	166.56		1960	
234	23 29 0	13.85	166.39		2033	
234	23 30 0	11.13	166.22		2105	
234	23 31 0	8.45	166.04		2177	
234	23 32 0	5.82	165.86		2247	
234	23 33 0	3.23	165.68		2317	
234	23 34 0	0.68	165.50		2386	
234	23 35 0	-1.83	165.32		2453	
234	23 36 0	-4.31	165.13		2519	
234	23 37 0	-6.75	164.95		2583	
234	23 38 0	-9.15	164.77		2646	
234	23 39 0	-11.53	164.58		2707	
234	23 40 0	-13.87	164.40		2766	
234	23 41 0	-16.18	164.21		2824	
234	23 42 0	-18.47	164.03		2879	
234	23 43 0	-20.73	163.85		2933	
234	23 44 0	-22.96	163.67		2985	
234	23 45 0	-25.18	163.49		3034	
234	23 46 0	-27.37	163.31		3082	
234	23 47 0	-29.53	163.14		3127	
234	23 48 0	-31.68	162.97		3170	
234	23 49 0	-33.81	162.80		3211	
234	23 50 0	-35.92	162.63		3249	
234	23 51 0	-38.02	162.47		3285	
234					3319	

OBJECT: 3669 TSIS I PASS SUMMARY FOR K01 NAMUR FOR 23 AUGUST 1977 DAY 235

DAY	TIME (Z) HR MN SC		SATELLITE LOCATION			DESCRIPTION	IONOGRAM SUMMARY	
			LAT	LONG	ALT KM		F-MAX MHz	
235	11	24	0	-28.14	166.65	1829		
235	11	25	0	-25.19	166.50	1756		
235	11	26	0	-22.19	166.34	1683		
235	11	27	0	-19.12	166.19	1610		
235	11	28	0	-16.00	166.03	1537		
235	11	29	0	-12.82	165.87	1466		
235	11	30	0	-9.59	165.71	1395	SM, ME, CE(1.4)	-6.0
235	11	31	0	-6.29	165.55	1326	VSP, STV, RSP	>5.0
235	11	32	0	-2.93	165.39	1258	VSP, STV, RSP	>5.0
235	11	33	0	0.49	165.24	1191	VSP, STV, RSP	>9.0
235	11	34	0	3.97	165.08	1127	VSP, STV, RSP	>9.0
235	11	35	0	7.51	164.93	1065	SM, RSP, ER	8.5
235	11	36	0	11.10	164.77	1005	SM, RSP, ER	7.6
235	11	37	0	14.76	164.63	949	SM, RSP	6.0
235	11	38	0	18.46	164.49	895	SM, ME, ER	5.2
235	11	39	0	22.22	164.35	845	SM, ME, ER	5.3
235	11	40	0	26.03	164.23	798	SM, ME, ER	5.5
235	11	41	0	29.88	164.11	756	SM, ME, ER	5.5
235	11	42	0	33.77	164.00	717	SM, ME, VSP(<3), ER	5.5

OBJECT: 3669 1515 I PASS SUMMARY FOR KOL NAMUR FOR 23 AUGUST 1977 DAY 235

DAY	TIME (Z)	SATELLITE LOCATION			DESCRIPTION	IONOGRAM SUMMARY	
		LAT	LONG	ALT KM		F-MAX MHz	
2355	22 51 0	42.02	173.81	1460			
2355	22 52 0	38.85	173.70	1531			
2355	22 53 0	35.73	173.59	1604	SM, ME(<3), ER		9.5
2355	22 54 0	32.67	173.46	1677	SM, ME(<2.5), ER		8.6
2355	22 55 0	29.67	173.32	1751	SM, ME(<2), ER		7.2
2355	22 56 0	26.71	173.17	1824	SM, ME(<2), CE(2), ER		7.0
2355	22 57 0	23.81	173.02	1898	SM, ME(<2), CE(1.7), ER		6.6
2355	22 58 0	20.95	172.86	1971	SM, ME(<2), CE(1.5), ER		7.3
2355	22 59 0	18.15	172.69	2044	SM, ME(<2), ER		7.5
2355	23 0 0	15.39	172.52	2116	SM, ER		8.9
2355	23 1 0	12.68	172.35	2187	SM, ER		9.0
2355	23 2 0	10.01	172.17	2258	SM		9.4
2355	23 3 0	7.38	172.00	2327	SM		9.5
2355	23 4 0	4.80	171.82	2396	SM		9.6
2355	23 5 0	2.25	171.64	2463	SM, ER		9.6
2355	23 6 0	-0.25	171.45	2528	SM		9.6
2355	23 7 0	-2.72	171.27	2593	SM, ER		9.2
2355	23 8 0	-5.16	171.08	2655	SM, ER		8.7
2355	23 9 0	-7.56	170.90	2716			
2355	23 10 0	-9.93	170.71	2775			
2355	23 11 0	-12.27	170.53	2832			
2355	23 12 0	-14.58	170.35	2888			
2355	23 13 0	-16.86	170.16	2941			
2355	23 14 0	-19.12	169.98	2992			
2355	23 15 0	-21.35	169.80	3042			
2355	23 16 0	-23.56	169.62	3089			
2355	23 17 0	-25.74	169.44	3134			
2355	23 18 0	-27.91	169.26	3176			
2355	23 19 0	-30.06	169.09	3217			
2355	23 20 0	-32.18	168.91	3255			
2355	23 21 0	-34.29	168.74	3290			
2355	23 22 0	-36.39	168.58	3324			
2355	23 23 0	-38.47	168.42	3355			

URGENT: 366Y JSIS I PASS SUMMARY FOR K01 NAMUR FOR 24 AUGUST 1977 DAY 236

DAY	TIME (Z)		SATELLITE LOCATION			IONOGRAM SUMMARY	
			LAT	LONG	ALT KM	DESCRIPTION	F-MAX MHz
236	10	56	0	-26.69	172.62	1745	
236	10	57	0	-23.67	172.47	1672	
236	10	58	0	-20.60	172.32	1599	
236	10	59	0	-17.47	172.16	1526	
236	11	0	0	-14.29	172.01	1455	SM,ME,ER 5.9
236	11	1	0	-11.04	171.85	1384	SM,ME >6.0
236	11	2	0	-7.73	171.69	1315	SP,STV,ME,ET(2.9) >6.0
236	11	3	0	-4.37	171.53	1247	SP,STV,ME,ET(2) >5.0
236	11	4	0	-0.94	171.37	1181	VSP,STV,ME,ET(1.8) >5.0
236	11	5	0	2.55	171.22	1117	VSP,STV,ME,ET(1.8) >9.0
236	11	6	0	6.10	171.06	1056	VSP,STV,ME,ET(1.7),CE(1.8) >9.0
236	11	7	0	9.70	170.91	997	VSP,STV,ME,ET(1.8) >5.0
236	11	8	0	13.37	170.77	940	VSP,STV,ME,ET(2.8),CE(1.7) >6.0
236	11	9	0	17.08	170.62	887	VSP,STV,ME,ET(5) >7.0
236	11	10	0	20.85	170.49	838	SP,ME >5.0
236	11	11	0	24.66	170.36	792	SM,WSP 4.8
236	11	12	0	28.52	170.24	750	SM,ME(<2.5),ER
236	11	13	0	32.42	170.13	712	

AD-A091 845

MISSION RESEARCH CORP SANTA BARBARA CA F/G 4/1
ISIS TOPSIDE SOUNDER DATA GATHERED ON KWAJALEIN ATOLL DURING TH--ETC(U)
OCT 80 6 J FULKS DNA001-77-C-0096

UNCLASSIFIED

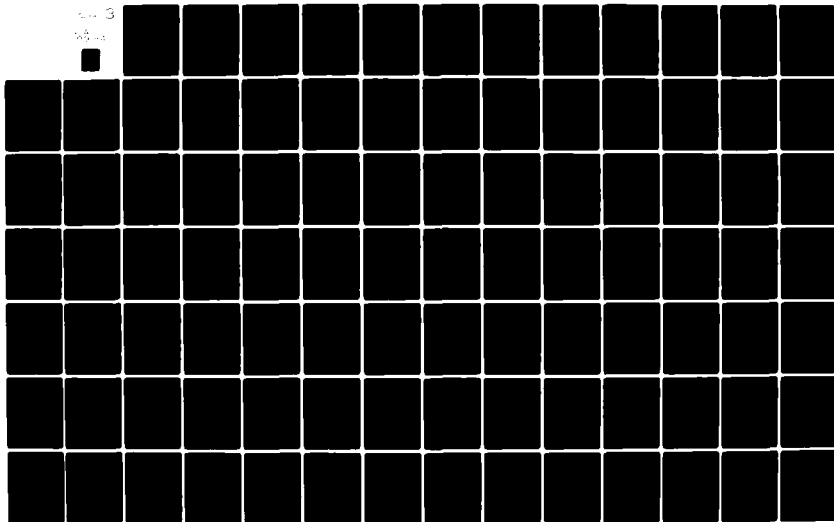
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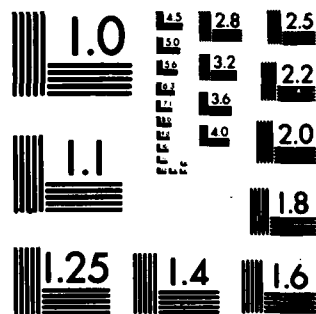
DNA-5339F

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MICROCOPY RESOLUTION TEST CHART
NATIONAL BUREAU OF STANDARDS-1963-A

OBJECT: 3669 ISTS I PASS SUMMARY FOR ROI NAMUR FUR 24 AUGUST 1977 DAY 236

DAY	TIME (Z)			SATELLITE LOCATION			DESCRIPTION	IONOGRAM SUMMARY	F-MAX MHZ
	HR	MM	SC	LAT	LONG	ALT KM			
236	22	23	0	40.32	179.82	1542			
236	22	24	0	37.21	179.70	1615	SM, ME(<2.5), ER		6.2
236	22	25	0	34.16	179.58	1688	SM, ME, CE(1.5), ER		6.8
236	22	26	0	31.16	179.44	1762	SM, ME, ER		8.0
236	22	27	0	28.21	179.30	1835	SM, ME(<2), ER		8.8
236	22	28	0	25.32	179.14	1909	SM, ME		>5.0
236	22	29	0	22.47	178.99	1982	SM, ME(<2)		>8.0
236	22	30	0	19.67	178.82	2055	SM, ME(<2), CE(1.5), ER		9.1
236	22	31	0	16.92	178.65	2127	SM, ME(<2), ER		9.3
236	22	32	0	14.22	178.48	2198	SM, ME(<2), CE(1.2)		9.0
236	22	33	0	11.56	178.31	2269	SM, ME(<1.5), CE(1.2), ER		8.5
236	22	34	0	8.94	178.13	2338	SM		7.7
236	22	35	0	6.36	177.95	2406	SM		7.5
236	22	36	0	3.82	177.77	2473	SM, ER		7.7
236	22	37	0	1.32	177.59	2538	SM, ER		8.5
236	22	38	0	-1.14	177.40	2602	SM		>8.0
236	22	39	0	-3.57	177.22	2664	SM, CE(1.2)		10.0
236	22	40	0	-5.97	177.03	2725			
236	22	41	0	-8.34	176.85	2784			
236	22	42	0	-10.67	176.66	2841			
236	22	43	0	-12.98	176.48	2896			
236	22	44	0	-15.26	176.29	2949			
236	22	45	0	-17.51	176.11	3000			
236	22	46	0	-19.74	175.92	3049			
236	22	47	0	-21.94	175.74	3096			
236	22	48	0	-24.13	175.56	3140			
236	22	49	0	-26.29	175.38	3182			
236	22	50	0	-28.43	175.21	3222			
236	22	51	0	-30.56	175.03	3260			
236	22	52	0	-32.67	174.86	3296			
236	22	53	0	-34.76	174.69	3328			
236	22	54	0	-36.84	174.53	3359			
236	22	55	0	-38.91	174.36	3387			

OBJECT: 3669 ISIS I PASS SUMMARY FOR K01 NAMUR FUR 25 AUGUST 1977 DAY 247

DAY	TIME (2)		SATELLITE LOCATION			DESCRIPTION	IONOGRAM SUMMARY	
	HR	MM SC	LAT	LONG	ALT KM		F-MAX MHz	
#237*	0	32 0	38.19	147.56	1596			
#237*	0	33 0	35.12	147.44	1669			
#237*	0	34 0	32.11	147.31	1743	SM, ER		5.9
#237*	0	35 0	29.15	147.17	1816	SM, ER		7.2
#237*	0	36 0	26.24	147.02	1890	SM		>9.0
#237*	0	37 0	23.38	146.86	1963	SM		>9.0
#237*	0	38 0	20.57	146.70	2036	SM, ME		>10.0
#237*	0	39 0	17.81	146.53	2108	MSP		>10.0
#237*	0	40 0	15.09	146.36	2180	SP(<5), STV		>10.0
#237*	0	41 0	12.42	146.19	2250	SP(<3), STV, ER		10.0
#237*	0	42 0	9.79	146.01	2320	SP(<3), STV, ER		9.5
#237*	0	43 0	7.20	145.83	2389	SP(<4), STV, ER		9.6
#237*	0	44 0	4.65	145.65	2456	SP(<4), STV		>10.0
#237*	0	45 0	2.14	145.47	2521	SP(<5), STV		>10.0
#237*	0	46 0	-0.33	145.28	2586	SP(<5), STV		>10.0
#237*	0	47 0	-2.77	145.10	2649	MSP		>10.0
#237*	0	48 0	-5.18	144.91	2710	MSP		>10.0
#237*	0	49 0	-7.55	144.73	2769	SM		>10.0
#237*	0	50 0	-9.89	144.54	2826			
#237*	0	51 0	-12.21	144.36	2882			
#237*	0	52 0	-14.49	144.17	2935			
#237*	0	53 0	-16.75	143.99	2987			
#237*	0	54 0	-18.99	143.80	3036			
#237*	0	55 0	-21.20	143.62	3084			
#237*	0	56 0	-23.39	143.44	3129			
#237*	0	57 0	-25.56	143.26	3172			
#237*	0	58 0	-27.70	143.08	3212			
#237*	0	59 0	-29.84	142.91	3251			
#237*	1	0 0	-31.95	142.73	3287			

 OBJECT: 3669 ISIS I PASS SUMMARY FOR RUI NAMUK FOR 25 AUGUST 1977 DAY 237

DAY	TIME (2) HR MN SC	SATELLITE LOCATION		ALT KM	DESCRIPTION	IONOGRAM SUMMARY F-MAX MIZ
		LAT	LONG			
#237*	10 28 0	-25.25	178.60	1663		
#237*	10 29 0	-22.17	178.45	1590		
#237*	10 30 0	-19.04	178.29	1518		
#237*	10 31 0	-15.84	178.14	1447	SP, STV, ME, RSP, ET(3.7)	>6.0
#237*	10 32 0	-13.59	177.98	1376	VSP, STV, ME, RSP, ET(2), ER	>6.0
#237*	10 33 0	-9.28	177.82	1307	VSP, STV, RSP, ET(1.7)	>9.0
#237*	10 34 0	-5.90	177.67	1240	VSP, STV, RSP, ET(1.6)	>5.0
#237*	10 35 0	-2.47	177.51	1174	WSP, STV, ET(1.362.7)	>6.0
#237*	10 36 0	1.03	177.35	1110	WSP, STV, ET(1.262.6)	-8.0
#237*	10 37 0	4.58	177.20	1049	WSP, STV	>7.0
#237*	10 38 0	8.19	177.05	990	WSP, STV, ET(1.462.7)	>7.0
#237*	10 39 0	11.86	176.90	934	WSP, STV	>9.0
#237*	10 40 0	15.58	176.76	882	VSP, STV, ET(1.8)	>6.0
#237*	10 41 0	19.36	176.62	832	SP, STV, ET(4.5)	-6.0
#237*	10 42 0	23.18	176.49	787	SM, ER	5.4
#237*	10 43 0	27.04	176.36	745	SM, ER	4.5
#237*	10 44 0	30.95	176.25	708		

OBJECT: 3669 ISIS I PASS SUMMARY FOR K01 NAMUR FOR 26 AUGUST 1977 DAY 238

DAY	TIME (Z)		SATELLITE LOCATION			DESCRIPTION	IONOGRAM SUMMARY	
	HR	MM	LAT	LONG	ALT KM		F-MAX MHz	
#238*	0	2	0	42.91	153.77	1531		
#238*	0	3	0	39.79	153.67	1604		
#238*	0	4	0	36.73	153.55	1677	SM, ME	>6.0
#238*	0	5	0	33.73	153.42	1750	SM, ME	>7.0
#238*	0	6	0	30.77	153.29	1824	SM, ME(<2)	8.3
#238*	0	7	0	27.87	153.14	1897	M	
#238*	0	8	0	25.02	152.98	1971	SM, ER	9.5
#238*	0	9	0	22.21	152.82	2044	SM, ME, ER	9.5
#238*	0	10	0	19.46	152.66	2116	SM, ME, ER	9.3
#238*	0	11	0	16.75	152.49	2187	SM, ER	8.5
#238*	0	12	0	14.08	152.32	2258	SM, WSP, ME, ER	7.7
#238*	0	13	0	11.45	152.14	2327	SM, WSP, ME	7.8
#238*	0	14	0	8.87	151.96	2396	SM, WSP	>7.0
#238*	0	15	0	6.33	151.78	2463	SM	>8.0
#238*	0	16	0	3.82	151.60	2528		
#238*	0	17	0	1.35	151.41	2592		
#238*	0	18	0	-1.09	151.23	2655		
#238*	0	19	0	-3.49	151.04	2716		
#238*	0	20	0	-5.86	150.86	2775		
#238*	0	21	0	-8.20	150.67	2832		
#238*	0	22	0	-10.51	150.49	2888		
#238*	0	23	0	-12.79	150.30	2941		
#238*	0	24	0	-15.05	150.11	2992		
#238*	0	25	0	-17.28	149.93	3042		
#238*	0	26	0	-19.49	149.74	3089		
#238*	0	27	0	-21.68	149.56	3133		
#238*	0	28	0	-23.85	149.38	3176		
#238*	0	29	0	-26.00	149.20	3217		
#238*	0	30	0	-28.13	149.02	3255		
#238*	0	31	0	-30.24	148.85	3290		
#238*	0	32	0	-32.33	148.67	3324		
#238*	0	33	0	-34.42	148.50	3355		

OBJECT: 3669 ISIS I PASS SUMMARY FOR ROI NAMUR FOR 26 AUGUST 1977 DAY 238

DAY	TIME (Z) HR MN SC	SATELLITE LOCATION			DESCRIPTION	IONOGRAM SUMMARY	
		LAT	LONG	ALT KM		F-MAX MHZ	
238	10 1 0	-20.57	-175.58	1509			
238	10 2 0	-17.37	-175.73	1437			>7.0
238	10 3 0	-14.11	-175.88	1367	SM, RSP		>6.0
238	10 4 0	-10.79	-176.04	1298	SM, RSP		>7.0
238	10 5 0	-7.40	-176.20	1231	SP, STV, RSP, ET(3)		>6.0
238	10 6 0	-3.96	-176.35	1165	VSP, STV, RSP, ET(2.6)		>6.0
238	10 7 0	-0.46	-176.51	1102	WSP, STV, RSP, ET		>6.0
238	10 8 0	3.10	-176.66	1041	WSP		>5.0
238	10 9 0	6.72	-176.82	983	WSP		>6.0
238	10 10 0	10.40	-176.96	927	WSP, RSP		>6.0
238	10 11 0	14.13	-177.11	875	VSP		>6.0
238	10 12 0	17.91	-177.25	826			
238	10 13 0	21.74	-177.38	781			
238	10 14 0	25.61	-177.51	740			
238	10 15 0	29.52	-177.62	703			

238	12 9 0	-21.57	152.30	1527			
238	12 10 0	-18.38	152.14	1456			
238	12 11 0	-15.14	151.99	1385	SM, ME, ER		3.9
238	12 12 0	-11.84	151.83	1316	SM, ME		3.8
238	12 13 0	-8.47	151.68	1248	NSP(NP), ME, ER		4.6
238	12 14 0	-5.04	151.52	1182	SM, ME		8.2
238	12 15 0	-1.56	151.36	1118	SM, ME, ER		8.8
238	12 16 0	1.99	151.21	1057	SM, ME(<2), ER		8.5
238	12 17 0	5.60	151.06	998	SM, ER		7.8
238	12 18 0	9.26	150.91	941	SM, ER		8.2
238	12 19 0	12.97	150.76	888	SM, ER		8.3
238	12 20 0	16.74	150.62	839	SM, ER		8.0
238	12 21 0	20.56	150.48	793	SM, ER		5.9
238	12 22 0	24.42	150.35	750	SM, ER		5.2
238	12 23 0	28.32	150.24	712	SM, ER		5.3

OBJECT: 3669 ISIS I PASS SUMMARY FOR K01 NAMUR FOR 27 AUGUST 1977 DAY 239

DAY	TIME (Z) HR MN SC	SATELLITE LOCATION			DESCRIPTION	IONOGRAM SUMMARY	
		LAT	LONG	ALT KM		F-MAX	MUF
#239*	11 39 0	-26.23	158.57	1590			
#239*	11 40 0	-23.09	158.43	1518			
#239*	11 41 0	-19.90	158.27	1446	SM, ME, ER		-5.0
#239*	11 42 0	-16.65	158.12	1376	SM, ME, CE(1.5), ER		4.2
#239*	11 43 0	-13.34	157.97	1307	SM, ME, CE(1.6)		4.2
#239*	11 44 0	-9.96	157.81	1239	SM, ME, ER		3.9
#239*	11 45 0	-6.53	157.66	1174	SM, ME, ER		4.0
#239*	11 46 0	-3.03	157.50	1110	SM, ER		8.1
#239*	11 47 0	0.52	157.35	1049	SM, ER		9.0
#239*	11 48 0	4.13	157.19	990	SM		8.5
#239*	11 49 0	7.80	157.04	934	SM, ER		9.1
#239*	11 50 0	11.53	156.90	882	SM		9.2
#239*	11 51 0	15.30	156.75	832	SM, ER		7.5
#239*	11 52 0	19.12	156.62	787	SM, ER		5.9
#239*	11 53 0	22.99	156.49	745	SM, ER		5.5
#239*	11 54 0	26.90	156.36	708	SM, ME, ER		5.5
#239*	11 55 0	30.85	156.25	675	SP, ME		5.6

OBJECT: 3669 ISIS I PASS SUMMARY FOR ROI NAMUR FOR 28 AUGUST 1977 DAY 240

DAY	TIME (Z) HR MN SC	SATELLITE LOCATION			ALT KM	DESCRIPTION	IONOGRAM SUMMARY	
		LAT	LONG	F-MAX MHz				
240	11 11 0	-24.61	164.55	1508				
240	11 12 0	-21.41	164.41	1436				
240	11 13 0	-18.15	164.25	1366				
240	11 14 0	-14.83	164.10	1297				
240	11 15 0	-11.45	163.95	1230	SM, ME, ER		4.1	
240	11 16 0	-8.00	163.79	1165	SM, ME, ER		4.2	
240	11 17 0	-4.50	163.64	1101	WSP, RSP, ET(8.8)		5.9	
240	11 18 0	-0.94	163.48	1041	SP, STV, ET(6.5)		9.2	
240	11 19 0	2.68	163.33	982	VSP, STV, ET(4.8), ER		8.1	
240	11 20 0	6.36	163.18	927	SP, STV, ET(5)		-8.0	
240	11 21 0	10.09	163.03	875	SP, STV, ET(6), ER		8.4	
240	11 22 0	13.87	162.89	826	SM, ER		8.9	
240	11 23 0	17.70	162.75	781	SM, ER		8.1	
240	11 24 0	21.58	162.62	740	SM, ER		5.2	
240	11 25 0	25.49	162.49	703	SM, ER		4.3	
240	11 26 0	29.44	162.38	671				
240	11 27 0	33.43	162.28	643				

OBJECT: J669 TSIS I PASS SUMMARY FOR K01 NAMUR FOR 20 AUGUST 1977 DAY 240

DAY	TIME (Z)		SATELLITE LOCATION			ALT KM	DESCRIPTION	IONOGRAM SUMMARY	
	HR	MM	LAT	LONG	F-MAX			MUF	
240	22	36	0	44.38	171.98	1633			
240	22	37	0	41.34	171.88	1707			
240	22	38	0	38.36	171.76	1780			
240	22	39	0	35.43	171.64	1854	SM, ER		6.7
240	22	40	0	32.55	171.50	1927	SM, ER		7.8
240	22	41	0	29.72	171.35	2000	SM, ER		9.2
240	22	42	0	26.94	171.20	2073	SM		8.7
240	22	43	0	24.20	171.04	2145	SM		>10.0
240	22	44	0	21.51	170.88	2216	SM		>10.0
240	22	45	0	18.86	170.71	2286	SM		>10.0
240	22	46	0	16.26	170.53	2355	SM		9.6
240	22	47	0	13.69	170.36	2423	SM, ER		9.2
240	22	48	0	11.16	170.18	2489	SM		8.5
240	22	49	0	8.67	170.00	2554	SM, ER		8.2
240	22	50	0	6.21	169.81	2618	SM, ER		7.5
240	22	51	0	3.79	169.63	2680	SM, ER		7.5
240	22	52	0	1.40	169.44	2740	SM, ER		9.0
240	22	53	0	-0.96	169.26	2798	SM		>8.5
240	22	54	0	-3.28	169.07	2855	SM		>10.0
240	22	55	0	-5.58	168.88	2909	SM		>10.0
240	22	56	0	-7.86	168.69	2962	SM		>10.0
240	22	57	0	-10.11	168.51	3012	SM		>10.0
240	22	58	0	-12.33	168.32	3061	SM		>10.0
240	22	59	0	-14.53	168.13	3107			
240	23	0	0	-16.71	167.94	3151			
240	23	1	0	-18.87	167.76	3193			
240	23	2	0	-21.02	167.57	3232			
240	23	3	0	-23.14	167.39	3269			
240	23	4	0	-25.25	167.21	3304			
240	23	5	0	-27.34	167.03	3336			
240	23	6	0	-29.42	166.85	3366			
240	23	7	0	-31.48	166.67	3394			
240	23	8	0	-33.54	166.50	3419			
240	23	9	0	-35.58	166.33	3441			
240	23	10	0	-37.61	166.17	3461			
240	23	11	0	-39.64	166.01	3479			

OBJECT: 3669 ISIS I PASS SUMMARY FOR K01 NAMUK FOR 29 AUGUST 1977 DAY 241

DAY	TIME (Z) HR MN SC	SATELLITE LOCATION		ALT KM	DESCRIPTION	IONOGRAM SUMMARY	
		LAT	LONG			F-MAX MHz	
#241*	10 42 0	-26.11	170.68	1498			
#241*	10 43 0	-22.90	170.54	1427			
#241*	10 44 0	-19.64	170.39	1357	SM, ME, ER		>4.0
#241*	10 45 0	-16.31	170.24	1288	SM, ME, ER		4.0
#241*	10 46 0	-12.92	170.08	1221	SM, ME, ER		3.8
#241*	10 47 0	-9.47	169.93	1156	SM, ME, ER		~5.0
#241*	10 48 0	-5.96	169.78	1093	SM, ME, CE(1.5)		>6.0
#241*	10 49 0	-2.39	169.62	1032	SM, ME, ER		~9.0
#241*	10 50 0	1.24	169.47	974	WSP(NP), STV, ET(8.3)		>9.0
#241*	10 51 0	4.92	169.32	920	WSP(NP), STV, ET(7.5)		>8.5
#241*	10 52 0	8.66	169.17	868	SM, ER		7.3
#241*	10 53 0	12.45	169.03	820	SM, ER		5.0
#241*	10 54 0	16.29	168.89	775	SM, ER		3.7
#241*	10 55 0	20.17	168.75	735	SM, ME, ER		4.0
#241*	10 56 0	24.09	168.63	699	SM, ME, ER		4.4
#241*	10 57 0	28.05	168.51	667	SM, ME, ER		5.0
#241*	10 58 0	32.04	168.40	640			

OBJECT: 3669 ISIS I PASS SUMMARY FOR ROI NAMUR FOR 30 AUGUST 1977 DAY 242

DAY	TIME (Z)		SATELLITE LOCATION			DESCRIPTION	IONOGRAM SUMMARY	
	HR	MM SC	LAT	LONG	ALT KM		F-MAX MIZ	
242	0	17	0	40.84	145.73	1771		
242	0	18	0	37.90	145.61	1845		
242	0	19	0	35.02	145.48	1918		
242	0	20	0	32.18	145.34	1991		
242	0	21	0	29.40	145.20	2064		
242	0	22	0	26.66	145.04	2136		
242	0	23	0	23.96	144.88	2207		
242	0	24	0	21.31	144.71	2278		
242	0	25	0	18.70	144.54	2347		
242	0	26	0	16.12	144.37	2415		
242	0	27	0	13.59	144.19	2481		
242	0	28	0	11.10	144.01	2547		
242	0	29	0	8.64	143.83	2610		
242	0	30	0	6.21	143.64	2672		
242	0	31	0	3.82	143.46	2733		
242	0	32	0	1.46	143.27	2791		
242	0	33	0	-0.88	143.08	2848		
242	0	34	0	-3.18	142.90	2903		
242	0	35	0	-5.46	142.71	2956		
242	0	36	0	-7.71	142.52	3006		
242	0	37	0	-9.94	142.33	3055		
242	0	38	0	-12.14	142.14	3101		
242	0	39	0	-14.33	141.95	3146		
242	0	40	0	-16.49	141.77	3188		
242	0	41	0	-18.63	141.58	3227		
242	0	42	0	-20.76	141.39	3265		
242	0	43	0	-22.87	141.21	3300		
242	0	44	0	-24.97	141.03	3333		
242	0	45	0	-27.05	140.85	3363		
242	0	46	0	-29.11	140.67	3391		
242	0	47	0	-31.17	140.49	3416		

SM, CE(1.5), ER
 SM, ER
 SM, ER
 SM, CE(1.2)
 SM
 SM
 SM
 SM
 SM
 SM, ER
 SM, ER
 SM, ER
 SM, ER
 SM
 SM
 SM
 SM
 SM
 SM, ER
 SM, ER
 SM, ER
 SM, ER
 SM
 SM
 SM, ER
 SM

>9.0
 -8.2
 7.4
 7.2
 -8.0
 >7.0
 >8.5
 >10.0
 >10.0
 >10.0
 >10.0
 >10.0
 >10.0
 9.5
 9.2
 8.7
 -8.0
 -7.5
 >7.0
 >6.0
 6.5
 -6.0

OBJECT: 3669 ISIS I PASS SUMMARY FOR KUI NAMUR FOR 30 AUGUST 1977 DAY 242

DAY	TIME (Z) HR MN SC	SATELLITE LOCATION			DESCRIPTION	IONOGRAM SUMMARY	
		LAT	LONG	ALT KM		F-MAX	MUF
242	10 14 0	-24.39	176.67	1416			
242	10 15 0	-21.12	176.52	1347			
242	10 16 0	-17.78	176.37	1278	SM, ME, ER	4.2	
242	10 17 0	-14.39	176.22	1212	SM, ME, ER	~4.5	
242	10 18 0	-10.93	176.07	1147	SM, ME, ER	4.8	
242	10 19 0	-7.41	175.91	1084	SP(<3), STV, ME, ER	5.8	
242	10 20 0	-3.83	175.76	1024	SP(<3), STV, ME, CE(1.6), ER	~7.5	
242	10 21 0	-0.19	175.61	967	SM, ME, CE(2)	>7.0	
242	10 22 0	3.50	175.46	912	SM, ME, CE(1.7), ER	7.4	
242	10 23 0	7.24	175.31	861	SM, ME, ER	~7.5	
242	10 24 0	11.04	175.16	813	SM, ME, ER	~7.5	
242	10 25 0	14.89	175.02	769	SM, ME, CE(1.3), ER	6.5	
242	10 26 0	18.78	174.89	730	VSP, ME	~5.0	
242	10 27 0	22.70	174.76	694	VVSP, ME, ER	4.5	
242	10 28 0	26.67	174.64	663	VVSP	4.5	
242	10 29 0	30.66	174.53	637			

OBJECT: 3669 ISIS I PASS SUMMARY FOR KUI NAMUR FOR 30 AUGUST 1977 DAY 242

DAY	TIME (Z)	HR	NN	SC	SATELLITE LOCATION			ALT NM	DESCRIPTION	IONOGRAM SUMMARY	
					LAT	LONG	F-MAX MHz				
#242*	21 39 0	44.38	-175.92	1727							
#242*	21 40 0	41.42	-176.02	1801							
#242*	21 41 0	38.51	-176.14	1874							
#242*	21 42 0	35.64	-176.27	1948							
#242*	21 43 0	32.83	-176.41	2021					SM, ME(<1.7), ER	>6.5	
#242*	21 44 0	30.06	-176.55	2093					SM, ER	7.5	
#242*	21 45 0	27.34	-176.71	2165					SM, ER	8.9	
#242*	21 46 0	24.66	-176.87	2236					SM, ER	9.2	
#242*	21 47 0	22.02	-177.04	2305					SM	>10.0	
#242*	21 48 0	19.43	-177.21	2374					SM	>10.0	
#242*	21 49 0	16.88	-177.38	2442					SM	>10.0	
#242*	21 50 0	14.36	-177.56	2508					SM	9.5	
#242*	21 51 0	11.88	-177.74	2572					SM	-9.0	
#242*	21 52 0	9.43	-177.92	2635					CE(1.2), ER	-8.0	
#242*	21 53 0	7.02	-178.10	2697					SM, CE(1.2), ER	-8.0	
#242*	21 54 0	4.64	-178.29	2756					SM, ER	6.1	
#242*	21 55 0	2.29	-178.48	2814							
#242*	21 56 0	-0.03	-178.66	2870							
#242*	21 57 0	-2.32	-178.85	2924							
#242*	21 58 0	-4.59	-179.04	2976							
#242*	21 59 0	-6.83	-179.23	3026							
#242*	22 0 0	-9.05	-179.42	3074							
#242*	22 1 0	-11.25	-179.61	3120							
#242*	22 2 0	-13.42	-179.80	3163							
#242*	22 3 0	-15.58	-179.99	3204							
#242*	22 4 0	-17.72	-179.83	3243							
#242*	22 5 0	-19.84	-179.64	3279							
#242*	22 6 0	-21.94	-179.45	3313							
#242*	22 7 0	-24.03	-179.27	3345							
#242*	22 8 0	-26.11	-179.09	3374							
#242*	22 9 0	-28.17	-178.91	3401							
#242*	22 10 0	-30.22	-178.73	3425							
#242*	22 11 0	-32.27	-178.56	3447							
#242*	22 12 0	-34.30	-178.38	3466							
#242*	22 13 0	-36.32	-178.22	3483							
#242*	22 14 0	-38.34	-178.05	3497							

OBJECT: 3669 TSIS I PASS SUMMARY FOR KUI NAMUK FOR 30 AUGUST 1977 DAY 242

DAY	TIME (Z) HR MN SC	SATELLITE LOCATION		DESCRIPTION	LONGRAM SUMMARY	
		LAT	LONG		ALT KM	F-MAX MIZ
242	23 48 0	42.36	151.83	1782		
242	23 49 0	39.43	151.72	1855		
242	23 50 0	36.56	151.60	1929		
242	23 51 0	33.73	151.46	2002		
242	23 52 0	30.95	151.32	2074		
242	23 53 0	28.22	151.16	2146		
242	23 54 0	25.53	151.00	2217		
242	23 55 0	22.88	150.84	2287		
242	23 56 0	20.28	150.67	2356		
242	23 57 0	17.71	150.50	2424		
242	23 58 0	15.19	150.32	2491		
242	23 59 0	12.70	150.14	2556		
243	0 0 0	10.24	149.96	2619		
243	0 1 0	7.82	149.78	2681		
243	0 2 0	5.43	149.59	2741		
243	0 3 0	3.07	149.41	2799		
243	0 4 0	0.75	149.22	2856		
243	0 5 0	-1.55	149.03	2910		
243	0 6 0	-3.83	148.84	2963		
243	0 7 0	-6.08	148.65	3013		
243	0 8 0	-8.30	148.46	3062		
243	0 9 0	-10.50	148.27	3108		
243	0 10 0	-12.68	148.08	3152		
243	0 11 0	-14.85	147.90	3194		
243	0 12 0	-16.99	147.71	3233		
243	0 13 0	-19.11	147.52	3270		
243	0 14 0	-21.22	147.33	3305		
243	0 15 0	-23.31	147.15	3337		
243	0 16 0	-25.39	146.97	3367		
243	0 17 0	-27.46	146.79	3394		
243	0 18 0	-29.52	146.61	3419		
243	0 19 0	-31.56	146.43	3442		
243	0 20 0	-33.59	146.26	3462		
243	0 21 0	-35.62	146.09	3479		

SM, ME
SM, ME, CE(1.6)
SM, ME, CE(1.4)
SM, ME(<2), CE(2.3)
SM

>5.0
>5.0
>7.0
7.3
>8.0

OBJECT: 3669 ISIS I PASS SUMMARY FOR ROI NAMUR FOR 31 AUGUST 1977 DAY 243

DAY	TIME (Z) HR MN SC	SATELLITE LOCATION			ALT NM	DESCRIPTION	IONOGRAM SUMMARY	
		LAT	LONG	F-MAX MIZ				
243	9 47 0	-19.24	-177.50	1269				
243	9 48 0	-15.84	-177.65	1202	WSP, STV, ET(5)		>6.5	
243	9 49 0	-12.37	-177.80	1138	SP, STV, ET(2.5)		>7.5	
243	9 50 0	-8.85	-177.95	1075	WSP, STV, RSP, ET(1.7&2.2)		>9.5	
243	9 51 0	-5.26	-178.10	1016	WSP, STV, RSP, ET(1.7&1.9)		>9.5	
243	9 52 0	-1.62	-178.25	959	WSP, STV, RSP, ET(1.5)		>7.0	
243	9 53 0	2.08	-178.40	905	WSP, RSP		>9.0	
243	9 54 0	5.84	-178.55	854	WSP, STV, RSP, ME		>9.5	
243	9 55 0	9.64	-178.70	807	WSP, STV, ER		8.9	
243	9 56 0	13.49	-178.84	764	VSP, STV, ET(2), ER		5.9	
243	9 57 0	17.39	-178.98	724	SP, STV, ET(4.9), ER		4.8	
243	9 58 0	21.32	-179.11	690	SM, ER			
243	9 59 0	25.29	-179.23	659				
243	1) 0 0	29.29	-179.34	633				

OBJECT: 3669 ISS 1 PASS SUMMARY FOR K01 NAMUR FOR 31 AUGUST 1977 DAY 243

DAY	TIME (Z)			SATELLITE LOCATION			DESCRIPTION	IONOGRAM SUMMARY	
	HR	MM	SC	LAT	LONG	ALT KM		F-MAX	M3000
243	21	12	0	40.03	-170.03	1885			
243	21	13	0	37.18	-170.15	1958			
243	21	14	0	34.37	-170.29	2031	SM	ER	6.1
243	21	15	0	31.61	-170.43	2103	SM	ER	5.9
243	21	16	0	28.90	-170.59	2175	SM	ER	6.9
243	21	17	0	26.23	-170.74	2246	SM	ER	7.9
243	21	18	0	23.60	-170.91	2315	SM		>5.0
243	21	19	0	21.01	-171.08	2384	SM	ER	8.4
243	21	20	0	18.46	-171.25	2451	SM	ER	8.5
243	21	21	0	15.95	-171.43	2517	SM		8.5
243	21	22	0	13.47	-171.61	2582	SM		8.3
243	21	23	0	11.03	-171.79	2644	SM	ER	>8.0
243	21	24	0	8.63	-171.97	2706	SM	ER	7.1
243	21	25	0	6.25	-172.16	2765	SM	ER	6.7
243	21	26	0	3.90	-172.34	2823	SM		6.5
243	21	27	0	1.59	-172.53	2878	SM	ER	6.7
243	21	28	0	-0.70	-172.72	2932	SM	ER	>6.0
243	21	29	0	-2.97	-172.91	2984	SM		>7.0
243	21	30	0	-5.20	-173.10	3033	SM		>10.0
243	21	31	0	-7.42	-173.29	3081	SM		>10.0
243	21	32	0	-9.61	-173.48	3126	SM		>10.0
243	21	33	0	-11.79	-173.67	3169	SM		>10.0
243	21	34	0	-13.94	-173.86	3210	SM		>10.0
243	21	35	0	-16.08	-174.04	3248	SM		>10.0
243	21	36	0	-18.19	-174.23	3284	SM		>10.0
243	21	37	0	-20.30	-174.42	3318	SM		>10.0
243	21	38	0	-22.39	-174.60	3349	SM		>10.0
243	21	39	0	-24.46	-174.79	3378	SM		>10.0
243	21	40	0	-26.52	-174.97	3405	SM		>10.0
243	21	41	0	-28.57	-175.15	3428	SM		>10.0
243	21	42	0	-30.61	-175.33	3450	SM		>10.0
243	21	43	0	-32.65	-175.50	3469	SM		>10.0
243	21	44	0	-34.67	-175.67	3485	SM		>10.0
243	21	45	0	-36.69	-175.84	3499	SM		>10.0

FOR 31 AUGUST 1977 DAY 243

PASS SUMMARY FOR KUI NAMUK

OBJECT: 3669 ISIS I

DAY	TIME (Z)	SATELLITE LOCATION			DESCRIPTION	F-MAX MHZ
		LAT	LONG	ALT NM		
243	23 19 0	43.88	157.94	1792		
243	23 20 0	40.96	157.83	1866		
243	23 21 0	38.09	157.71	1939		
243	23 22 0	35.27	157.58	2012		
243	23 23 0	32.50	157.44	2085		
243	23 24 0	29.77	157.29	2157		
243	23 25 0	27.09	157.13	2227		
243	23 26 0	24.45	156.97	2297		
243	23 27 0	21.85	156.80	2366		
243	23 28 0	19.29	156.63	2434		
243	23 29 0	16.77	156.45	2500		
243	23 30 0	14.29	156.27	2565		
243	23 31 0	11.84	156.09	2628		
243	23 32 0	9.42	155.91	2690	SM, CE(1.3), ER	>7.0
243	23 33 0	7.04	155.73	2750	SM, CE(1.4)	>5.0
243	23 34 0	4.69	155.54	2808	SM	>9.0
243	23 35 0	2.36	155.35	2864	SM	>7.0
243	23 36 0	0.07	155.16	2918	SM	8.8
243	23 37 0	-2.20	154.97	2970	SM	9.2
243	23 38 0	-4.45	154.78	3020	SM	10.1
243	23 39 0	-6.67	154.59	3069	SM	>8.0
243	23 40 0	-8.87	154.40	3114	SM	>10.0
243	23 41 0	-11.05	154.21	3158	SM, ME	>10.0
243	23 42 0	-13.21	154.03	3199	SM, ME	9.0
243	23 43 0	-15.35	153.84	3238	SM, ME	>6.0
243	23 44 0	-17.47	153.65	3275	SM, ME	>5.0
243	23 45 0	-19.58	153.46	3309	SM, ME, ER	>8.0
243	23 46 0	-21.67	153.28	3341	SM, ME	7.7
243	23 47 0	-23.75	153.09	3371	SM, ME	>7.0
243	23 48 0	-25.81	152.91	3398	SM, ME	7.5
243	23 49 0	-27.87	152.73	3423	SM	>7.0
243	23 50 0	-29.91	152.55	3445	SM, ME	>6.5
243	23 51 0	-31.94	152.37	3464		
243	23 52 0	-33.97	152.20	3481		
243	23 53 0	-35.99	152.03	3496		
243	23 54 0	-38.00	151.87	3508		

OBJECT: 5104 ISIS 2 PASS SUMMARY FOR KUI NOHUR FOR 6 AUGUST 1977 DAY 218

DAY	TIME (Z) HR MN SC	SATELLITE LOCATION		DESCRIPTION	IONOGRAM SUMMARY F-MAX MHZ
		LAT	LONG		
#218*	11 29 0	-23.33	155.62	1438	
#218*	11 30 0	-20.18	155.48	1437	
#218*	11 31 0	-17.03	155.35	1437	
#218*	11 32 0	-13.87	155.20	1436	
#218*	11 33 0	-10.72	155.06	1434	
#218*	11 34 0	-7.56	154.91	1433	
#218*	11 35 0	-4.41	154.76	1432	
#218*	11 36 0	-1.25	154.61	1431	
#218*	11 37 0	1.91	154.46	1429	
#218*	11 38 0	5.08	154.31	1427	
#218*	11 39 0	8.24	154.16	1426	
#218*	11 40 0	11.40	154.02	1424	
#218*	11 41 0	14.57	153.87	1422	
#218*	11 42 0	17.73	153.73	1420	
#218*	11 43 0	20.90	153.59	1418	
#218*	11 44 0	24.06	153.46	1416	
#218*	11 45 0	27.23	153.33	1414	
#218*	11 46 0	30.39	153.21	1411	
#218*	11 47 0	33.56	153.10	1409	
#218*	11 48 0	36.73	153.00	1407	
#218*	11 49 0	39.89	152.92	1405	

MSP
 MSP
 MSP, RSP
 MSP, RSP, CE(.6)
 SP, RSP?
 SP, RSP

 SUBJECT: 5104 ISIS 2 PASS SUMMARY FOR K01 NAMUR FOR 7 AUGUST 1977 DAY 219

RAY	TIME (Z) HR MN SC	SATELLITE LOCATION			DESCRIPTION	IONOGRAM SUMMARY	
		LAT	LONG	ALT KM		F-MAX MHZ	
219	10 13 0	-23.53	173.53	1438			
219	10 14 0	-20.38	173.39	1437			
219	10 15 0	-17.23	173.25	1436			
219	10 16 0	-14.08	173.11	1435	SM, ME	~ 5.0	
219	10 17 0	-10.92	172.97	1434	SM, ME	~ 5.0	
219	10 18 0	-7.77	172.82	1433	SM, ME	~ 5.0	
219	10 19 0	-4.61	172.67	1431	WSP	~ 5.0	
219	10 20 0	-1.45	172.52	1430	WSP	~ 5.0	
219	10 21 0	1.71	172.37	1428	SP, RSP	~ 6.0	
219	10 22 0	4.87	172.22	1427	SP, ET(2.5), STV, RSP	~ 6.0	
219	10 23 0	8.04	172.07	1425	SP, ET(2.4), STV, RSP	~ 5.0	
219	10 24 0	11.20	171.92	1423	SP, ET(3.0), STV, RSP	~ 5.0	
219	10 25 0	14.37	171.78	1421	SM	~ 5.0	
219	10 26 0	17.53	171.64	1419	OFF		
219	10 27 0	20.70	171.50	1417	ME	~ 5.0	
219	10 28 0	23.87	171.37	1415	ME, ER	~ 5.0	
219	10 29 0	27.03	171.24	1413	ME	~ 5.0	
219	10 30 0	30.20	171.12	1410	ME	~ 5.0	
219	10 31 0	33.37	171.01	1408	ME	~ 5.0	
219	10 32 0	36.53	170.91	1406	SM, ME, CE(1.5)	~ 5.0	
219	10 33 0	39.70	170.82	1403	SM, ME, CE(1.6)	6.0	
219	10 34 0	42.86	170.75	1401	SM, ME, CE(1.2)	5.7	

OBJECT: 5104 ISIS 2 PASS SUMMARY FOR KUI NAMUK FOR 7 AUGUST 1977 DAY 219

RAY	TIME (Z)		SATELLITE LOCATION			DESCRIPTION	IONOGRAM SUMMARY	
	HR	MM SC	LAT	LONG	ALT NM		F-MAX MHz	
219	12	9 0	-16.20	144.70	1436			
219	12	10 0	-13.05	144.55	1435			
219	12	11 0	-9.89	144.41	1433			
219	12	12 0	-6.73	144.26	1432			
219	12	13 0	-3.57	144.11	1431			
219	12	14 0	-0.41	143.96	1429	SM		≥ 7.0
219	12	15 0	2.75	143.81	1428	SM		≥ 8.0
219	12	16 0	5.91	143.66	1426	SM		≥ 6.0
219	12	17 0	9.08	143.51	1424	SM, ER		7.5
219	12	18 0	12.24	143.37	1422	SM, ER		7.2
219	12	19 0	15.41	143.22	1420	SM, ER		6.0
219	12	20 0	18.57	143.08	1418	SM, ME, ER		6.0
219	12	21 0	21.74	142.95	1416	SM, ER		6.0
219	12	22 0	24.91	142.82	1414	SM		6.0
219	12	23 0	28.07	142.69	1412	SM, ME		~5.0
219	12	24 0	31.24	142.57	1409	SM, ME		~6.0
219	12	25 0	34.41	142.47	1407			

OBJECT: 5104 ISIS 2 PASS SUMMARY FOR RUI NAMUR FOR 7 AUGUST 1977 DAY 219

DAY	TIME (Z) HR MN SC	SATELLITE LOCATION		ALT KM	DESCRIPTION	IONOGRAM SUMMARY	
		LAT	LONG			F-MAX MHZ	
219	22 26 0	41.85	168.85	1362	SM, ME, ER		5.5
219	22 27 0	38.65	168.78	1362	SM, ER		5.0
219	22 28 0	35.45	168.69	1363	SM, ME, ER		4.8
219	22 29 0	32.24	168.58	1363	SM, ME, ER		5.3
219	22 30 0	29.04	168.47	1364	SM, ER		5.5
219	22 31 0	25.83	168.35	1365	SM, ME, ER		6.0
219	22 32 0	22.63	168.22	1366	SM, ER		6.6
219	22 33 0	19.42	168.09	1367	SM, ME, CE(1.7), ER		6.8
219	22 34 0	16.21	167.95	1368	SM, ER		7.3
219	22 35 0	13.00	167.81	1370	SM, ER		7.7
219	22 36 0	9.80	167.66	1371	SM, ER		7.7
219	22 37 0	6.59	167.52	1372	SM, ER		8.0
219	22 38 0	3.38	167.37	1374	SM		8.5
219	22 39 0	0.17	167.22	1375	SM, ER		8.8
219	22 40 0	-3.03	167.07	1377	SM		>10.0
219	22 41 0	-6.23	166.93	1379	SM		>10.0
219	22 42 0	-9.44	166.78	1380	SM		>10.0
219	22 43 0	-12.63	166.63	1382	SM, ME		10.0
219	22 44 0	-15.83	166.49	1384	SM, ME		8.8
219	22 45 0	-19.02	166.35	1386	SM, ME		7.5
219	22 46 0	-22.22	166.22	1388	SM, ME, CE(1.7)		7.5
219	22 47 0	-25.40	166.09	1390			

OBJECT: 5104 1515.2 PASS SUMMARY FOR K01 NAMUR FOR 8 AUGUST 1977 DAY 220

DAY	TIME (Z)		SATELLITE LOCATION			DESCRIPTION	IONOGRAM SUMMARY	
	HR	MN SC	LAT	LONG	ALT NM		F-MAX MHz	
220	9	0 0	-14.28	-168.98	1435			
220	9	1 0	-11.13	-169.13	1433			> 7.0
220	9	2 0	-7.97	-169.27	1432	SM		> 8.0
220	9	3 0	-4.81	-169.42	1431	SM		> 7.0
220	9	4 0	-1.65	-169.57	1429	SM		7.5
220	9	5 0	1.51	-169.72	1427	NSP, ET(?), ER		6.5
220	9	6 0	4.68	-169.87	1426	SM, ER		> 7.0
220	9	7 0	7.84	-170.02	1424	SM		8.9
220	9	8 0	11.01	-170.17	1422	SM		9.0
220	9	9 0	14.17	-170.31	1420	SM		~ 7.0
220	9	10 0	17.34	-170.45	1418	SM, ME, ER		8.8
220	9	11 0	20.51	-170.59	1416	SM, ME, ER		6.5
220	9	12 0	23.67	-170.73	1414	SM, ER		5.6
220	9	13 0	26.84	-170.85	1411	SM, ME, ER		
220	9	14 0	30.01	-170.97	1409	OFF		
220	9	15 0	33.18	-171.08	1407	SM, ME, ER		5.3
220	9	16 0	36.34	-171.19	1404	SM, ME, ER		5.5

 OBJECT: 5104 ISIS 2 PASS SUMMARY FOR F01 NAMUR FUR 8 AUGUST 1977 DAY 220 *****

DAY	TIME (Z) HR MH SC	SATELLITE LOCATION			DESCRIPTION	IONOGRAM SUMMARY	
		LAT	LONG	ALT NM			F-MAX MHZ
220	10 51 0	-22.70	162.88	1437			
220	10 52 0	-19.55	162.75	1436			
220	10 53 0	-16.40	162.61	1435			
220	10 54 0	-13.25	162.46	1434			
220	10 55 0	-10.09	162.32	1433			
220	10 56 0	-6.93	162.17	1431			
220	10 57 0	-3.77	162.02	1430	SM		> 5.0
220	10 58 0	-0.61	161.87	1428	SM, ER		7.5
220	10 59 0	2.55	161.72	1427	SM, ER		7.5
220	11 0 0	5.71	161.57	1425	SM, ER		7.5
220	11 1 0	8.88	161.42	1423	SM, ER		7.8
220	11 2 0	12.04	161.28	1421	SM		> 6.0
220	11 3 0	15.21	161.13	1419	SM		> 6.0
220	11 4 0	18.38	160.99	1417			
220	11 5 0	21.54	160.86	1415			
220	11 6 0	24.71	160.72	1413			
220	11 7 0	27.88	160.60	1410			
220	11 8 0	31.05	160.48	1408			
220	11 9 0	34.22	160.37	1406			
220	11 10 0	37.38	160.28	1404			
220	11 11 0	40.55	160.19	1401			

OBJECT: 5104 ISIS 2 PASS SUMMARY FOR ROI NAMUR FOR 8 AUGUST 1977 DAY 220

DAY	TIME (Z)		SATELLITE LOCATION			DESCRIPTION	IONOGRAM SUMMARY	
	HR	MIN	LAT	LONG	ALT NM		F-MAX	MIZ
220	23	4	0	40.96	158.23	1362		
220	23	5	0	37.76	158.15	1362		
220	23	6	0	34.56	158.05	1363		
220	23	7	0	31.36	157.95	1364		
220	23	8	0	28.15	157.83	1365	SM, ER	6.5
220	23	9	0	24.95	157.71	1366	SM, ER	6.8
220	23	10	0	21.74	157.58	1367	SM, ER	7.0
220	23	11	0	18.53	157.44	1368	SM, ER	7.8
220	23	12	0	15.32	157.31	1369	SM, ER	7.9
220	23	13	0	12.12	157.16	1371	SM, ER	7.9
220	23	14	0	8.91	157.02	1372	SM, ER	7.8
220	23	15	0	5.70	156.87	1374	SM, ER	7.8
220	23	16	0	2.49	156.72	1375	SM, ER	7.8
220	23	17	0	-0.71	156.57	1377	SM, ER	9.0
220	23	18	0	-3.91	156.43	1379	SM, ER	10.5
220	23	19	0	-7.12	156.28	1380		
220	23	20	0	-10.31	156.13	1382		
220	23	21	0	-13.51	155.99	1384		
220	23	22	0	-16.71	155.85	1386		
220	23	23	0	-19.90	155.71	1388		
220	23	24	0	-23.09	155.57	1390		

1331

OBJECT: 5104 ISIS 2 PASS SUMMARY FOR ROI NAMUR FOR 9 AUGUST 1977 DAY 221

DAY	TIME (Z) HR MN SC	SATELLITE LOCATION			DESCRIPTION	IONOGRAM SUMMARY	
		LAT	LONG	ALT KM		F-MAX MHz	
221	11 29 0	-21.87	152.24	1436			
221	11 30 0	-18.72	152.10	1435			
221	11 31 0	-15.57	151.96	1434			
221	11 32 0	-12.41	151.82	1433			
221	11 33 0	-9.26	151.67	1432			
221	11 34 0	-6.10	151.52	1430			
221	11 35 0	-2.94	151.37	1429			
221	11 36 0	0.23	151.22	1427			
221	11 37 0	3.39	151.07	1425	SM		> 5.0
221	11 38 0	6.56	150.92	1423	SM		> 6.0
221	11 39 0	9.72	150.77	1421	SM		> 6.0
221	11 40 0	12.89	150.63	1419	SM		> 4.0
221	11 41 0	16.06	150.49	1417	SM		4.8
221	11 42 0	19.22	150.35	1415			
221	11 43 0	22.39	150.21	1413			
221	11 44 0	25.56	150.08	1411			
221	11 45 0	28.73	149.96	1408			
221	11 46 0	31.90	149.84	1406			
221	11 47 0	35.07	149.74	1404			
221	11 48 0	38.24	149.64	1401			

OBJECT: 5104 ISIS 2 PASS SUMMARY FOR K01 NAMUR FOR 9 AUGUST 1977 DAY 221

DAY	TIME (Z) HR MN SC	SATELLITE LOCATION			DESCRIPTION	IONOGRAM SUMMARY	
		LAT	LONG	ALT KM		F-MAX MIZ	
221	21 48 0	41.12	176.13	1362	SM, ME, ER		6.0
221	21 49 0	37.92	176.05	1362	SM, CH(1.8), ER		6.5
221	21 50 0	34.72	175.96	1363	SM, ER		7.5
221	21 51 0	31.52	175.85	1364	SM, ER		7.4
221	21 52 0	28.31	175.74	1365	SM, ER		7.5
221	21 53 0	25.11	175.62	1366	SM, ER		7.3
221	21 54 0	21.90	175.49	1367	SM, ER		~ 8.0
221	21 55 0	18.70	175.35	1368	SM, ER		8.2
221	21 56 0	15.19	175.21	1370	SM, ER		~ 8.0
221	21 57 0	12.28	175.07	1371	SM, ER		~ 7.8
221	21 58 0	9.07	174.93	1373	SM, ER		7.5
221	21 59 0	5.87	174.78	1374	SM, ER		8.0
221	22 0 0	2.66	174.63	1376	SM, ER		8.8
221	22 1 0	-0.54	174.48	1378	SM, ER		> 8.0
221	22 2 0	-3.74	174.34	1380	SM, ER		10.2
221	22 3 0	-6.95	174.19	1381	SM, ER		9.5
221	22 4 0	-10.14	174.04	1383	SM, ER		9.5
221	22 5 0	-13.34	173.90	1385	SM, ER		8.8
221	22 6 0	-16.53	173.76	1387	SM, ER		> 8.0
221	22 7 0	-19.73	173.62	1389	SM, ER		
221	22 8 0	-22.91	173.48	1391	SM, ER		

OBJECT: 5104 ISIS 2 PASS SUMMARY FOR ROI NAMUR FOR 10 AUGUST 1977 DAY 222

DAY	TIME (Z) HR MN SC	SATELLITE LOCATION		DESCRIPTION	F-MAX MIZ
		LAT	LONG		
222	10 12 0	-25.22	170.28		
222	10 13 0	-22.07	170.14	SM, ME	~6.0
222	10 14 0	-18.92	170.01	SM, ME, ER	~5.0
222	10 15 0	-15.77	169.87	SM	~5.0
222	10 16 0	-12.61	169.72	SM, ME, ER	~4.0
222	10 17 0	-9.45	169.58	SM, ME, ER	3.3
222	10 18 0	-6.29	169.43	SM, ME, ER	~4.0
222	10 19 0	-3.13	169.28	SM, ME, CE(1.5), ER	7.5
222	10 20 0	0.03	169.13	SM	≥8.0
222	10 21 0	3.20	168.98	SM	8.0
222	10 22 0	6.36	168.83	SM	8.0
222	10 23 0	9.53	168.68	SM	~8.0
222	10 24 0	12.70	168.54	SM, ME	~7.0
222	10 25 0	15.87	168.39	SM, ME	~7.0
222	10 26 0	19.03	168.25	SM, ME, ER	6.0
222	10 27 0	22.20	168.12	SM, ME, ER	6.0
222	10 28 0	25.37	167.99	SM, ME, ER	~6.0
222	10 29 0	28.54	167.87	SM, ME, ER	5.2
222	10 30 0	31.71	167.75	SM, ME, ER	~5.0
222	10 31 0	34.88	167.64	SM, ME, ER	~5.0
222	10 32 0	38.05	167.55	SM, ME, ER	5.5
222	10 33 0	41.22	167.47	SM, ME, ER	5.7

 OBJECT: 5104 ISIS 2 PASS SUMMARY FOR ROI NAMUR FOR 10 AUGUST 1977 DAY 222

DAY	TIME (Z) HR MN SC	SATELLITE LOCATION		DESCRIPTION	IONOGRAM SUMMARY	
		LAT	LONG		ALT KM	F-MAX MIZ
222	22 25 0	43.43	165.57	1361	SM, ME, ER	5.5
222	22 26 0	40.23	165.51	1362	SM, ME, ER	6.0
222	22 27 0	37.03	165.42	1363	SM, ME, ER	6.2
222	22 28 0	33.83	165.33	1364	SM, ME, ER	6.0
222	22 29 0	30.63	165.22	1365	SM, ER	6.0
222	22 30 0	27.42	165.10	1366	SM, ER	6.3
222	22 31 0	24.22	164.98	1367	SM, ER	7.0
222	22 32 0	21.01	164.85	1368	SM, ER	8.0
222	22 33 0	17.80	164.71	1370	SM, ER	8.0
222	22 34 0	14.60	164.57	1371	SM, ER	8.0
222	22 35 0	11.39	164.43	1373	SM, ER	7.8
222	22 36 0	8.18	164.28	1374	SM, ER	8.0
222	22 37 0	4.98	164.13	1376	SSP, ER	8.6
222	22 38 0	1.78	163.99	1378	SM, ER	9.2
222	22 39 0	-1.43	163.84	1379	SM	9.9
222	22 40 0	-4.63	163.69	1381	SM	> 10.0
222	22 41 0	-7.83	163.54	1383	SM	> 10.0
222	22 42 0	-11.03	163.39	1385	SM	> 10.0
222	22 43 0	-14.22	163.25	1387	SM	> 10.0
222	22 44 0	-17.41	163.11	1389	SM	> 10.0
222	22 45 0	-20.60	162.97	1391		
222	22 46 0	-23.79	162.84	1393		

OBJECT: 5104 1515 2 PASS SUMMARY FOR KDI NAMUR FOR 11 AUGUST 1977 DAY 223

DAY	TIME (Z) HR MN SC	SATELLITE LOCATION			DESCRIPTION	IONOGRAM SUMMARY	
		LAT	LONG	ALT KM		F-MAX	MUF
223	10 50 0	-24.38	159.63	1436	SM, CE	~5.0	
223	10 51 0	-21.23	159.50	1435	SM, ME	?	
223	10 52 0	-18.08	159.36	1434	SM, ME	?	
223	10 53 0	-14.93	159.22	1432	SM, ME	~5.0	
223	10 54 0	-11.77	159.08	1431	SM, ME	~5.0	
223	10 55 0	-8.61	158.93	1430	SM, ME	?	
223	10 56 0	-5.45	158.78	1428	SM, ME	?	
223	10 57 0	-2.29	158.63	1426	SM, ME	?	
223	10 58 0	0.88	158.48	1424	SM, ME	> 9.0	
223	10 59 0	4.04	158.33	1422	NSP, ME	> 8.0	
223	11 0 0	7.21	158.18	1421	NSP, ME	> 8.0	
223	11 1 0	10.38	158.04	1418	SM, ME	> 7.0	
223	11 2 0	13.55	157.89	1416	SM, ME	> 7.0	
223	11 3 0	16.72	157.75	1414	NSP, ME	> 5.0	
223	11 4 0	19.89	157.61	1412	NSP, ME	> 6.0	
223	11 5 0	23.06	157.48	1410	SM, ME	5.7	
223	11 6 0	26.23	157.35	1407	SM, ME	5.8	
223	11 7 0	29.40	157.23	1405	SM, ME, ER	6.0	
223	11 8 0	32.57	157.11	1403	SM, ME	6.0	
223	11 9 0	35.74	157.01	1400	SM, ME, ER	6.0	
223	11 10 0	38.92	156.92	1398	SM, ME, ER	6.0	
223	11 11 0	42.09	156.84	1396	SM, ME, ER	6.5	

 OBJECT: 5104 ISIS 2 PASS SUMMARY FOR ROI NAMUK FOR 12 AUGUST 1977 DAY 224

DAY	TIME (Z) HR MN SC	SATELLITE LOCATION			DESCRIPTION	IONOGRAM SUMMARY	
		LAT	LONG	ALT KM			F-MAX MHz
224	21 47 0	42.69	172.86	1362			
224	21 48 0	39.49	172.79	1363	SM, ER		5.5
224	21 49 0	36.29	172.70	1364	SM, ER		5.9
224	21 50 0	33.09	172.60	1365	SM, ER		6.3
224	21 51 0	29.89	172.49	1366	SM, ER		7.0
224	21 52 0	26.69	172.37	1367	SM, ER		8.3
224	21 53 0	23.48	172.24	1368	SM, ER		8.3
224	21 54 0	20.28	172.11	1370	SM, ER		8.3
224	21 55 0	17.07	171.97	1371	SM, ER		8.4
224	21 56 0	13.87	171.83	1373	SM, ER		7.8
224	21 57 0	10.66	171.69	1375	SM, ER		7.7
224	21 58 0	7.46	171.54	1376	SM, ER		7.6
224	21 59 0	4.25	171.40	1378	SM, ER		9.0
224	22 0 0	1.05	171.25	1380	SM		
224	22 1 0	-2.15	171.10	1382	OFF		
224	22 2 0	-5.35	170.95	1384	SM		< 9.0
224	22 3 0	-8.55	170.80	1386	SM		> 10.0
224	22 4 0	11.74	170.66	1388	SM		> 10.0
224	22 5 0	-14.93	170.51	1390	SM		> 10.0
224	22 6 0	-18.12	170.37	1392	SM, ME, ER		~ 8.0
224	22 7 0	-21.31	170.24	1394	SM, ER		6.5
224	22 8 0	-24.49	170.11	1396	SM, ME, ER		~ 7.0

 OBJECT: 5104 1515 2 PASS SUMMARY FOR ROI NAMUR FOR 13 AUGUST 1977 MAY 225

DAY	TIME (Z) HR MN SC	SATELLITE LOCATION		DESCRIPTION	IONOGRAM SUMMARY	
		LAT	LONG		ALT KM	F-MAX MHZ
225	10 12 0	-23.74	166.90	1434	SM, ME	4.0
225	10 13 0	-20.59	166.76	1433	SM, ME	3.5
225	10 14 0	-17.43	166.62	1432	SM, ME	3.8
225	10 15 0	-14.27	166.48	1430	SM, ME, ER	3.5
225	10 16 0	-11.12	166.34	1429	SM, ME, ER	3.5
225	10 17 0	-7.95	166.19	1427	SM, ER	5.0
225	10 18 0	-4.79	166.04	1425	SM, ER	7.5
225	10 19 0	-1.63	165.89	1424	SM, ER	8.5
225	10 20 0	1.54	165.74	1422	SM, ER	≥ 9.0
225	10 21 0	4.71	165.59	1420	SM	9.2
225	10 22 0	7.88	165.44	1418	SM	≥ 9.0
225	10 23 0	11.05	165.30	1415	SM	≥ 9.0
225	10 24 0	14.22	165.15	1413	SM	> 7.0
225	10 25 0	17.39	165.01	1411	SM	6.0
225	10 26 0	20.57	164.87	1409	SM	4.8
225	10 27 0	23.74	164.74	1406	SM	4.7
225	10 28 0	26.91	164.61	1404	SM, ER	4.8
225	10 29 0	30.09	164.49	1402	SM, ER	4.9
225	10 30 0	33.26	164.38	1399	SM	6.0
225	10 31 0	36.43	164.28	1397	SM, ME, ER	5.5
225	10 32 0	39.61	164.19	1395	SM, ME	5.5
225	10 33 0	42.78	164.12	1392	SM, ME, ER	5.5

OBJECT: 5104 ISIS 2 PASS SUMMARY FOR ROI NAMUR FOR 14 AUGUST 1977 DAY 226

IAY	TIME (2) HR MN SC	SATELLITE LOCATION			DESCRIPTION	IONOGRAM SUMMARY	
		LAT	LONG	ALT KM		F-MAX MHz	
#226*	8 57 0	-20.77	-175.33	1432			
#226*	8 58 0	-17.62	-175.47	1431			
#226*	8 59 0	-14.46	-175.61	1430			
#226*	9 0 0	-11.30	-175.75	1428			
#226*	9 1 0	-8.14	-175.90	1426			
#226*	9 2 0	-4.98	-176.05	1424	WSP, ET(1.9), STV		≥ 7.0
#226*	9 3 0	-1.81	-176.20	1423	WSP, ET(1.5)		≥ 4.0
#226*	9 4 0	1.36	-176.35	1421	WSP, ET(1.4)		≥ 4.0
#226*	9 5 0	4.53	-176.50	1419	WSP, ET(2.2), STV, RSP		≥ 5.0
#226*	9 6 0	7.70	-176.65	1416	WSP, ET(2.3), STV		≥ 5.0
#226*	9 7 0	10.87	-176.79	1414	WSP, ET(2.8), STV, RSP		≥ 6.0
#226*	9 8 0	14.04	-176.94	1412	VSP, ET(2.5), STV		≥ 5.0
#226*	9 9 0	17.21	-177.08	1410	NSP, ME		≥ 9.0
#226*	9 10 0	20.39	-177.22	1407	NSP(>5), ME		≥ 7.0
#226*	9 11 0	23.56	-177.35	1405	SM, ME		≥ 5.0
#226*	9 12 0	26.74	-177.48	1403	SM, ME		5.8
#226*	9 13 0	29.91	-177.60	1400	SM, ME, ER		5.5
#226*	9 14 0	33.09	-177.71	1398			
#226*	9 15 0	36.26	-177.81	1396			
#226*	9 16 0	39.43	-177.90	1393			

OBJECT: 5104 ISIS 2 PASS SUMMARY FOR ROI NAMUR FOR 14 AUGUST 1977 DAY 226

DAY	TIME (Z)			SATELLITE LOCATION			DESCRIPTION	IONOGRAM SUMMARY	
	HR	MM	SC	LAT	LONG	ALT KM		F-MAX MHZ	
226	10	50	0	-22.89	156.25	1433			
226	10	51	0	-19.74	156.12	1432			
226	10	52	0	-16.58	155.98	1431			
226	10	53	0	-13.42	155.84	1429			
226	10	54	0	-10.26	155.69	1427			
226	10	55	0	-7.10	155.54	1426			
226	10	56	0	-3.94	155.39	1424			
226	10	57	0	-0.77	155.24	1422			
226	10	58	0	2.40	155.09	1420			
226	10	59	0	5.57	154.94	1418			
226	11	0	0	8.74	154.80	1416			
226	11	1	0	11.91	154.65	1413			
226	11	2	0	15.08	154.51	1411			
226	11	3	0	18.26	154.37	1409			
226	11	4	0	21.43	154.23	1407			
226	11	5	0	24.61	154.10	1404			
226	11	6	0	27.78	153.97	1402			
226	11	7	0	30.96	153.86	1399			
226	11	8	0	34.13	153.75	1397			
226	11	9	0	37.30	153.65	1395			
226	11	10	0	40.48	153.57	1392			
							SM, ME		≥ 5.0
							SM, ME, ER		7.0
							SM		9.0
							SP(<2), STV		≥ 9.0
							SP(<2), STV		> 6.0
							SM, ME		≥ 4.0
							SM, ME		≥ 5.0
							SP, ME, STV		≥ 4.0
							SP, ME		≥ 3.0
							SP, ME, ER		5.0
							SM, ME, CE(1.5)		5.8
							SM, ME, ER		5.8

 OBJECT: 5104 ISIS 2 PASS SUMMARY FOR K01 NAHUR FUR 14 AUGUST 1977 DAY 226

DAY	TIME (Z) HR MN SC	SATELLITE LOCATION		DESCRIPTION	IONOGRAM SUMMARY	
		LAT	LONG		ALT KM	F-MAX MHz
#226*	23 3 0	40.89	151.61	1363		
#226*	23 4 0	37.69	151.53	1364		
#226*	23 5 0	34.49	151.43	1365		
#226*	23 6 0	31.29	151.33	1367		
#226*	23 7 0	28.09	151.21	1368	SM, ER	6.5
#226*	23 8 0	24.89	151.09	1369	SM, ER	6.6
#226*	23 9 0	21.68	150.96	1371	SM, ER	8.0
#226*	23 10 0	18.48	150.82	1373	SM, ER	8.5
#226*	23 11 0	15.28	150.69	1374	SM, ER	8.5
#226*	23 12 0	12.07	150.54	1376	SM, ER	8.2
#226*	23 13 0	8.87	150.40	1378	SM, ER	8.5
#226*	23 14 0	5.67	150.25	1380	SM, ER	8.0
#226*	23 15 0	2.47	150.10	1382	SM, ER	9.0
#226*	23 16 0	-0.73	149.95	1384	SM, ER	> 10.0
#226*	23 17 0	-3.93	149.80	1386	SM, ER	> 10.0
#226*	23 18 0	-7.13	149.66	1388	SM, ER	> 10.0
#226*	23 19 0	-10.32	149.51	1390		
#226*	23 20 0	-13.51	149.37	1392		
#226*	23 21 0	-16.70	149.22	1394		
#226*	23 22 0	-19.88	149.09	1396		

OBJECT: S104 ISIS 2 PASS SUMMARY FOR ROI NAMUN FOR 15 AUGUST 1977 MAY 227

DAY	TIME (Z) HR MN SC	SATELLITE LOCATION			DESCRIPTION	IONOGRAM SUMMARY	
		LAT	LONG	ALT KM		F-MAX MHz	
227	9 34 0	-23.08	174.16	1433			
227	9 35 0	-19.93	174.03	1431			
227	9 36 0	-16.77	173.89	1430	SM, ME, CE(1.8)		~4.0
227	9 37 0	-13.61	173.74	1428	SM, ME		6.5
227	9 38 0	-10.45	173.60	1426	SM, ME, ER		5.8
227	9 39 0	-7.29	173.45	1425	SM, ME, ER		≥ 5.0
227	9 40 0	-4.12	173.30	1423	SM, ME, ER		≥ 6.0
227	9 41 0	-0.95	173.15	1421	SM, ER		8.8
227	9 42 0	2.22	173.00	1419	SM, ER		8.5
227	9 43 0	5.39	172.85	1417	SM, ER		8.2
227	9 44 0	8.56	172.71	1414	SM		≥ 8.0
227	9 45 0	11.73	172.56	1412	SM, CE(1.3), ME, ER		7.5
227	9 46 0	14.91	172.42	1410	SM, ME		6.0
227	9 47 0	18.08	172.27	1408	SM, ME		≥ 4.0
227	9 48 0	21.26	172.14	1405	SM, ME		6.0
227	9 49 0	24.43	172.01	1403	SM, ME, ER		6.0
227	9 50 0	27.61	171.88	1401	SM, ME, CE(1.6)		5.6
227	9 51 0	30.78	171.76	1398	SM, ME, CE(1.8)		5.6
227	9 52 0	33.96	171.65	1396	SM, ME		≥ 5.0
227	9 53 0	37.14	171.56	1393	SM, ME		5.7
227	9 54 0	40.31	171.47	1391			
227	9 55 0	43.49	171.40	1389			

 OBJECT: 5104 ISIS 2 PASS SUMMARY FOR ROI NAMUR FOR 15 AUGUST 1977 DAY 227

DAY	TIME (Z) HR MN SC	SATELLITE LOCATION		DESCRIPTION	IONOGRAM SUMMARY	
		LAT	LONG		ALT KM	F-MAX MHz
227	11 30 0	-15.73	145.33	1429		
227	11 31 0	-12.57	145.19	1427		
227	11 32 0	-9.41	145.04	1426		
227	11 33 0	-6.25	144.89	1424		
227	11 34 0	-3.08	144.74	1422		
227	11 35 0	0.09	144.60	1420	SM, ME, CE(1.5)	~5.0
227	11 36 0	3.26	144.45	1418	SM, ME, ER	8.5
227	11 37 0	6.43	144.30	1416	SM	≥ 7.0
227	11 38 0	9.60	144.15	1414	SM, ER	7.0
227	11 39 0	12.77	144.00	1411	SM	≥ 6.0
227	11 40 0	15.95	143.86	1409	SM	≥ 6.0
227	11 41 0	19.12	143.72	1407	SM, ME	~5.5
227	11 42 0	22.30	143.59	1404		
227	11 43 0	25.48	143.46	1402		
227	11 44 0	28.65	143.33	1400		
227	11 45 0	31.83	143.22	1397		
227	11 46 0	35.00	143.11	1395		

227	21 47 0	41.04	169.52	1363	SM, ME, ER	5.5
227	21 48 0	37.85	169.44	1365	SM, ME	6.1
227	21 49 0	34.65	169.34	1366	SM, ME, ER	6.9
227	21 50 0	31.45	169.24	1367	SM, ME, ER	6.8
227	21 51 0	28.24	169.12	1369	SM, ME, ER	6.5
227	21 52 0	25.04	169.00	1370	SM, ME, CE(1.8), ER	6.9
227	21 53 0	21.84	168.87	1372	SM, ME(<3), ER	7.2
227	21 54 0	18.64	168.73	1373	SM, ME(<2), ER	7.5
227	21 55 0	15.43	168.60	1375	SP(<2), STV, ER	7.1
227	21 56 0	12.23	168.45	1377	SP(<2), STV, ER	7.5
227	21 57 0	9.03	168.31	1379	SP(<2), STV, ER	7.1
227	21 58 0	5.83	168.16	1381	SP(<2), CE(1.6), STV, ER	7.5
227	21 59 0	2.63	168.01	1383	SP(<2), STV, ER	7.8
227	22 0 0	-0.57	167.86	1385	SP(<2), STV, ER	9.3
227	22 1 0	-3.77	167.71	1387	OFF	
227	22 2 0	-6.96	167.57	1389	SM, CE(1.6), ER	9.5
227	22 3 0	-10.16	167.42	1391	SM, ME(<2), ER	9.2
227	22 4 0	-13.35	167.28	1393	SM, ME(<2), CE(1.7), ER	8.5
227	22 5 0	-16.53	167.13	1395	SM, ME(<2.5), ER	8.0
227	22 6 0	-19.72	166.99	1397	SM, ME, ER	7.5
227	22 7 0	-22.90	166.86	1400	SM, ME, ER	6.5

OBJECT: 5104 ISSIS 2 PASS SUMMARY FOR KUI NAMUR FOR AUGUST 1977 DAY 228

DAY	TIME (Z) HR MN SC	SATELLITE LOCATION		DESCRIPTION	IONOGRAM SUMMARY F-MAX MHz
		LAT	LONG		
#228*	8 21 0	-13.79	-168.35	1427	
#228*	8 22 0	-10.63	-168.49	1425	≥ 6.0
#228*	8 23 0	-7.47	-168.64	1424	≥ 6.0
#228*	8 24 0	-4.30	-168.79	1422	≥ 7.0
#228*	8 25 0	-1.13	-168.94	1420	≥ 6.0
#228*	8 26 0	2.04	-169.09	1418	≥ 6.0
#228*	8 27 0	5.21	-169.24	1415	≥ 5.0
#228*	8 28 0	8.38	-169.39	1413	≥ 6.0
#228*	8 29 0	11.56	-169.53	1411	≥ 6.0
#228*	8 30 0	14.73	-169.68	1409	≥ 6.0
#228*	8 31 0	17.91	-169.82	1406	≥ 9.0
#228*	8 32 0	21.08	-169.95	1404	7.0
#228*	8 33 0	24.26	-170.09	1402	6.8
#228*	8 34 0	27.44	-170.21	1399	
#228*	8 35 0	30.61	-170.33	1397	
#228*	8 36 0	33.79	-170.44	1394	
#228*	8 37 0	36.97	-170.54	1392	

#228*	10 11 0	-25.38	163.65	1433	
#228*	10 12 0	-22.23	163.52	1431	3.5
#228*	10 13 0	-19.07	163.38	1430	3.8
#228*	10 14 0	-15.91	163.24	1428	≤ 5.0
#228*	10 15 0	-12.75	163.10	1426	≤ 6.0
#228*	10 16 0	-9.59	162.95	1425	≤ 4.0
#228*	10 17 0	-6.43	162.80	1423	≤ 7.0
#228*	10 18 0	-3.26	162.65	1421	≤ 6.0
#228*	10 19 0	-0.09	162.50	1419	≤ 6.0
#228*	10 20 0	3.08	162.35	1417	≤ 6.0
#228*	10 21 0	6.25	162.21	1415	SP, STV, ET(4.1), RSP
#228*	10 22 0	9.43	162.06	1412	SP, STV, ET(4.9), RSP
#228*	10 23 0	12.60	161.91	1410	SP, STV, ET(5.1), RSP
#228*	10 24 0	15.78	161.77	1408	SP, STV, ET(8.5)
#228*	10 25 0	18.95	161.63	1405	SM, ME, ER
#228*	10 26 0	22.13	161.49	1403	SM, ME, ER
#228*	10 27 0	25.30	161.36	1401	SM, ME, ER
#228*	10 28 0	28.48	161.24	1398	SM, ME, ER
#228*	10 29 0	31.66	161.13	1396	SM, ME, ER
#228*	10 30 0	34.84	161.02	1394	SM, ME, CE(1.5)
#228*	10 31 0	38.01	160.93	1391	SM, ME, CE(1.8)
#228*	10 32 0	41.19	160.85	1389	SM, ME, ER

 OBJECT: 5104 1515 2 PASS SUMMARY FOR KUI NAMUR FOR 17 AUGUST 1977 DAY 229

DAY	TIME (Z) HR MN SC	SATELLITE LOCATION		DESCRIPTION	IONOGRAM SUMMARY	
		LAT	LONG		ALT KM	F-MAX MHZ
229	8 56 0	-22.41	-178.58	1430		
229	8 57 0	-19.25	-178.71	1429		
229	8 58 0	-16.10	-178.85	1427		
229	8 59 0	-12.93	-178.99	1425		
229	9 0 0	-9.77	-179.14	1424		
229	9 1 0	-6.60	-179.29	1422		
229	9 2 0	-3.44	-179.44	1420		
229	9 3 0	-0.27	-179.59	1418		
229	9 4 0	2.90	-179.74	1416		
229	9 5 0	6.08	-179.88	1413		
229	9 6 0	9.25	-179.97	1411		
229	9 7 0	12.43	-179.82	1409		
229	9 8 0	15.60	-179.68	1407		
229	9 9 0	18.78	-179.54	1404		
229	9 10 0	21.96	-179.40	1402		
229	9 11 0	25.14	-179.27	1399		
229	9 12 0	28.32	-179.15	1397		
229	9 13 0	31.49	-179.03	1395		
229	9 14 0	34.67	-178.93	1392		
229	9 15 0	37.85	-178.83	1390		
229	9 16 0	41.03	-178.75	1388		

WVSP, ET(1.75), RSP, STV, ME ≥ 6.0
 WVSP, ET(1.65), RSP, STV, ME ≥ 6.0
 WVSP, ET(1.5), RSP, STV, ME ≥ 6.0
 WVSP, ET(1.45), RSP, STV ≥ 6.0
 WVSP, ET(1.65), RSP, STV ≥ 5.0
 WVSP, ET(1.82), RSP, STV ≤ 5.0
 VSP, ET(3.3), RSP, STV ≤ 7.0
 SP, ET(4.3), STV ≤ 8.0
 SM, ER 8.5
 SM, ER 8.6
 SM, ER, ME 7.3
 SM, ER, ME 6.8
 SM, ER, ME 6.2

OBJECT: 5104 ISIS 2 PASS SUMMARY FOR K01 NAMUR FOR 16 AUGUST 1977 DAY 228

DAY	TIME (Z)		SATELLITE LOCATION			DESCRIPTION	IONOGRAM SUMMARY	
			LAT	LONG	ALT KM		F-MAX	MUF3000
229	10	50	0	-21.37	152.87	1430		
229	10	51	0	-18.22	152.74	1428		
229	10	52	0	-15.06	152.59	1427		
229	10	53	0	-11.89	152.45	1425		
229	10	54	0	-8.73	152.30	1423	SM	5.0
229	10	55	0	-5.56	152.16	1421	WSP, ET(5.5), STV	≥ 6.0
229	10	56	0	-2.40	152.01	1419	VSP, ET(3.0), STV, RSP	≥ 6.0
229	10	57	0	0.78	151.86	1417	WSP, ET(2.6), STV	≥ 5.0
229	10	58	0	3.95	151.71	1415	WSP, ET(2.3), STV	≥ 5.0
229	10	59	0	7.12	151.56	1413	WSP, ET(2.2), STV, RSP	≥ 5.0
229	11	0	0	10.30	151.41	1410	WSP, ET(2.3), STV, RSP	≥ 6.0
229	11	1	0	13.47	151.27	1408	WSP, ET(2.5), STV, RSP, ME	≥ 5.0
229	11	2	0	16.65	151.12	1406	VSP, ET(3.2), STV	≥ 6.0
229	11	3	0	19.83	150.99	1403	WSP, ET(5.2), STV	≥ 8.0
229	11	4	0	23.00	150.85	1401	SM, ER	8.0
229	11	5	0	26.18	150.72	1399	SM, ME, ER	7.5
229	11	6	0	29.36	150.60	1396		
229	11	7	0	32.54	150.49	1394		
229	11	8	0	35.72	150.39	1391		
229	11	9	0	38.90	150.30	1389		

OBJECT: 5104 ISIS 2

PASS SUMMARY FOR ROI NAMUR

FOR 17 AUGUST 1977 DAY 229

DAY	TIME (Z) HR MN SC	SATELLITE LOCATION		DESCRIPTION	IONOGRAM SUMMARY	
		LAT	LONG		ALT KM	F-MAX MHz
229	21 9 0	40.29	176.80	1365	SM, ME, ER	5.0
229	21 10 0	37.09	176.71	1366	SM, ME, ER	5.0
229	21 11 0	33.89	176.62	1367	SM, ME, ER	5.3
229	21 12 0	30.69	176.51	1369	SM, ME, ER	5.7
229	21 13 0	27.49	176.39	1371	SM, ME, ER	5.7
229	21 14 0	24.29	176.27	1372	SM, ME, ER	6.0
229	21 15 0	21.09	176.14	1374	SM, ME, ER	7.0
229	21 16 0	17.89	176.00	1376	SM, ME, ER	7.5
229	21 17 0	14.69	175.86	1378	SM, ME, ER	7.3
229	21 18 0	11.49	175.72	1380	SM, ME, CE(1.5), ER	7.0
229	21 19 0	8.29	175.57	1382	SM, SP(<2.5), ER	6.5
229	21 20 0	5.09	175.42	1384	SM, SP(<2.5), ER	7.5
229	21 21 0	1.89	175.28	1386	SM, SP(2.0), ER	8.5
229	21 22 0	-1.31	175.13	1388	OFF	
229	21 23 0	-4.50	174.98	1390	SM, ME	>10.0
229	21 24 0	-7.69	174.83	1392	SM, ME	>10.0
229	21 25 0	-10.88	174.68	1394	SM	~10.0
229	21 26 0	-14.07	174.54	1397	SM, ME, CE(1.5), ER	8.6
229	21 27 0	-17.25	174.40	1399	SM, ME, ER	8.0
229	21 28 0	-20.43	174.26	1401	SM, ME, CE(1.7), ER	6.5
229	21 29 0	-23.61	174.13	1403	SM, ME, ER	6.0

OBJECT: 5104 ISIS 2 PASS SUMMARY FOR ROI NAMUR FOR 18 AUGUST 1977 MAY 230

DAY	TIME (Z) HR MN SC	SATELLITE LOCATION			DESCRIPTION	IONOGRAM SUMMARY	
		LAT	LONG	ALT KM			F-MAX MHz
230	9 33 0	-24.71	170.91	1430	SM, ME, CE(1.8), ER		~ 4.5
230	9 34 0	-21.55	170.78	1429	SM, ME, CE(1.8), ER		4.3
230	9 35 0	-18.39	170.64	1427	SM, ME, CE(1.6), ER		4.2
230	9 36 0	-15.23	170.50	1426	SM, ME, CE(1.5)		4.9
230	9 37 0	-12.07	170.36	1424	SM, ME, ER		~ 6.0
230	9 38 0	-8.91	170.21	1422	SM, ME, CE(1.4), ER		~ 7.0
230	9 39 0	-5.74	170.06	1420	SM, ME, CE(1.3), ER		8.6
230	9 40 0	-2.57	169.92	1418	SM, ME, ER		8.9
230	9 41 0	0.60	169.77	1416	OFF		
230	9 42 0	3.77	169.62	1414	SM, ME, ER		8.8
230	9 43 0	6.95	169.47	1411	SM, ME, ER		8.5
230	9 44 0	10.13	169.32	1409	SM, ME, ER		7.5
230	9 45 0	13.30	169.18	1407	SM, ME, CE(1.3)		~ 6.0
230	9 46 0	16.48	169.03	1404	SM, ME, ER		5.2
230	9 47 0	19.66	168.89	1402	SM, ME, CE(1.3)		4.5
230	9 48 0	22.84	168.76	1400	SM, ME, ER		4.7
230	9 49 0	26.02	168.63	1397	SM, ME, CE(1.8), ER		5.5
230	9 50 0	29.20	168.51	1395	SM, ME, CE(1.7), ER		5.6
230	9 51 0	32.38	168.40	1393	SM, ME, CE(2.0), ER		6.2
230	9 52 0	35.56	168.29	1390			
230	9 53 0	38.74	168.20	1388			
230	9 54 0	41.92	168.13	1386			

FOR 18 AUGUST 1977 DAY 230

PASS SUMMARY FOR KOI NAMUK

OBJECT: 5104 ISIS 2

DAY	TIME (Z) HR MN SC	SATELLITE LOCATION			DESCRIPTION	IONOGRAM SUMMARY	
		LAT	LONG	ALT NM		F-MAX MHZ	
230	21 46 0	42.58	166.24	1365	SM, ME, ER		6.4
230	21 47 0	39.38	166.17	1366	SM, ME, ER		6.0
230	21 48 0	36.18	166.08	1367	SM, ME, CE(1.7), ER		6.0
230	21 49 0	32.98	165.98	1369	SM, ME, CE(1.6), ER		6.0
230	21 50 0	29.79	165.87	1370	SM, ME, ER		6.0
230	21 51 0	26.59	165.75	1372	SM, ME, CE(1.7), ER		6.1
230	21 52 0	23.39	165.63	1374	SM, ME, ER		7.4
230	21 53 0	20.18	165.49	1376	SM, ME, ER		7.5
230	21 54 0	16.98	165.36	1377	SM, ME, ER		7.4
230	21 55 0	13.78	165.21	1379	SM, SP(<2), ER		7.4
230	21 56 0	10.58	165.07	1381	SM, SP(<2), ER		8.0
230	21 57 0	7.39	164.92	1384	SM, SP(<2), ER		8.5
230	21 58 0	4.19	164.78	1386	SM, SP(<2), ER		9.8
230	21 59 0	0.99	164.63	1388	SM, ME		>10.0
230	22 0 0	-2.20	164.48	1390	SM, ME		>10.0
230	22 1 0	-5.39	164.33	1392	SM, ME		>10.0
230	22 2 0	-8.58	164.18	1394	SM, ME		>10.0
230	22 3 0	-11.77	164.04	1396	SM, ME, ER		9.0
230	22 4 0	-14.96	163.89	1399	SM, ME, CE(1.7), ER		7.9
230	22 5 0	-18.14	163.75	1401	SM, ME, CE(1.8), ER		7.5
230	22 6 0	-21.32	163.62	1403	SM, ME, ER		7.0
230	22 7 0	-24.49	163.49	1405	SM, ME, ER		

PROJECT: 5104, 1515 2 PASS SUMMARY FOR ROI NAMUK FOR 19 AUGUST 1977 DAY 231

DAY	TIME (Z)		SATELLITE LOCATION		DESCRIPTION	IONOGRAM SUMMARY	F-MAX MHz
	HR	MIN	SEC	LAT			
231	8	19	0	-18.57	-171.45	1426	
231	8	20	0	-15.41	-171.59	1425	
231	8	21	0	-12.25	-171.73	1423	
231	8	22	0	-9.08	-171.88	1421	
231	8	23	0	-5.91	-172.03	1419	
231	8	24	0	-2.74	-172.17	1417	
231	8	25	0	0.43	-172.32	1415	
231	8	26	0	3.61	-172.47	1412	
231	8	27	0	6.78	-172.62	1410	
231	8	28	0	9.96	-172.77	1408	
231	8	29	0	13.14	-172.92	1405	
231	8	30	0	16.32	-173.06	1403	
231	8	31	0	19.49	-173.20	1401	
231	8	32	0	22.68	-173.33	1398	
231	8	33	0	25.86	-173.46	1396	
231	8	34	0	29.04	-173.58	1394	
231	8	35	0	32.22	-173.70	1391	
231	8	36	0	35.40	-173.80	1389	
231	8	37	0	38.58	-173.89	1387	

 OBJECT: 5104 ISIS 2 PASS SUMMARY FOR ROI NAMUR FOR 19 AUGUST 1977 DAY 231

DAY	TIME (Z) HR MN SC	SATELLITE LOCATION		ALT KM	DESCRIPTION	IONOGRAM SUMMARY	
		LAT	LONG				F-MAX MIZ
231	10 13 0	-17.53	160.00	1426	SM, ME, ER		4.1
231	10 14 0	-14.37	159.86	1424	SM, ME, CE(1.7), ER		4.7
231	10 15 0	-11.21	159.71	1422	SM, ME, CE(1.6), ER		4.8
231	10 16 0	-8.04	159.57	1420	SM, ME, ER		~ 7.5
231	10 17 0	-4.87	159.42	1418	SM, ME, ER		8.2
231	10 18 0	-1.70	159.27	1416	SM, WSP(NP), ER		8.7
231	10 19 0	1.47	159.12	1414	SM, WSP(NP)		8.8
231	10 20 0	4.65	158.97	1411	SM		8.7
231	10 21 0	7.83	158.82	1409	SM, RSP(NP)		8.4
231	10 22 0	11.00	158.67	1407	SM, ER		8.0
231	10 23 0	14.18	158.53	1405	SM		≥ 5.0
231	10 24 0	17.36	158.39	1402	SM		≥ 6.0
231	10 25 0	20.54	158.25	1400	SM, ME		≥ 5.0
231	10 26 0	23.72	158.12	1397	SM, ME, ER		~ 4.2
231	10 27 0	26.90	157.99	1395	SM, ME, CE(1.7), ER		5.0
231	10 28 0	30.08	157.87	1393			
231	10 29 0	33.26	157.76	1390			
231	10 30 0	36.45	157.66	1388			
231	10 31 0	39.63	157.57	1386			
231	10 32 0	42.81	157.50	1383			

OBJECT: 5104 ISIS 2 PASS SUMMARY FOR ROI NAMUK FOR 20 AUGUST 1977 DAY 232

DAY	TIME (Z) HR MN SC	SATELLITE LOCATION			DESCRIPTION	IONOGRAM SUMMARY	
		LAT	LONG	ALT KM			F-MAX MIZ
#232*	8 55 0	-24.02	178.18	1428			
#232*	8 56 0	-20.86	178.05	1426			
#232*	8 57 0	-17.70	177.91	1425			
#232*	8 58 0	-14.54	177.77	1423			
#232*	8 59 0	-11.38	177.62	1421			
#232*	9 0 0	-8.21	177.48	1419			
#232*	9 1 0	-5.04	177.33	1417			
#232*	9 2 0	-1.87	177.18	1415	SM		10.5
#232*	9 3 0	1.31	177.03	1412	SM		10.5
#232*	9 4 0	4.48	176.88	1410	SM, ER		9.5
#232*	9 5 0	7.66	176.73	1408	SM, ER		8.3
#232*	9 6 0	10.84	176.58	1406	SM, ER		9.0
#232*	9 7 0	14.02	176.44	1403	SM, ER		9.1
#232*	9 8 0	17.20	176.30	1401	SM, ER		8.9
#232*	9 9 0	20.38	176.16	1399	SM, ER		6.5
#232*	9 10 0	23.56	176.03	1396	SM, CE(1.4), ME, ER		5.4
#232*	9 11 0	26.74	175.90	1394			5.6
#232*	9 12 0	29.93	175.78	1391	SM, ME, CE(1.8), ER		4.8
#232*	9 13 0	33.11	175.67	1389	SM, ME, CE(1.8), ER		4.5
#232*	9 14 0	36.29	175.57	1387	SM, ME, CE(1.8), ER		4.8
#232*	9 15 0	39.47	175.48	1384	SM, ME, CE(1.8), ER		5.6
#232*	9 16 0	42.65	175.41	1382			

 OBJECT: 5104 ISIS 2 PASS SUMMARY FOR K01 NAME FOR 20 AUGUST 1977 DAY 232 *****

DAY	TIME (Z) HR MN SC	SATELLITE LOCATION			DESCRIPTION	IONOGRAM SUMMARY	
		LAT	LONG	ALT KM		F-MAX MHz	
#232*	10 50 0	-19.83	149.49	1426			
#232*	10 51 0	-16.66	149.35	1424	SM, ME		~ 4.0
#232*	10 52 0	-13.50	149.21	1422	SM, ME		4.4
#232*	10 53 0	-10.33	149.07	1420	SM, ER		~ 7.0
#232*	10 54 0	-7.17	148.92	1418	SM, ER		> 7.0
#232*	10 55 0	-4.00	148.77	1416	SM		9.1
#232*	10 56 0	-0.82	148.62	1414	SM		9.0
#232*	10 57 0	2.35	148.47	1412	SM, ER		8.8
#232*	10 58 0	5.53	148.32	1409	SM, ER		8.7
#232*	10 59 0	8.71	148.17	1407	SM		> 7.0
#232*	11 0 0	11.89	148.03	1405	SM		> 6.0
#232*	11 1 0	15.07	147.88	1402	SM		5.9
#232*	11 2 0	18.25	147.74	1400	SM		5.5
#232*	11 3 0	21.43	147.61	1398	SM		
#232*	11 4 0	24.61	147.48	1395			
#232*	11 5 0	27.79	147.35	1393			
#232*	11 6 0	30.97	147.23	1391			
#232*	11 7 0	34.16	147.13	1388			
#232*	11 8 0	37.34	147.03	1386			

OBJECT: 5104 1515 2 PASS SUMMARY FOR KOT NAMUR FOR 20 AUGUST 1977 DAY 232

DAY	TIME (Z) HR MN SC	SATELLITE LOCATION			DESCRIPTION	IONOGRAM SUMMARY	
		LAT	LONG	ALT KM		F-MAX	MUF
232	21 8 0	41.81	173.53	1366	SM, ME, ER		6.4
232	21 9 0	38.61	173.45	1368	SM, ME, ER		6.0
232	21 10 0	35.42	173.36	1369	SM, ME, CE(1.8), ER		5.9
232	21 11 0	32.22	173.26	1371	SM, ME, CE(1.5), ER		6.7
232	21 12 0	29.02	173.14	1373	SM, ME, ER		7.0
232	21 13 0	25.82	173.02	1374	SM, ME, CE(1.6), ER		7.3
232	21 14 0	22.63	172.89	1376	SM, ER		7.5
232	21 15 0	19.43	172.76	1378	SM, ER		7.0
232	21 16 0	16.23	172.62	1380	SM, ER		7.5
232	21 17 0	13.03	172.48	1382	SM, ER		7.0
232	21 18 0	9.83	172.33	1384	SM, ER		7.0
232	21 19 0	6.64	172.19	1387	SM, ER		6.9
232	21 20 0	3.44	172.04	1389	SM, ER		7.7
232	21 21 0	0.25	171.89	1391	OFF		9.9
232	21 22 0	-2.94	171.74	1393	SM, ME		9.4
232	21 23 0	-6.13	171.59	1395	SM, ME, ER		8.3
232	21 24 0	-9.32	171.45	1398	SM, ME, ER		8.0
232	21 25 0	-12.50	171.30	1400	SM, ME, ER		7.8
232	21 26 0	-15.69	171.16	1402	SM, ME, ER		7.0
232	21 27 0	-18.87	171.02	1404	SM, ME, ER		6.5
232	21 28 0	-22.04	170.88	1406	SM, ME, CE(1.8), ER		
232	21 29 0	-25.21	170.75	1409	SM, ME, CE(1.8), ER		

 OBJECT: 5104 ISIS 2 PASS SUMMARY FOR K01 NAMUK FOR 21 AUGUST 1977 DAY 233 *****

DAY	TIME (Z)		SATELLITE LOCATION			DESCRIPTION	IONOGRAM SUMMARY	
	HR	MM	LAT	LONG	ALT KM		F-MAX	MUF3000
233	9	33	0	-23.16	167.54	1426		
233	9	34	0	-20.00	167.40	1425		
233	9	35	0	-16.83	167.26	1423		
233	9	36	0	-13.67	167.12	1421		
233	9	37	0	-10.50	166.98	1419		
233	9	38	0	-7.33	166.83	1417	SM	9.4
233	9	39	0	-4.16	166.68	1415	SM	9.4
233	9	40	0	-0.99	166.53	1413	SM	8.8
233	9	41	0	2.19	166.38	1410	SM, ER	8.5
233	9	42	0	5.36	166.23	1408	SM, ER	8.5
233	9	43	0	8.54	166.08	1406	SM, ER	8.4
233	9	44	0	11.72	165.94	1403	SM	9.0
233	9	45	0	14.91	165.79	1401	SM	9.2
233	9	46	0	18.09	165.65	1399	SM	8.8
233	9	47	0	21.27	165.52	1396	SM	8.3
233	9	48	0	24.45	165.39	1394	SM, ME, CE(1.6), ER	>6.0
233	9	49	0	27.64	165.26	1392	SM, ME, ER	5.5
233	9	50	0	30.82	165.14	1389	SM, ME, ER	5.5
233	9	51	0	34.00	165.03	1387	SM, ME, CE(1.8), ER	5.5
233	9	52	0	37.19	164.94	1385	SM, ME, CE(1.9), ER	5.6
233	9	53	0	40.37	164.85	1382	SM, ME, ER	5.6
233	9	54	0	43.55	164.79	1380	SM, ME, ER	6.0

OBJECT: 5104 ISIS 2 PASS SUMMARY FOR ROI NAMUR FOR 21 AUGUST 1972 DAY 233

DAY	TIME (Z) HR MN SC	SATELLITE LOCATION			DESCRIPTION	IONOGRAM SUMMARY	
		LAT	LONG	ALT NM		F-MAX MIZ	
#233#	21 46 0	40.90	162.90	1367			
#233#	21 47 0	37.70	162.82	1369			
#233#	21 48 0	34.51	162.73	1371			
#233#	21 49 0	31.31	162.62	1372			
#233#	21 50 0	28.11	162.50	1374	SM, ME		8.2
#233#	21 51 0	24.92	162.38	1376	SM, ME, ER		8.0
#233#	21 52 0	21.72	162.25	1378	SM, ME, ER		6.0
#233#	21 53 0	18.52	162.12	1380	SM, ER		6.2
#233#	21 54 0	15.32	161.98	1382	SM, ER		6.6
#233#	21 55 0	12.13	161.83	1384	SM, ER		7.0
#233#	21 56 0	8.93	161.69	1386	SM, ER		7.8
#233#	21 57 0	5.74	161.54	1389	SM, ER		8.2
#233#	21 58 0	2.54	161.39	1391	SM, ER		9.0
#233#	21 59 0	-0.65	161.24	1393	SM, ER		9.4
#233#	22 0 0	-3.84	161.10	1395	SM, ER		9.6
#233#	22 1 0	-7.03	160.95	1398	SM, ME, ER	CE(1.5), ER	9.3
#233#	22 2 0	-10.21	160.80	1400	SM, ME, ER		8.0
#233#	22 3 0	-13.40	160.66	1402	SM, ER		7.8
#233#	22 4 0	-16.58	160.51	1404	SM, ME, ER		7.5
#233#	22 5 0	-19.75	160.37	1406	SM, ME, ER		7.0
#233#	22 6 0	-22.93	160.24	1409	SM, ME, ER		6.9
#233#							7.1

OBJECT: 5104 ISIS 2 PASS SUMMARY FOR K01 NAMUR FOR 22 AUGUST 1977 DAY 234

DAY	TIME (Z) HR MN SC	SATELLITE LOCATION			DESCRIPTION	IONOGRAM SUMMARY	
		LAT	LONG	ALT KM			F-MAX MHz
234	10 11 0	-22.29	156.89	1425	SM, ME, ER		~ 4.5
234	10 12 0	-19.12	156.76	1423	OFF		
234	10 13 0	-15.96	156.62	1421	SM, ME, ER		4.5
234	10 14 0	-12.79	156.47	1419	SM, ME, ER		6.0
234	10 15 0	-9.63	156.33	1417	SM, ER		~ 7.0
234	10 16 0	-6.45	156.18	1415	SM, ER		9.7
234	10 17 0	-3.28	156.03	1413	SM		>10.0
234	10 18 0	-0.11	155.88	1411	SM, ER		9.5
234	10 19 0	3.07	155.73	1408	SM, ER		~ 9.5
234	10 20 0	6.25	155.58	1406	SM, ER		8.3
234	10 21 0	9.43	155.44	1404	SM, ER		9.3
234	10 22 0	12.61	155.29	1401	SM, ER		~ 11.0
234	10 23 0	15.80	155.15	1399	SM, ER		~ 11.0
234	10 24 0	18.98	155.01	1397	SM, ER		~ 9.5
234	10 25 0	22.16	154.87	1394	SM, ER		~ 8.0
234	10 26 0	25.35	154.74	1392			
234	10 27 0	28.53	154.62	1389			
234	10 28 0	31.72	154.51	1387			
234	10 29 0	34.90	154.40	1385			
234	10 30 0	38.09	154.31	1383			
234	10 31 0	41.27	154.23	1380			

 OBJECT: 5104 ISIS 2 PASS SUMMARY FOR FOI NAMUR FOR 23 AUGUST 1977 DAY 035

DAY	TIME (Z)		SATELLITE LOCATION			DESCRIPTION	IONOGRAM SUMMARY	
	HR	MM	LAT	LONG	ALT		MHz	F-MAX
235#	8	55	0	-22.47	174.80	1424	SM, ME, ER	5.0
235#	8	56	0	-19.31	174.66	1422	SM, ME, ER	~6.0
235#	8	57	0	-16.15	174.52	1420	SM, ME, ER	~7.0
235#	8	58	0	-12.98	174.38	1418	SM, ME, ER	~8.0
235#	8	59	0	-9.81	174.24	1416	SM, ME, ER	> 9.5
235#	9	0	0	-6.64	174.09	1414	SM, NSP(NP), ET(8.2), ME	~9.0
235#	9	1	0	-3.47	173.94	1412	SP, STV, ET(5.3), ME	~9.0
235#	9	2	0	-0.29	173.79	1409	VSP, STV, ET(4.8), ME	~9.0
235#	9	3	0	2.89	173.64	1407	VSP, STV, ET(4.5), ME	~9.0
235#	9	4	0	6.07	173.49	1405	VSP, STV, ET(4.7), RSP	~9.0
235#	9	5	0	9.25	173.34	1402	VSP, STV, ET(4.9), RSP	~9.0
235#	9	6	0	12.43	173.20	1400	SP, STV, ET(5.3), RSP	9.4
235#	9	7	0	15.62	173.06	1398	SM, ME	> 8.0
235#	9	8	0	18.80	172.92	1395	SM, ME, ER	5.8
235#	9	9	0	21.99	172.70	1393	SM, ME, ER	5.6
235#	9	10	0	25.17	172.65	1391	SM, ME, ER	5.4
235#	9	11	0	28.36	172.53	1388	SM, ME, ER	4.9
235#	9	12	0	31.54	172.41	1386	SM, ME, ER	~5.0
235#	9	13	0	34.73	172.31	1384	SM, ME, ER	
235#	9	14	0	37.91	172.21	1381		
235#	9	15	0	41.10	172.13	1379		

OBJECT: 5104 1515 ? PASS SUMMARY FOR KOL NAMUR FOR 23 AUGUST 1977 DAY 235

DAY	TIME (Z) HR MN SC	SATELLITE LOCATION			DESCRIPTION	IONOGRAM SUMMARY	
		LAT	LONG	ALT KM		F-MAX MHZ	
235	10 50 0	-18.27	146.11	1421			
235	10 51 0	-15.11	145.97	1419			
235	10 52 0	-11.94	145.83	1417	SM, ER		5.0
235	10 53 0	-8.77	145.68	1415	SM, ER		~5.0
235	10 54 0	-5.60	145.53	1413	SM, ME, ER		5.9
235	10 55 0	-2.42	145.38	1411	SM, ME, ER		6.5
235	10 56 0	0.75	145.23	1409	SM, ME, ER		7.5
235	10 57 0	3.93	145.08	1406	SM, ME		9.4
235	10 58 0	7.11	144.93	1404	SM, ME		>9.0
235	10 59 0	10.30	144.79	1402	SM, ME		>8.5
235	11 0 0	13.48	144.64	1399	SM, ME, ER		~8.0
235	11 1 0	16.66	144.50	1397	SM, ME, ER		6.5
235	11 2 0	19.85	144.36	1394	SM, ER		5.8
235	11 3 0	23.03	144.23	1392	SM, ME, ER		5.8
235	11 4 0	26.22	144.10	1390	SM, ER		5.7
235	11 5 0	29.41	143.98	1387			
235	11 6 0	32.59	143.87	1385			
235	11 7 0	35.78	143.77	1383			

 OBJECT: 5104 ISIS 2 PASS SUMMARY FOR ROT NAMUR FUR 23 AUGUST 1977 DAY 235 *****

DAY	TIME (Z) HR MN SC	SATELLITE LOCATION		DESCRIPTION	IONOGRAM SUMMARY	
		LAT	LONG		ALT KM	F-MAX MIZ
235	21 7 0	43.35	170.25	1368		
235	21 8 0	40.15	170.18	1369		
235	21 9 0	36.96	170.10	1371	SM, ME(<2.2), ER	8.0
235	21 10 0	33.77	170.00	1373	SM, ME, ER	7.5
235	21 11 0	30.57	169.89	1375	SM, ME(<2.5), ER	8.1
235	21 12 0	27.38	169.77	1377	SM, ME(<2), CE(1.6), ER	8.7
235	21 13 0	24.18	169.65	1379	SM	>10.0
235	21 14 0	20.98	169.52	1381	SM, ME(<2)	10.0
235	21 15 0	17.79	169.38	1383	SM, ME(<2), ER	9.0
235	21 16 0	14.59	169.24	1385	SM, ME(<2), ER	7.1
235	21 17 0	11.40	169.10	1387	SM, ME(<2), ER	7.7
235	21 18 0	8.21	168.95	1390	SM, SP(<2), ER	8.7
235	21 19 0	5.01	168.80	1392	SM, SP(<2), ER	9.2
235	21 20 0	1.82	168.65	1394	SM, SP(<2), ER	9.3
235	21 21 0	-1.37	168.50	1396	SM, SP(<2), ER	9.2
235	21 22 0	-4.55	168.36	1399	OFF	
235	21 23 0	-7.74	168.21	1401	SM, NSP(<2), ER	8.2
235	21 24 0	-10.92	168.06	1403	SM, ME(<2), ER	8.0
235	21 25 0	14.10	167.92	1405	SM, ME(<2), CE(1.8), ER	9.2
235	21 26 0	-17.28	167.78	1408	SM, ME(<2), CE(1.8), ER	9.4
235	21 27 0	-20.45	167.64	1410	SM, ME, CE(1.6), ER	8.9
235	21 28 0	-23.62	167.50	1412	SM, ME, ER	8.9

OBJECT: 5104 1515 2 PASS SUMMARY FOR K0J NAMUK FOR 24 AUGUST 1977 DAY 236

DAY	TIME (Z) HR MIN SEC	SATELLITE LOCATION			DESCRIPTION	IONOGRAM SUMMARY	
		LAT	LONG	ALT KM		F-MAX MHz	
#236*	9 33 0	-21.62	164.15	1422	SM, ME, ER		~ 4.5
#236*	9 34 0	-18.45	164.02	1420	SM, ME, WSP(NP), ER		~ 5.0
#236*	9 35 0	-15.29	163.88	1418	SM, ME, SP(NP), ER		~ 5.5
#236*	9 36 0	-12.12	163.73	1416	SM, ME, CE(1.5)		~ 6.0
#236*	9 37 0	-8.95	163.59	1414	SM, ME		~ 6.0
#236*	9 38 0	-5.77	163.44	1412	SM, ME, ET(5)		~ 7.0
#236*	9 39 0	-2.60	163.29	1410	SP(NP), ME, ET(5)		~ 7.0
#236*	9 40 0	0.58	163.14	1407	VSP, ME, ET(?)		~ 6.0
#236*	9 41 0	3.76	162.99	1405	VSP, ET(2)		~ 6.0
#236*	9 42 0	6.94	162.84	1403	VSP, ET(1.9), RSP, ER		~ 9.0
#236*	9 43 0	10.12	162.70	1400	VSP, STV, ET(2)		~ 9.0
#236*	9 44 0	13.31	162.55	1398	VSP, STV, ET(2), ME, ER		~ 9.0
#236*	9 45 0	16.49	162.41	1396	VSP, STV, ET(3), ME		~ 6.0
#236*	9 46 0	19.68	162.27	1393	SP, STV, ET(4.5), ME, CE(1.4), ER		~ 7.0
#236*	9 47 0	22.87	162.14	1391	SM, ME, CE(1.5)		~ 6.0
#236*	9 48 0	26.05	162.01	1388	SM, ME, ER		6.0
#236*	9 49 0	29.24	161.89	1386	SM, ME, CE(1.8), ER		6.0
#236*	9 50 0	32.43	161.78	1384	SM, ME		6.0
#236*	9 51 0	35.61	161.67	1382			
#236*	9 52 0	38.80	161.58	1380			
#236*	9 53 0	41.99	161.51	1377			

 OBJECT: 5104 ISIS 2 PASS SUMMARY FOR RUI NAMUK 10K 25 AUGUST 1977 DAY 237 *****

DAY	TIME (Z) HR MN SC	SATELLITE LOCATION			DESCRIPTION	IONOGRAM SUMMARY	
		LAT	LONG	ALT NM		F-MAX MHz	
237	8 17 0	-21.80	-177.94	1421			
237	8 18 0	-18.63	-178.07	1419			
237	8 19 0	-15.47	-178.21	1417	SM	WSP(NP)	≥10.0
237	8 20 0	-12.30	-178.36	1415	SM, WSP(NP)		≥10.0
237	8 21 0	-9.12	-178.50	1413	SP, STV, ET(3.5), RSP		~9.5
237	8 22 0	-5.95	-178.65	1410	WSP, STV, ET(3.0), RSP		~9.0
237	8 23 0	-2.77	-178.80	1408	WSP, STV, ET(2.6)		≥7.0
237	8 24 0	0.41	-178.95	1406	WSP, STV, ET(2.4), ER		6.9
237	8 25 0	3.59	-179.10	1404	WSP, STV, ET(2.7), RSP, ER		7.0
237	8 26 0	6.77	-179.25	1401	WSP, STV, ET(2.2)		≥5.0
237	8 27 0	9.96	-179.39	1399	WSP, STV, ET(2.0)		≥5.0
237	8 28 0	13.14	-179.54	1397	WSP, STV, ET(2.5)		≥6.0
237	8 29 0	16.33	-179.68	1394	SP, STV, ET(3.5)		9.0
237	8 30 0	19.52	-179.82	1392	SM, WSP(NP), ET(6.5)		≥9.0
237	8 31 0	22.70	-179.95	1390	SM, ME, ER		5.8
237	8 32 0	25.89	-179.92	1387	SM, ME, ER		5.4
237	8 33 0	29.08	-179.80	1385	SM, ME, CE(1.8), ER		5.0
237	8 34 0	32.27	-179.68	1383	SM, ME, ER		4.7
237	8 35 0	35.45	-179.58	1381	SM, ME, ER		4.2
237	8 36 0	38.64	-179.49	1378	SM, ME, ER		4.2
237	8 37 0	41.83	-179.41	1376	SM, ME, ER		4.2

OBJECT: 5104 ISIS 2 PASS SUMMARY FOR ROI NAMUR FOR 25 AUGUST 1977 DAY 237

DAY	TIME (Z) HR MN SC	SATELLITE LOCATION		DESCRIPTION	IONOGRAM SUMMARY	
		LAT	LONG		ALT NM	F-MAX MHZ
#237*	10 11 0	-20.76	153.51	1420		
#237*	10 12 0	-17.59	153.37	1418		
#237*	10 13 0	-14.42	153.23	1416	SM, ME(<1.6), ER	6.0
#237*	10 14 0	-11.25	153.09	1414	SM, ER	6.3
#237*	10 15 0	-8.08	152.94	1412	SM, ER	≥ 7.0
#237*	10 16 0	-4.90	152.79	1410	SM, WSP(NP), ET(8.3)	≥ 9.0
#237*	10 17 0	-1.73	152.64	1407	SM, WSP, ET(4.5)	≥ 10.0
#237*	10 18 0	1.45	152.49	1405	SP, STV, ET(3.2)	≥ 9.0
#237*	10 19 0	4.64	152.35	1403	VSP, STV, ET(3.1)	≥ 9.0
#237*	10 20 0	7.82	152.20	1400	VSP, STV, ET(3.0), RSP	~ 9.0
#237*	10 21 0	11.00	152.05	1398	SM, RSP, ET(3.2)	≥ 9.5
#237*	10 22 0	14.19	151.91	1396	SM, RSP, ET(4.0)	≥ 10.0
#237*	10 23 0	17.38	151.77	1393	SM	≥ 9.5
#237*	10 24 0	20.56	151.63	1391	SM, ER	9.0
#237*	10 25 0	23.75	151.50	1389	SM, ER	6.5
#237*	10 26 0	26.94	151.37	1386	SM, ER	6.3
#237*	10 27 0	30.13	151.25	1384	SM, ER	
#237*	10 28 0	33.32	151.14	1382		
#237*	10 29 0	36.50	151.04	1380		
#237*	10 30 0	39.69	150.95	1378		

 OBJECT: 5104 ISIS 2 PASS SUMMARY FOR KUI NAMUK FOR 25 AUGUST 1977 DAY 237

DAY	TIME (Z) HR MN SC	SATELLITE LOCATION			DESCRIPTION	IONOGRAM SUMMARY	
		LAT	LONG	ALT NM		F-MAX MHz	
#237*	20 29 0	42.60	177.53	1370			
#237*	20 30 0	39.41	177.46	1372	SM, ME, ER		7.0
#237*	20 31 0	36.22	177.37	1374	SM, ME, ER		7.0
#237*	20 32 0	33.03	177.27	1376	SM, ME, ER		7.3
#237*	20 33 0	29.83	177.16	1378	SM, ME, ER		6.9
#237*	20 34 0	26.64	177.04	1380	SM, ME(<2), ER		6.6
#237*	20 35 0	23.44	176.91	1382	SM, ER		6.3
#237*	20 36 0	20.25	176.78	1384	SM, ER		6.9
#237*	20 37 0	17.06	176.64	1386	SM, ER		7.2
#237*	20 38 0	13.86	176.50	1388	SM, ER		7.5
#237*	20 39 0	10.67	176.36	1391	SM, ER		7.8
#237*	20 40 0	7.48	176.21	1393	SM, ER		7.5
#237*	20 41 0	4.29	176.06	1395	SM, ER		7.8
#237*	20 42 0	1.10	175.92	1398	SM, ER		8.1
#237*	20 43 0	-2.08	175.77	1400	SM, ER		8.2
#237*	20 44 0	-5.27	175.62	1402	SM, ER		8.4
#237*	20 45 0	-8.45	175.47	1404	SM, ER		8.5
#237*	20 46 0	-11.63	175.32	1407	SM, ME, ER		8.7
#237*	20 47 0	-14.80	175.18	1409	SM, ME, CE(1.6), ER		9.0
#237*	20 48 0	-17.98	175.04	1411	SM, ME, ER		8.9
#237*	20 49 0	-21.15	174.90	1413	SM, ME, ER		8.1
#237*	20 50 0	-24.32	174.77	1415	SM, ME, ER		6.9

OBJECT: 5104 ISIS 2 PASS SUMMARY FOR KOTI NAMUK FUR 26 AUGUST 1977 DAY 23B

DAY	TIME (Z)			SATELLITE LOCATION			DESCRIPTION	IONOGRAM SUMMARY	
	HR	MM	SC	LAT	LONG	ALT KM		F-MAX	MHZ
238	8	54	0	-24.09	171.55	1421	SM, ME, ER	4.5	
238	8	55	0	-20.93	171.42	1419	SM, ME, ER	6.8	
238	8	56	0	-17.76	171.20	1417	SM	≥ 9.5	
238	8	57	0	-14.60	171.14	1415	SM, MSP(NP)	> 9.0	
238	8	58	0	-11.42	171.00	1413	SM, RSP	> 9.0	
238	8	59	0	-8.25	170.85	1411	SP, RSP	≥ 9.0	
238	9	0	0	5.07	170.70	1408	VSP, STV, ET(5.0)	9.2	
238	9	1	0	-1.89	170.55	1406	VSP, STV, ET(3.5)	> 7.0	
238	9	2	0	1.29	170.40	1404	VSP, STV, ET(3.2)	≥ 8.0	
238	9	3	0	4.47	170.25	1401	VSP, STV, ET(3.1), RSP	~ 8.0	
238	9	4	0	7.65	170.11	1399	VSP, STV, ET(3.3), RSP, ER	~ 8.5	
238	9	5	0	10.84	169.96	1397	SM, RSP	9.0	
238	9	6	0	14.03	169.82	1394	SP, ET(8.5), RSP	9.0	
238	9	7	0	17.22	169.67	1392	SM	9.0	
238	9	8	0	20.40	169.54	1390	SM	9.0	
238	9	9	0	23.59	169.41	1387	SM, ME	~ 8.0	
238	9	10	0	26.78	169.28	1385	SM, ME, ER	~ 7.0	
238	9	11	0	29.97	169.16	1383	SM, ME, ER	5.2	
238	9	12	0	33.16	169.05	1381	SM, ME, ER	5.0	
238	9	13	0	36.35	168.95	1379	SM, ME, ER	4.8	
238	9	14	0	39.54	168.86	1377	SM, ME, ER	4.7	
238	9	15	0	42.72	168.79	1375	SM, ME, ER	5.1	

238	10 51 0	-13.55	142.59	1414		9.0
238	10 52 0	-10.38	142.44	1412		8.7
238	10 53 0	-7.20	142.29	1410		8.0
238	10 54 0	-4.03	142.14	1407		9.0
238	10 55 0	-0.85	142.00	1405	SM	~ 9.0
238	10 56 0	2.33	141.85	1403	SM, ER	~ 9.5
238	10 57 0	5.52	141.70	1401	SM, ER	~ 9.0
238	10 58 0	8.70	141.55	1398	SM	9.5
238	10 59 0	11.89	141.40	1396	SM	8.0
238	11 0 0	15.08	141.26	1394	SM	9.0
238	11 1 0	18.26	141.12	1391	SM	~ 9.0
238	11 2 0	21.45	140.99	1389	SM	~ 9.5
238	11 3 0	24.64	140.85	1387	SM, ER	7.2
238	11 4 0	27.83	140.73	1384	SM, ER	5.7
238	11 5 0	31.02	140.61	1382	SM	6.5

OBJECT: 5104 ISIS 2 PASS SUMMARY FOR K01 NAMUK FOR 26 AUGUST 1977 DAY 23B

DAY	TIME (Z) HR MN SC	SATELLITE LOCATION		DESCRIPTION	IONOGRAM SUMMARY	
		LAT	LONG		ALT NM	F-MAX MHZ
#230*	21 7 0	41.70	166.91	1372		
#230*	21 8 0	38.51	166.83	1373	SM, ER	6.2
#230*	21 9 0	35.32	166.74	1375	SM, ER	6.8
#230*	21 10 0	32.13	166.64	1377	SM, ER	7.0
#230*	21 11 0	28.93	166.52	1379	SM, ER	6.8
#230*	21 12 0	25.74	166.40	1381	SM, ER	7.5
#230*	21 13 0	22.55	166.27	1384	SM, ER	7.5
#230*	21 14 0	19.36	166.14	1386	SM, ER	7.5
#230*	21 15 0	16.16	166.00	1388	SM, ER	8.0
#230*	21 16 0	12.97	165.86	1390	SM, ER	8.5
#230*	21 17 0	9.78	165.71	1393	SM, MSP, ER	9.0
#230*	21 18 0	6.59	165.57	1395	SM, VSP, ER	9.5
#230*	21 19 0	3.40	165.42	1397	SM, VSP, ER	9.6
#230*	21 20 0	0.22	165.27	1400	SM, SP, ER	9.1
#230*	21 21 0	-2.97	165.12	1402	SM, MSP(NP), ER	9.0
#230*	21 22 0	-6.15	164.97	1404	SM, ER	8.5
#230*	21 23 0	-9.33	164.82	1407	SM, ER	8.2
#230*	21 24 0	-12.51	164.68	1409	SM, ER	8.1
#230*	21 25 0	-15.68	164.53	1411	SM, ME(<2), ER	7.8
#230*	21 26 0	-18.85	164.39	1413	SM, ME(<2), ER	6.5
#230*	21 27 0	-22.02	164.26	1415	SM, ME(<2), ER	
#230*	21 28 0	-25.19	164.13	1417		

DAY	TIME (Z) HR MN SC		SATELLITE LOCATION			DESCRIPTION	IONOGRAM SUMMARY F-MAX MHZ	
			LAT	LONG	ALT NM			
#239*	7	40	0	-17.93	-170.81	1416		
#239*	7	41	0	-14.76	-170.95	1414		≥ 7.0
#239*	7	42	0	-11.59	-171.09	1412	SM, ME	≥ 9.0
#239*	7	43	0	-8.42	-171.24	1409	SM, ME, WSP(NP)	≥ 9.5
#239*	7	44	0	-5.24	-171.39	1407	SM, ME, WSP(NP)	9.3
#239*	7	45	0	-2.06	-171.54	1405	SP, ME, ET(5.0), RSP	9.5
#239*	7	46	0	1.12	-171.69	1402	SP, ME, ET(5.0), RSP, ER	9.4
#239*	7	47	0	4.31	-171.84	1400	SP, ET(6.0), RSP, ER	≥ 8.5
#239*	7	48	0	7.49	-171.98	1398	SM, WSP, RSP, ME	7.0
#239*	7	49	0	10.68	-172.13	1395	SM, WSP, ER	5.2
#239*	7	50	0	13.87	-172.27	1393	SM, WSP, ER	5.2
#239*	7	51	0	17.06	-172.42	1391	SM, ER	4.9
#239*	7	52	0	20.25	-172.55	1389	SM, ME, ER	4.8
#239*	7	53	0	23.44	-172.69	1386	SM, ME, ER	4.8
#239*	7	54	0	26.63	-172.81	1384	SM, ME, ER	4.5
#239*	7	55	0	29.82	-172.93	1382	SM, ME, ER	
#239*	7	56	0	33.01	-173.04	1380		
#239*	7	57	0	36.20	-173.14	1378		
#239*	7	58	0	39.39	-173.23	1375		

#239*	9 34 0	-16.89	160.64	1415	SM, ME, ER	4.5
#239*	9 35 0	-13.72	160.49	1413	SM, ME, CE(1.6), ER	4.7
#239*	9 36 0	-10.55	160.35	1411	SM, ER	~ 4.8
#239*	9 37 0	-7.37	160.20	1408	SM, ER	> 5.0
#239*	9 38 0	-4.19	160.05	1406	SM, ER	9.2
#239*	9 39 0	-1.01	159.91	1404	SM	>10.0
#239*	9 40 0	2.17	159.76	1402	SM, ER	9.5
#239*	9 41 0	5.36	159.61	1399	SM	9.6
#239*	9 42 0	8.54	159.46	1397	SM	9.4
#239*	9 43 0	11.73	159.31	1395	SM	>10.0
#239*	9 44 0	14.92	159.17	1392	SM, ME	>10.0
#239*	9 45 0	18.11	159.03	1390	SM, ER	~ 7.5
#239*	9 46 0	21.30	158.89	1388	SM, ER	~ 6.5
#239*	9 47 0	24.49	158.76	1385	SM, ME	5.5
#239*	9 48 0	27.68	158.64	1383	SM, ME, CE(1.6), ER	5.5
#239*	9 49 0	30.87	158.52	1381	SM, ME, ER	5.5
#239*	9 50 0	34.06	158.41	1379	SM, ME, CE(1.6), ER	5.5
#239*	9 51 0	37.25	158.32	1377	SM, ME, CE(1.5), ER	5.5
#239*	9 52 0	40.44	158.23	1375	SM, ME, ER	5.6

DATE: 0404 1515.2 1955 SUMMARY FOR RDT RANGE: 100 28 000051 1977 DAY 240

ID#	TIME (Z)	SATELLITE LOCATION			DESCRIPTION	IONOGRAM SUMMARY	F-MAX MHz
		LAT	LONG	ALT KM			
#240#	8 16 0	23.39	178.82	1418			
#240#	8 17 0	20.23	178.68	1416			
#240#	8 18 0	-17.06	178.55	1414			
#240#	8 19 0	-13.89	178.40	1412	SM, ER		11.0
#240#	8 20 0	-10.71	178.26	1409	SM		≥11.0
#240#	8 21 0	-7.53	178.11	1407	SM		≥ 6.0
#240#	8 22 0	-4.35	177.96	1405	WSP, STV, ET(4.3)		≥ 6.0
#240#	8 23 0	-1.17	177.82	1403	VSP, STV, ET(3.5)		~ 7.5
#240#	8 24 0	2.01	177.67	1400	VSP, STV, ET(3.5), ER		7.4
#240#	8 25 0	5.20	177.52	1398	VSP, STV, ET(3.7), ER		7.5
#240#	8 26 0	8.38	177.37	1396	VSP, STV, ET(4.8)		9.0
#240#	8 27 0	11.57	177.22	1393	SM, RSP		≥9.0
#240#	8 28 0	14.76	177.08	1391	SM, ER		≥7.0
#240#	8 29 0	17.95	176.94	1389	SM, ER		~8.0
#240#	8 30 0	21.14	176.80	1386	SM, ER		~7.5
#240#	8 31 0	24.34	176.67	1384	SM, ER		6.2
#240#	8 32 0	27.53	176.55	1382			
#240#	8 33 0	30.72	176.43	1380			
#240#	8 34 0	33.91	176.32	1378			
#240#	8 35 0	37.10	176.23	1376			
#240#	8 36 0	40.29	176.14	1374			

OBJECT: 5104 ISIS P PASS SUMMARY FOR R01 NAMEK FOR 28 AUGUST 1977 DAY 240

DAY	TIME (Z) HR MN SC	SATELLITE LOCATION			DESCRIPTION	F-MAX MHZ
		LAT	LONG	ALT KM		
240	10 11 0	-19.18	150.13	1415		
240	10 12 0	-16.01	149.97	1413		
240	10 13 0	-12.84	149.85	1411		
240	10 14 0	-9.67	149.70	1409	SM, CE(1.6)	> 5.0
240	10 15 0	-6.49	149.56	1406	SM	> 6.0
240	10 16 0	-3.31	149.41	1404	SM	~9.5
240	10 17 0	-0.12	149.26	1402	SM	8.7
240	10 18 0	3.06	149.11	1399	SM, ER	8.2
240	10 19 0	6.25	148.96	1397	SM, ER	7.8
240	10 20 0	9.43	148.81	1395	SM	> 8.0
240	10 21 0	12.62	148.67	1392	SM	> 6.0
240	10 22 0	15.81	148.53	1390	SM	> 8.0
240	10 23 0	19.00	148.39	1388	SM	> 7.0
240	10 24 0	22.20	148.25	1386	SM, ER	> 6.0
240	10 25 0	25.39	148.12	1383	SM, ER	~6.5
240	10 26 0	28.58	148.00	1381	SM, ER	~4.5
240	10 27 0	31.77	147.89	1379		
240	10 28 0	34.96	147.78	1377		
240	10 29 0	38.15	147.69	1375		

SUBJECT: S104 ISIS 2 PASS SUMMARY FOR NOL HAMUR F0N 28 AUGUST 1977 DAY 240

DAY	TIME (Z) HR MN SC	SATELLITE LOCATION			DESCRIPTION	IONOGRAM SUMMARY	
		LAT	LONG	ALT KM			F-MAX MIZ
#240*	20 29 0	40.94	174.19	1374			
#240*	20 30 0	37.75	174.11	1376			6.8
#240*	20 31 0	34.56	174.01	1378	SM, ER		7.0
#240*	20 32 0	31.37	173.91	1380	SM, ER		7.5
#240*	20 33 0	28.18	173.79	1382	SM, ER		7.5
#240*	20 34 0	24.99	173.67	1385	SM, ER		7.0
#240*	20 35 0	21.80	173.54	1387	SM, ER		6.9
#240*	20 36 0	18.61	173.40	1389	SM, ER		7.0
#240*	20 37 0	15.42	173.26	1392	SM, ER		7.0
#240*	20 38 0	12.23	173.12	1394	SM, ER		7.3
#240*	20 39 0	9.04	172.98	1396	SM, ER		8.0
#240*	20 40 0	5.86	172.83	1399	SM, ER		8.0
#240*	20 41 0	2.67	172.68	1401	SM, ER		> 5.0
#240*	20 42 0	-0.51	172.53	1403	SM		~ 8.7
#240*	20 43 0	-3.69	172.38	1405	SM, ER		8.5
#240*	20 44 0	-6.87	172.23	1408	SM, ER		8.8
#240*	20 45 0	-10.05	172.09	1410	SM		> 5.0
#240*	20 46 0	-13.22	171.94	1412	SM, ER		8.5
#240*	20 47 0	-16.39	171.80	1414	SM, ER		8.2
#240*	20 48 0	-19.56	171.66	1416	SM, ER		7.4
#240*	20 49 0	-22.73	171.52	1418	SM, ER		

OBJECT: 5104 ISIS 2 PASS SUMMARY FOR KUI NAMUR FUR 29 AUGUST 1977 DAY 241

DAY	TIME (Z) HR MN SC		SATELLITE LOCATION			DESCRIPTION	IONOGRAM SUMMARY F-MAX MIZ	
			LAT	LONG	ALT KM			
#241*	8	53	0	-25.68	168.30	1418		
#241*	8	54	0	-22.52	168.17	1416	SM, ME, ER	4.2
#241*	8	55	0	-19.35	168.04	1414	SM, ME, ER	4.5
#241*	8	56	0	-16.18	167.90	1412	SM, ME, ER	4.5
#241*	8	57	0	-13.00	167.76	1409	SM, ME, ER	4.8
#241*	8	58	0	-9.83	167.61	1407	SM, ME	5.5
#241*	8	59	0	-6.65	167.47	1405	SM, ME, ER	8.2
#241*	9	0	0	-3.46	167.32	1403	SM, ME, ER	8.6
#241*	9	1	0	-0.28	167.17	1400	SM, ER	8.5
#241*	9	2	0	2.90	167.02	1398	SM	> 6.0
#241*	9	3	0	6.09	166.87	1396	SM, ER	9.0
#241*	9	4	0	9.28	166.72	1393	SM, ER	9.0
#241*	9	5	0	12.47	166.58	1391	SM	> 6.0
#241*	9	6	0	15.66	166.44	1389	SM	> 6.0
#241*	9	7	0	18.85	166.30	1387	SM, ER	5.8
#241*	9	8	0	22.05	166.16	1384	SM, ME, ER	5.5
#241*	9	9	0	25.24	166.03	1382	SM, ME, ER	≥ 5.0
#241*	9	10	0	28.43	165.91	1380	SM, ME	≥ 6.0
#241*	9	11	0	31.62	165.79	1378	SM, ME, ER	~ 7.0
#241*	9	12	0	34.82	165.69	1376	SM, ME, ER	
#241*	9	13	0	38.01	165.60	1374	SM, ME, ER	
#241*	9	14	0	41.20	165.52	1372	SM, ME, ER	

UNCLUT: 5104 1515 2 PASS SUMMARY FOR R01 NAMUR FUR 29 AUGUST 1977 DAY 241

DAY	TIME (Z)		SATELLITE LOCATION			DESCRIPTION	IONOGRAM SUMMARY			
	HR	MM	SEC	LAT	LONG		ALT	KM	F-MAX	MIZ
241	21	6	0	43.22	163.63	1374				
241	21	7	0	40.03	163.56	1376				
241	21	8	0	36.85	163.48	1378	SM, ME, CE(1.6), ER			5.8
241	21	9	0	33.66	163.38	1380	SM, ER			6.1
241	21	10	0	30.47	163.27	1382	SM, ER			7.0
241	21	11	0	27.28	163.15	1384	SM, ER			7.8
241	21	12	0	24.09	163.03	1387	SM, ER			8.4
241	21	13	0	20.90	162.90	1389	SM, ER			8.6
241	21	14	0	17.71	162.76	1391	SM, ER			8.3
241	21	15	0	14.52	162.62	1394	SM, ER			8.2
241	21	16	0	11.34	162.48	1396	SM, ER			> 5.0
241	21	17	0	8.15	162.33	1398	SM			> 6.0
241	21	18	0	4.96	162.18	1401	SM			> 7.0
241	21	19	0	1.78	162.03	1403	SM, ER			8.3
241	21	20	0	-1.40	161.88	1405	SM, ER			8.1
241	21	21	0	-4.58	161.73	1408	SM, ER			7.5
241	21	22	0	-7.76	161.59	1410	SM, ER			7.1
241	21	23	0	-10.93	161.44	1412	SM, ME(<1.8), ER			7.2
241	21	24	0	-14.11	161.29	1414	SM, ME(<2), ER			~ 7.5
241	21	25	0	-17.28	161.15	1416	SM, ME(<2)			~ 7.5
241	21	26	0	-20.44	161.02	1418	SM, ER			8.0
241	21	27	0	-23.61	160.88	1420				

ORBIT: 5104 1515 2 PASS SUMMARY FOR R01 NAMUR FOR 30 AUGUST 1977 DAY 242

DAY	TIME (Z) HR MW SC	SATELLITE LOCATION		DESCRIPTION	IONOGRAM SUMMARY F-MAX KHZ
		LAT	LONG		
#242*	7 39 0	-19.51	-174.05	1413	
#242*	7 40 0	-16.33	-174.19	1410	
#242*	7 41 0	-13.16	-174.33	1408	
#242*	7 42 0	-9.98	-174.48	1406	SM
#242*	7 43 0	-6.80	-174.62	1404	SP, STV, ET(3.0), RSP
#242*	7 44 0	-3.62	-174.77	1401	WSP, STV, ET(2.5), RSP
#242*	7 45 0	-0.43	-174.92	1399	WSP, STV, ET(2.4), RSP
#242*	7 46 0	2.75	-175.07	1397	WSP, STV, ET(1.8), RSP
#242*	7 47 0	5.94	-175.22	1394	VSP, STV, ET(2.3), RSP
#242*	7 48 0	9.13	-175.37	1392	WSP, STV, ET(2.5), RSP
#242*	7 49 0	12.32	-175.51	1390	SP, STV, ET(3), RSP, ER
#242*	7 50 0	15.51	-175.66	1388	SM, ME, ER
#242*	7 51 0	18.71	-175.79	1385	SM, ME, ER
#242*	7 52 0	21.90	-175.93	1383	SM, ME, ER
#242*	7 53 0	25.09	-176.06	1381	SM, ME, ER
#242*	7 54 0	28.29	-176.18	1379	SM, ME, ER
#242*	7 55 0	31.48	-176.30	1377	SM, ME, ER
#242*	7 56 0	34.67	-176.40	1375	SM, ME, ER
#242*	7 57 0	37.87	-176.50	1373	

OBJECT: 5104 ISIS 2 PASS SUMMARY FOR K01 NAMUR FOR 30 AUGUST 1977 DAY 242

DAY	TIME (Z) HR MN SC	SATELLITE LOCATION			DESCRIPTION	IONOGRAM SUMMARY	
		LAT	LONG	ALT KM		F-MAX MHZ	
242	9 32 0	-21.63	157.53	1414	SM, ME, ER		~4.5
242	9 33 0	-18.46	157.40	1412	SM, ME, ER		4.3
242	9 34 0	-15.29	157.26	1410	SM, ME, ER		4.8
242	9 35 0	-12.11	157.11	1407	SM, ME, ER		4.7
242	9 36 0	-8.94	156.97	1405	SM, ME, ER		5.2
242	9 37 0	-5.75	156.82	1403	SM, ME, ER		5.5
242	9 38 0	-2.57	156.67	1401	SM, ME, CE(1.7), ER		6.5
242	9 39 0	0.62	156.52	1398	SM, ME, ER		7.0
242	9 40 0	3.80	156.37	1396	SM, ME, ER		6.8
242	9 41 0	6.99	156.22	1394	SM, ME		6.2
242	9 42 0	10.18	156.08	1391	SM, ME, ER		5.9
242	9 43 0	13.37	155.93	1389	SM, ME, ER		5.2
242	9 44 0	16.57	155.79	1387	SM, ME, ER		6.0
242	9 45 0	19.76	155.65	1385	SM, ME, ER		~6.0
242	9 46 0	22.95	155.52	1382	SM, ME, ER		~6.0
242	9 47 0	26.15	155.39	1380	SM, ME, ER		6.0
242	9 48 0	29.34	155.27	1378	SM, ME, ER		6.4
242	9 49 0	32.53	155.16	1376	SM, ER		6.0
242	9 50 0	35.73	155.06	1374	SM		5.7
242	9 51 0	38.92	154.97	1372	SM, ER		
242	9 52 0	42.11	154.89	1370			

OBJECT: 5104 ISIS 2 PASS SUMMARY FOR NOI NAMUR FOR 31 AUGUST 1977 MAY 243

DAY	TIME (Z) HR MN SC	SATELLITE LOCATION		DESCRIPTION	IONOGRAM SUMMARY	
		LAT	LONG		AL1 NM	F-MAX MHz
243	8 16 0	-21.79	175.44	1413		
243	8 17 0	-18.62	175.31	1410		
243	8 18 0	-15.44	175.17	1408	SM, ER	6.3
243	8 19 0	-12.27	175.02	1406	SM	> 9.0
243	8 20 0	-9.09	174.88	1404	SM	> 7.0
243	8 21 0	-5.91	174.73	1402	SM	> 6.0
243	8 22 0	-2.72	174.58	1399	SP, STV, ET(4.3)	8.2
243	8 23 0	0.47	174.43	1397	SP, STV, ET(3.4), RSP, ER	7.6
243	8 24 0	3.65	174.28	1395	VSP, STV, ET(3.0), RSP, ER	7.7
243	8 25 0	6.84	174.13	1392	SM, RSP, ET(3.5), ER	8.2
243	8 26 0	10.04	173.99	1390	SM, RSP, ET(4.8)	9.0
243	8 27 0	13.23	173.84	1388	SM, RSP	~ 9.0
243	8 28 0	16.42	173.70	1386	SM	> 7.0
243	8 29 0	19.62	173.56	1383	SM	~ 6.0
243	8 30 0	22.81	173.43	1381	SM	5.5
243	8 31 0	26.01	173.30	1379	SM, ME, ER	5.0
243	8 32 0	29.20	173.18	1377	SM, ME, ER	4.2
243	8 33 0	32.39	173.07	1375	SM, ME, ER	4.5
243	8 34 0	35.59	172.96	1373	SM, ME, ER	5.3
243	8 35 0	38.78	172.87	1371		
243	8 36 0	41.97	172.80	1370		

 080614 5104 1515 2 PASS SUMMARY FOR R01 NAMUR 10K 31 AUGUST 1977 DAY 243 *****

DAY	TIME (Z) HR MN SC		SATELLITE LOCATION		DESCRIPTION	IONOGRAM SUMMARY		
			LAT	LONG		ALT KM	F-MAX MHZ	
243	10	13	0	-11.22	146.47	1405	SM, ME	5.0
243	10	14	0	-8.04	146.32	1403	SM, ME, CE(1.4)	5.2
243	10	15	0	-4.86	146.17	1401	SM, ER	6.2
243	10	16	0	-1.67	146.02	1398	SM, ER	> 6.0
243	10	17	0	1.52	145.87	1396	SM, ER	9.2
243	10	18	0	4.71	145.72	1394	SM, ER	9.3
243	10	19	0	7.90	145.58	1391	SM, ER	> 9.0
243	10	20	0	11.09	145.43	1389	SM	> 6.0
243	10	21	0	14.28	145.29	1387	SM, CE(>1.4)	> 6.0
243	10	22	0	17.48	145.15	1385	SM, ME	≥ 4.0
243	10	23	0	20.67	145.01	1383	SM, ME	4.5
243	10	24	0	23.86	144.88	1380	SM, ME	3.8
243	10	25	0	27.06	144.75	1378	SM, ME, ER	3.6
243	10	26	0	30.25	144.63	1376		
243	10	27	0	33.45	144.52	1374		
243	10	28	0	36.64	144.43	1372		

243	20 28 0	42.45	170.92	1377		
243	20 29 0	39.26	170.84	1379		7.0
243	20 30 0	36.08	170.76	1381	SM, ER	7.0
243	20 31 0	32.89	170.66	1383	SM, ER	6.9
243	20 32 0	29.70	170.54	1385	SM, ME(<2), ER	7.1
243	20 33 0	26.52	170.42	1388	SM, ME(<1.8), ER	7.6
243	20 34 0	23.33	170.30	1390	SM, ER	> 7.0
243	20 35 0	20.14	170.16	1392	SM, ER	7.8
243	20 36 0	16.96	170.03	1395	SM, ME(<1.7), ER	7.5
243	20 37 0	13.77	169.88	1397	SM, SP(<2), ER	7.4
243	20 38 0	10.59	169.74	1400	SM, ER	8.0
243	20 39 0	7.40	169.59	1402	SM, SP(<2), ER	8.0
243	20 40 0	4.22	169.44	1404	SM, SP(<1.8), ER	8.4
243	20 41 0	1.04	169.30	1407	SM, ER	8.1
243	20 42 0	-2.14	169.15	1409	SM, SP(<1.7), ER	8.0
243	20 43 0	-5.32	169.00	1411	SM, SP(<1.8), ER	7.5
243	20 44 0	8.49	168.85	1413	SM, ER	7.0
243	20 45 0	11.66	168.70	1415	SM, ME(<1.7), ER	6.6
243	20 46 0	14.83	168.56	1417	SM, ME(<2), ER	6.6
243	20 47 0	18.00	168.42	1419	SM, ME(<2), ER	
243	20 48 0	21.16	168.28	1421	SM, ME(<2), ER	
243	20 49 0	24.32	168.15	1423		

OBJECL: 3669 ISIS I PASS SUMMARY FOR NWAJAEIN FOR 21 JULY 1978 DAY 207

DAY	TIME (Z) HR MN SC	SATELLITE LOCATION		DESCRIPTION	IONOGRAM SUMMARY		PENETRATION LOCATION	
		LAT	LONG		F-MAX MHz		LAT	LONG
202	23 36 0	29.31	159.34	723			21.31	162.91
202	23 37 0	25.42	159.23	763			17.77	163.36
202	23 38 0	21.57	159.10	806	10.0		14.90	163.76
202	23 39 0	17.77	158.97	853	10.1		12.64	164.07
202	23 40 0	14.02	158.83	904	10.3		10.83	164.29
202	23 41 0	10.32	158.68	958	10.6		9.33	164.44
202	23 42 0	6.68	158.53	1015	11.3		8.02	164.52
202	23 43 0	3.09	158.38	1075	>10.0		6.82	164.55
202	23 44 0	-0.44	158.23	1138	13.7		5.66	164.54
202	23 45 0	-3.91	158.07	1202	>11.0		4.49	164.49
202	23 46 0	-7.32	157.91	1269	14.0		3.26	164.39
202	23 47 0	-10.66	157.76	1337			1.95	164.27
202	23 48 0	-13.95	157.60	1407			0.50	164.11
202	23 49 0	-17.18	157.44	1478			-1.09	163.93
202	23 50 0	-20.35	157.29	1549			-2.84	163.72
202	23 51 0	-23.45	157.14	1622			-4.78	163.49
202	23 52 0	-26.50	156.99	1695			-6.88	163.26

OBJECT: 366° ISIS I PASS SUMMARY FOR KWAJALEIN FOR 22 JULY 1978 DAY 203

DAY	TIME (Z) HR MN SC	SATELLITE LOCATION			DESCRIPTION	IONOGRAM SUMMARY	F-MAX MHZ	PENETRATION LOCATION		
		LAT	LONG	ALT KM				LAT	LONG	ALT KM
203	9 19 0	-33.08	-166.99	3303				-6.00	175.66	300
203	9 20 0	-30.97	-167.16	3268				-4.46	175.27	300
203	9 21 0	-28.85	-167.34	3231				-3.05	174.89	300
203	9 22 0	-26.71	-167.51	3192				-1.77	174.54	300
203	9 23 0	-24.55	-167.69	3150				-0.60	174.21	300
203	9 24 0	-22.37	-167.87	3106				0.45	173.91	300
203	9 25 0	-20.17	-168.05	3060				1.40	173.63	300
203	9 26 0	-17.95	-168.23	3011				2.26	173.39	300
203	9 27 0	-15.70	-168.42	2961	SM	8.1		3.05	173.17	300
203	9 28 0	-13.43	-168.60	2908	M			3.76	172.97	300
203	9 29 0	-11.13	-168.79	2854	M			4.42	172.80	300
203	9 30 0	-8.80	-168.97	2797	SM, CE(1.3)			5.03	172.66	300
203	9 31 0	-6.44	-169.16	2739	SM, RSP(>3.5)			5.61	172.54	300
203	9 32 0	-4.05	-169.34	2678	SM, RSP(>3.5)			6.15	172.44	300
203	9 33 0	-1.63	-169.53	2616	WSP, STV			6.68	172.36	300
203	9 34 0	0.83	-169.71	2553	WSP(>5), STV			7.19	172.30	300
203	9 35 0	3.32	-169.90	2488	SP(>3.1), ET(3.1), STV			7.70	172.27	300
203	9 36 0	5.85	-170.08	2421	SP(>5), ET(5), STV			8.22	172.25	300
203	9 37 0	8.42	-170.26	2354	SP(>5), ET(5), STV			8.76	172.27	300
203	9 38 0	11.03	-170.43	2284	M			9.32	172.31	300
203	9 39 0	13.68	-170.61	2214	WSP(>8), STV			9.93	172.38	300
203	9 40 0	16.37	-170.78	2143	SM			10.60	172.49	300
203	9 41 0	19.11	-170.95	2071	SM			11.36	172.64	300
203	9 42 0	21.90	-171.11	1999	M			12.24	172.84	300
203	9 43 0	24.73	-171.27	1926	M			13.29	173.11	300
203	9 44 0	27.62	-171.43	1852	M			14.56	173.46	300
203	9 45 0	30.55	-171.57	1779				16.13	173.91	300
203	9 46 0	33.54	-171.71	1705				18.08	174.46	300
203	9 47 0	36.58	-171.84	1632				20.49	175.11	300
203	9 48 0	39.67	-171.95	1559				23.40	175.86	300

OBJECT: 3669 ISIS I PASS SUMMARY FOR KWAJALEIN FOR 22 JULY 1978 MAY 203

DAY	TIME (Z) HR MN SC	SATELLITE LOCATION		DESCRIPTION	IONOGRAM SUMMARY		PENETRATION LOCATION	
		LAT	LONG		F-MAX MHz	ALT NM	LAT	LONG
201	11 24 0	-40.00	161.37			3399	-8.24	165.83
201	11 25 0	-37.94	161.21			3373	-6.45	165.88
201	11 26 0	-35.87	161.05			3343	-4.81	165.93
201	11 27 0	-33.78	160.88			3311	-3.33	165.98
201	11 28 0	-31.68	160.71			3277	-2.01	166.03
201	11 29 0	-29.56	160.54	M		3241	-0.83	166.07
201	11 30 0	-27.43	160.37	M		3202	0.21	166.10
201	11 31 0	-25.27	160.19	M		3161	1.14	166.13
201	11 32 0	-23.10	160.01	M		3117	1.97	166.16
201	11 33 0	-20.91	159.83	M		3071	2.72	166.18
201	11 34 0	-18.69	159.65	M		3024	3.38	166.19
201	11 35 0	-16.45	159.46	M		2974	3.99	166.20
201	11 36 0	-14.18	159.28	M		2922	4.55	166.20
201	11 37 0	-11.89	159.09	M		2867	5.06	166.20
201	11 38 0	-9.57	158.91	M		2811	5.54	166.19
201	11 39 0	-7.22	158.72	M		2753	5.99	166.18
201	11 40 0	-4.83	158.54	SM, MSP		2694	6.42	166.16
201	11 41 0	-2.42	158.35	SP, STV	>6.0	2632	6.85	166.14
201	11 42 0	0.03	158.17	VSP, STV	>5.0	2569	7.26	166.11
201	11 43 0	2.51	157.99	VSP, STV	>6.0	2504	7.68	166.07
201	11 44 0	5.03	157.80	WSP, STV	>6.0	2438	8.10	166.03
201	11 45 0	7.59	157.62	SP	>5.0	2371	8.54	165.98
201	11 46 0	10.19	157.45	WSP, STV	>5.0	2302	9.00	165.91
201	11 47 0	12.83	157.27	VSP, STV	>6.0	2232	9.49	165.84
201	11 48 0	15.51	157.10	VSP	>5.0	2161	10.04	165.75
201	11 49 0	18.24	156.93	VSP, STV, CE(1.3)	>6.0	2089	10.66	165.63
201	11 50 0	21.02	156.76	SP(>1.5), STV	>7.0	2017	11.38	165.50
201	11 51 0	23.84	156.60	SP	>9.0	1944	12.23	165.33
201	11 52 0	26.71	156.45	M		1871	13.26	165.12
201	11 53 0	29.63	156.30			1797	14.55	164.86
201	11 54 0	32.61	156.16			1724	16.18	164.53
201	11 55 0	35.63	156.03			1650	18.26	164.12
201	11 56 0	38.71	155.91			1577	20.90	163.62
201	11 57 0	41.85	155.80			1505	24.15	163.06

OBJECT: 3669 TSIS I PASS SUMMARY FOR KWAJALEIN FOR 22 JULY 1978 DAY 203

DAY	TIME (Z) HR MN SC	SATELLITE LOCATION		DESCRIPTION	IONOGRAM SUMMARY		PENETRATION LOCATION		SCINTILLATION SUMMARY	
		LAT	LONG		ALT KM	F-MAX MHZ	LAT	LONG		ALT KM
203	23 6 0	34.27	165.58	696			25.94	166.38	300	
203	23 7 0	30.35	165.48	732	SM, ME, ER		21.69	166.47	300	Q
203	23 8 0	26.47	165.37	772	SM, ER		18.05	166.56	300	Q
203	23 9 0	22.64	165.24	816	SM, ER		15.14	166.63	300	Q
203	23 10 0	18.85	165.11	865	SM		12.87	166.69	300	Q
203	23 11 0	15.11	164.97	916	SM, ER		11.10	166.72	300	Q
203	23 12 0	11.42	164.83	971	SM, ER		9.65	166.74	300	Q
203	23 13 0	7.79	164.68	1029	SM, ER		8.41	166.74	300	Q
203	23 14 0	4.22	164.53	1089	SM		7.29	166.72	300	Q
203	23 15 0	0.70	164.37	1152	SM		6.23	166.69	300	Q
203	23 16 0	-2.75	164.21	1217	SM		5.17	166.64	300	Q
203	23 17 0	-6.15	164.06	1284	SM		4.08	166.58	300	Q
203	23 18 0	-9.48	163.90	1353	SM		2.91	166.51	300	Q
203	23 19 0	-12.75	163.74	1423	SM, CE(1.8), ME(		1.64	166.43	300	Q
203	23 20 0	-15.97	163.58	1494	SM, ME(<2.5)		0.23	166.33	300	Q
203	23 21 0	-19.12	163.43	1566	SM, ME(<3)		-1.33	166.22	300	Q
203	23 22 0	-22.22	163.27	1639	SM, ME(<3)		-3.08	166.10	300	Q
203	23 23 0	-25.26	163.12	1712	SM, ME(<2)		-5.00	165.97	300	Q
203	23 24 0	-28.24	162.97	1785	SM, ME(<3)		-7.10	165.83	300	Q

DATE: 6669 1515			PASS SUMMARY FOR KWAJALEIN			FOR 23 JULY 1978 DAY 204				
DAY	TIME (Z)		SATELLITE LOCATION			IONOGRAM SUMMARY		PENETRATION LOCATION		
	HR	MM	LAT	LONG	ALT KM	DESCRIPTION	F-MAX MHz	LAT	LONG	ALT KM
204	10	56	0	-39.40	167.32	3366		-7.59	167.61	300
204	10	57	0	-37.33	167.17	3336		-5.83	167.57	300
204	10	58	0	-35.24	167.00	3304		-4.23	167.54	300
204	10	59	0	-33.13	166.84	3269		-2.80	167.51	300
204	11	0	0	-31.01	166.67	3232		-1.51	167.48	300
204	11	1	0	-28.87	166.49	3192		-0.38	167.45	300
204	11	2	0	-26.72	166.32	3151		0.63	167.43	300
204	11	3	0	-24.54	166.14	3107		1.53	167.40	300
204	11	4	0	-22.34	165.96	3060		2.33	167.38	300
204	11	5	0	-20.12	165.78	3012		3.04	167.36	300
204	11	6	0	-17.87	165.60	2962		3.68	167.33	300
204	11	7	0	-15.60	165.41	2909		4.27	167.31	300
204	11	8	0	-13.30	165.23	2855	N, WSP(>5)	4.80	167.29	300
204	11	9	0	-10.97	165.04	2798	SM, ME	5.30	167.26	300
204	11	10	0	-8.61	164.86	2740	SM, ME, RSP, CE(1.7)	5.77	167.24	300
204	11	11	0	-6.23	164.68	2680	SM, ME	6.21	167.22	300
204	11	12	0	-3.80	164.49	2618	SM, RSP, ET(1.75), CE(1.5)	6.64	167.19	300
204	11	13	0	-1.35	164.31	2554	SM, RSP	7.05	167.16	300
204	11	14	0	1.14	164.13	2489	SM, RSP, ET(3.6)	7.46	167.13	300
204	11	15	0	3.67	163.94	2423	SM, RSP	7.87	167.10	300
204	11	16	0	6.24	163.76	2355	SP, STV, ET(3.1), RSP	8.30	167.06	300
204	11	17	0	8.85	163.58	2286	SP, STV, RSP	8.74	167.02	300
204	11	18	0	11.50	163.41	2216	SP, STV, ET(4), RSP, CE(1.5)	9.21	166.97	300
204	11	19	0	14.19	163.24	2145	SP, STV, ET(5), RSP	9.72	166.92	300
204	11	20	0	16.93	163.06	2073	SM, CE(1.5)	10.30	166.86	300
204	11	21	0	19.72	162.90	2000	VSP, STV	10.95	166.79	300
204	11	22	0	22.55	162.74	1927	SM, ME	11.72	166.71	300
204	11	23	0	25.44	162.58	1854	WSP(>5)	12.64	166.60	300
204	11	24	0	28.37	162.43	1780	SM, ME	13.79	166.48	300
204	11	25	0	31.36	162.29	1706	SM, ME, ER	15.24	166.32	300
204	11	26	0	34.40	162.15	1633	SM, ME, ER	17.11	166.12	300
204	11	27	0	37.50	162.03	1560	SM, ME	19.52	165.88	300
204	11	28	0	40.64	161.92	1488	SM, ME, ER	22.56	165.59	300

ORIG: 4609 1515 I PASS SUMMARY FOR KWAJALEIN FOR 23 JULY 1978 DAY 204

DAY	TIME (Z) HR MN SC	SATELLITE LOCATION		DESCRIPTION	IONOGRAM SUMMARY		PENETRATION LOCATION		SCINTILLATION	
		LAT	LONG	ALT KM	F-MAX MHz		LAT	LONG	ALT KM	SUMMARY
2048	22 38 0	31.38	171.62	741	SM, ER		22.54	169.95	300	Q
2048	22 39 0	27.51	171.51	782	SM		18.77	169.64	300	Q
2048	22 40 0	23.69	171.39	827	SM		15.72	169.36	300	Q
2048	22 41 0	19.91	171.26	876	SM, ER		13.35	169.14	300	Q
2048	22 42 0	16.19	171.12	929	SM		11.50	168.96	300	Q
2048	22 43 0	12.51	170.97	984	SM, ER		10.02	168.83	300	Q
2048	22 44 0	8.90	170.82	1043	SM		8.77	168.72	300	Q
2048	22 45 0	5.34	170.67	1104	SM		7.67	168.64	300	Q
2048	22 46 0	1.84	170.52	1167	SM		6.63	168.57	300	Q
2048	22 47 0	-1.60	170.36	1233	SM		5.62	168.52	300	Q
2048	22 48 0	-4.99	170.20	1301	SM		4.59	168.47	300	Q
2048	22 49 0	-8.31	170.04	1370	SM		3.51	168.44	300	Q
2048	22 50 0	-11.57	169.88	1440	SM		2.34	168.40	300	Q
2048	22 51 0	-14.77	169.73	1511	SM		1.06	168.37	300	Q
2048	22 52 0	-17.91	169.57	1583	SM		-0.37	168.34	300	Q
2048	22 53 0	-20.99	169.41	1656	SM		-1.96	168.31	300	Q
2048	22 54 0	-24.02	169.26	1729	SM		-3.73	168.28	300	Q
2048	22 55 0	-26.99	169.11	1803	SM		-5.68	168.25	300	Q
2048	22 56 0	-29.90	168.96	1876	SM		-7.80	168.22	300	Q

PASS SUMMARY FOR KWAJALEIN											
DATE: 6689		ISIS 1		FUR 24		JULY		1978		DAY 205	
		SATELLITE LOCATION			IONOGRAM SUMMARY		PENETRATION LOCATION		SCINTILLATION SUMMARY		
		LAT		LONG	ALT NM	DESCRIPTION	F-MAX MHZ	LAT	LONG	ALT KM	
DAY	TIME (Z)	HR	MIN	SEC							
005	10 48 0	-38.78	173.28	3328				-7.36	169.36	300	
005	10 49 0	-36.68	173.12	3296				-5.61	169.23	300	
005	10 50 0	-34.58	172.96	3260				-4.03	169.11	300	
005	10 51 0	-32.45	172.79	3223				-2.61	168.99	300	
005	10 52 0	-30.31	172.62	3183				-1.34	168.89	300	
005	10 53 0	-28.15	172.44	3140				-0.21	168.80	300	
005	10 54 0	-25.97	172.27	3096				0.79	168.71	300	SSC
005	10 55 0	-23.76	172.09	3049				1.68	168.63	300	VSSC
005	10 56 0	-21.53	171.91	3000		SM, ME	6.1	2.47	168.56	300	VSSC
005	10 57 0	-19.28	171.73	2949		SM, ME	>6.0	3.19	168.50	300	SSC
005	10 58 0	-17.01	171.55	2896		SM, ME	>6.0	3.83	168.44	300	SSC
005	10 59 0	-14.70	171.37	2841		SM	>6.0	4.41	168.39	300	VSSC
005	10 40 0	-12.37	171.18	2784		SM, MSP, ET(5), ME	>9.0	4.95	168.34	300	SSC
005	10 41 0	-10.00	171.00	2725		MSP, STV, ET(5), RSP	>8.0	5.45	168.30	300	SSC
005	10 42 0	-7.61	170.81	2665		SP, STV, ET(2.9), RSP	>8.0	5.92	168.26	300	SSC
005	10 43 0	-5.18	170.63	2603		ST, STV, ET(2.6), RSP, CE(1.2)	>11.0	6.36	168.22	300	SSC
005	10 44 0	-2.71	170.45	2539		VSP, STV, ET(2), RSP	>5.0	6.80	168.19	300	SSC
005	10 45 0	-0.21	170.27	2473		SP, STV, ET(1.75), RSP	>6.0	7.22	168.16	300	SC
005	10 46 0	2.53	170.08	2407		VSP, STV, ET(1.7), RSP	>6.0	7.64	168.13	300	NS
005	10 47 0	4.90	169.90	2338		SP	>5.0	8.07	168.10	300	Q
005	10 48 0	7.52	169.72	2269		VSP, STV, ET(1.65), RSP	>6.0	8.51	168.07	300	Q
005	10 49 0	10.18	169.55	2199		SP, STV, ET(1.8), RSP	>6.0	8.97	168.05	300	Q
005	10 50 0	12.89	169.37	2127		VSP, STV, ET(2.1), RSP	>6.0	9.47	168.02	300	Q
005	10 51 0	15.64	169.20	2055		VSP, STV, ET(3), RSP, CE(1.3)	>10.0	10.03	168.00	300	Q
005	10 52 0	18.44	169.04	1983		SP,STV,ET(3.6),RSP,ME,CE(1.2)	>10.0	10.65	167.98	300	Q
005	10 53 0	21.29	168.87	1910		SP, STV, ET(7.5), ME	>10.0	11.38	167.96	300	Q
005	10 54 0	24.18	168.72	1836		SM, ME	>8.0	12.25	167.94	300	Q
005	10 55 0	27.13	168.56	1762		SM, ME	>9.5	13.31	167.92	300	NS
005	10 56 0	30.13	168.42	1689		SM, ME	9.1	14.66	167.90	300	NS
005	10 57 0	33.19	168.28	1616		SM, ME	9.0	16.39	167.88	300	Q
005	10 58 0	36.29	168.16	1543		SM, ME	8.3	18.63	167.86	300	NS
005	10 59 0	39.45	168.04	1471		SM, ME	7.6	21.50	167.84	300	Q
005	11 0 0	42.68	167.95	1400		SM, ME, ER	7.6	25.05	167.82	300	Q

DATE: 3009 1515 L		PASS SUMMARY FOR KNOJALL LR			FOR 24 JULY 1978		DAY 205			
DAY	TIME (Z) HR MD SC	SATELLITE LOCATION		DESCRIPTION	IONOGRAM SUMMARY		PENETRATION LOCATION		SCINTILLATION SUMMARY	
		LAT	LONG		ALT KM	F-MAX MHz	LAT	LONG		ALT KM
000	22 00 0	33.39	177.76	750			23.87	173.69	300	
000	22 10 0	28.54	177.65	792			19.96	173.00	300	
000	22 11 0	24.73	177.53	839	SM	>10.0	16.71	172.35	300	Q
000	22 12 0	20.96	177.40	888	SM	>10.0	14.13	171.81	300	Q
000	22 13 0	17.25	177.26	942	SM	>10.0	12.11	171.38	300	Q
000	22 14 0	13.59	177.12	998	SM	10.2	10.50	171.06	300	Q
000	22 15 0	9.99	176.97	1057	SM	9.7	9.17	170.81	300	Q
000	22 16 0	6.44	176.82	1119	SM	9.8	8.01	170.54	300	Q
000	22 17 0	2.96	176.66	1183	SM	10.0	6.94	170.51	300	Q
000	22 18 0	0.47	176.51	1249	SM	>10.0	5.92	170.42	300	Q
000	22 19 0	-3.84	176.35	1317	SM	>10.0	4.90	170.36	300	Q
000	22 20 0	-7.14	176.19	1386	SM	>10.0	3.84	170.33	300	Q
000	22 21 0	-10.39	176.03	1457	SM	>10.0	2.71	170.32	300	Q
000	22 22 0	-13.68	175.87	1528	SM	>10.0	1.49	170.33	300	Q
000	22 23 0	-16.70	175.71	1601	SM	>10.0	0.14	170.36	300	Q
000	22 24 0	-19.77	175.55	1674			-1.35	170.41	300	Q
000	22 25 0	-22.79	175.39	1747			-3.01	170.46	300	
000	22 26 0	-25.75	175.24	1820			-4.83	170.52	300	
000	22 27 0	-28.65	175.09	1894			-6.83	170.58	300	

ORBIT: 4669 1515 E				PASS SUMMARY FOR NMJALE ID				FOR 25 JULY 1978		DAY 206	
DAY	TIME (Z) HR MM SS	SATELLITE LOCATION		ALT KM	DESCRIPTION	IONOGRAM SUMMARY		PENETRATION LOCATION		611 KM SCINTILLATION SUMMARY	
		LAT	LONG			F-MAX MHZ		LAT	LONG		
005	12 10 0	-34.59	146.78	3223				-6.50	161.21		500
005	12 11 0	-32.45	146.62	3183				-4.96	161.42		300
005	12 12 0	-30.29	146.45	3141				-3.55	161.62		300
005	12 13 0	-28.11	146.27	3096				-2.27	161.81		300
005	12 14 0	-25.91	146.10	3049				-1.11	161.98		300
005	12 15 0	-23.68	145.92	3001				-0.05	162.13		300
005	12 16 0	-21.43	145.74	2950				0.90	162.27		300
005	12 17 0	-19.15	145.56	2897				1.77	162.38		300
005	12 18 0	-16.85	145.38	2842				2.57	162.48		300
005	12 19 0	-14.51	145.20	2785				3.30	162.55		300
005	12 20 0	-12.15	145.02	2726				3.98	162.60		300
005	12 21 0	-9.76	144.83	2665				4.61	162.63		300
005	12 22 0	-7.43	144.65	2603	SM, ME			5.22	162.64		300
005	12 23 0	-4.86	144.47	2539	SM, ME, CE(1.5)			5.80	162.63		300
005	12 24 0	-2.36	144.29	2474	SM			6.36	162.60		300
005	12 25 0	0.17	144.10	2407	SM, CE(1.5)			7.0	162.54		300
005	12 26 0	2.75	143.92	2339	SM			7.49	162.45		300
005	12 27 0	5.37	143.74	2270	SM, ME, CE(1.3)			8.07	162.33		300
005	12 28 0	8.03	143.57	2199	SM, ME			8.59	162.17		300
005	12 29 0	10.74	143.39	2128	SM, ME			9.35	161.98		300
005	12 30 0	13.49	143.22	2056	SM, ME			10.09	161.72		300
005	12 31 0	16.29	143.05	1983	SM, ME			10.92	161.41		300
005	12 32 0	19.13	142.89	1910	SM, ME			11.88	161.02		300
005	12 33 0	22.03	142.73	1837	SM, ME			13.02	160.54		300
005	12 34 0	24.98	142.57	1763	SM, ME			14.90	159.95		300
005	12 35 0	27.98	142.42	1690	SM, ME			16.08	159.23		300
005	12 36 0	31.03	142.28	1616	SM, ME			18.14	158.37		300
005	12 37 0	34.14	142.15	1544	SM, ME			20.64	157.59		300

UNIT: 4059 1515 L PASS SUMMARY FOR KAWAJATI IN JULY 1978 MAY 206

DAY	TIME (Z) HR MM SS	SATELLITE LOCATION		DESCRIPTION	IONOGRAM SUMMARY		PENITRATION INFORMATION		SCATTERATION SUMMARY
		LAT	LONG		F-MAX MHz		LAI	FOF2	
4054	21 41 9	29.55	176.21	803			21.59	176.25	300
4055	21 42 0	29.75	176.33	850	9.4		18.14	175.97	300
4056	21 43 0	29.00	176.45	901	9.7		15.29	175.09	300
4057	21 44 0	18.30	176.59	955	10.5		13.00	174.36	300
4058	21 45 0	14.56	176.73	1012	10.6		11.17	173.78	300
4059	21 46 0	11.07	176.88	1072	10.4		9.66	173.34	300
4060	21 47 0	7.54	177.03	1134	10.4		8.37	173.01	300
4061	21 48 0	4.07	177.19	1199	10.6		7.21	172.78	300
4062	21 49 0	0.65	177.35	1265	12.1		6.12	172.62	300
4063	21 50 0	-2.70	177.51	1334	12.7		5.05	172.52	300
4064	21 51 0	-5.99	177.67	1403	13.0		3.95	172.47	300
4065	21 52 0	-9.22	177.83	1474	11.0		2.82	172.46	300
4066	21 53 0	-12.40	177.99	1546	11.0		1.60	172.49	300
4067	21 54 0	-15.51	178.15	1619	8.5		0.28	172.55	300
4068	21 55 0	-18.57	178.31	1692	~8.5		-1.17	172.64	300
4069	21 56 0	-21.57	178.47	1765	10.2		-2.76	172.75	300
4070	21 57 0	-24.51	178.62	1838	10.5		-4.51	172.88	300
4071	21 58 0	-27.40	178.78	1912	10.3		6.41	173.01	300

4072	23 49 0	30.69	151.65	792			22.69	158.25	300
4073	23 50 0	26.88	151.54	838	9.0		19.11	159.09	300
4074	23 51 0	23.11	151.41	888	8.7		16.12	159.85	300
4075	23 52 0	19.40	151.28	941	9.5		13.70	160.50	300
4076	23 53 0	15.74	151.14	998	10.5		11.75	161.00	300
4077	23 54 0	12.14	150.99	1057	10.5		10.14	161.56	300
4078	23 55 0	8.59	150.84	1118	11.1		8.76	161.60	300
4079	23 56 0	5.11	150.68	1183	11.8		7.52	161.75	300
4080	23 57 0	1.60	150.53	1249	13.1		6.36	161.87	300
4081	23 58 0	-1.69	150.37	1316	>10.0		5.22	161.81	300
4082	23 59 0	4.99	150.21	1386	11.5		4.06	161.74	300
4083	0 0 0	8.24	150.05	1456	10.9		2.85	161.62	300
4084	0 1 0	11.93	149.89	1528	10.9		1.55	161.44	300
4085	0 2 0	14.56	149.72	1600	9.8		0.15	161.22	300
4086	0 3 0	17.63	149.56	1673	10.2		-1.38	160.97	300
4087	0 4 0	20.53	149.41	1747			-3.04	160.68	300
4088	0 5 0	23.60	149.25	1820			-4.86	160.37	300

PASS SUMMARY FOR KAGLALEIN

FOR 26 JULY 1978 DAY 207

IONOGRAM SUMMARY

PENETRATION LOCATION

F-MAX MEZ

DESCRIPTION

SATELLITE LOCATION

TIME OF DAY

SCINTILLATION SUMMARY

LAT	LONG	ALT KM	TIME OF DAY	DESCRIPTION	F-MAX MEZ	PENETRATION LOCATION	SCINTILLATION SUMMARY
35.50	-174.97	3203	0		6.59	177.98	500
35.15	-175.14	3162	0		4.77	177.69	500
30.93	-175.50	3119	0		5.28	177.41	500
29.79	-175.48	3073	0		1.94	177.15	500
26.58	-175.65	3025	0		0.74	171.90	500
24.34	-175.82	2976	0		0.54	171.68	500
22.07	-176.00	2924	0		1.31	171.48	500
19.78	-176.18	2870	0		2.18	171.50	500
17.47	-176.36	2814	0		2.97	171.15	500
15.12	-176.54	2756	0		3.68	171.01	500
12.74	-176.73	2696	0		4.33	170.89	500
10.33	-176.91	2635	0		4.93	170.78	500
7.88	-177.09	2572	0		5.49	170.69	500
5.40	-177.27	2507	0		6.07	170.62	500
2.88	-177.45	2441	0		6.53	170.56	500
0.33	-177.63	2373	0		7.03	170.52	500
7.27	-177.81	2305	0		7.52	170.48	500
4.91	-177.99	2235	0		8.02	170.47	500
7.59	-178.17	2164	0		8.53	170.47	500
10.32	-178.34	2092	0		9.08	170.49	500
13.10	-178.52	2020	0		9.67	170.57	500
15.92	-178.69	1947	0		10.32	170.59	500
18.79	-178.85	1874	0		11.07	170.68	500
21.72	-179.01	1800	0		11.97	170.81	500
24.59	-179.17	1727	0		13.02	170.98	500
27.72	-179.31	1653	0		14.34	171.27	500
30.86	-179.45	1580	0		16.01	171.57	500
33.94	-179.58	1508	0		18.16	171.97	500
37.13	-179.70	1436	0		20.88	172.90	500
40.38	-179.81	1365	0		24.23	173.95	500

SP, STV, RSP, ME
 SP, STV, RSP, ME
 SP, STV
 VSP, STV, ET(3), RSP
 SP, STV, ME, RSP
 VSP, STV, ET(2.3), RSP
 VSP, STV, ET(1.8), RSP
 VSP, STV, ET(1.8)
 SP, STV
 VSP, STV
 VSP
 SP, STV
 VSP, STV, ET(1.6)
 SP(>5)
 SM, WSP(>4)

DATE TIME				PASS SUMMARY FOR KWAJALEIN				IONOGRAM SUMMARY				PENE TRATION LOCATION				SCINTILLATION SUMMARY	
1609 1515 1								F-MAX MHZ				LAT LONG ALT KM					
DAY				TIME (Z) HR MIN SEC				DESCRIPTION				LAT LONG ALT KM					
20/	11	41	0	-36.01	152.90	3213						6.51	163.28	500			
20/	11	42	0	-35.07	152.74	3175						-4.91	163.43	500			
20/	11	43	0	-31.70	152.57	3130						-3.46	163.58	500			
20/	11	44	0	-29.52	152.40	3085						-2.15	163.71	500			
20/	11	45	0	-27.31	152.23	3040						-0.97	163.84	500			
20/	11	46	0	-25.03	152.05	2988						0.10	163.95	500			
20/	11	47	0	-22.82	151.88	2937						1.05	164.04	500			
20/	11	48	0	-20.54	151.70	2883						1.91	164.12	500			
20/	11	49	0	-18.23	151.52	2828						2.69	164.19	500			
20/	11	50	0	-15.89	151.34	2770						3.40	164.24	500			
20/	11	51	0	-13.51	151.16	2711						4.05	164.28	500		SSC	
20/	11	52	0	-11.11	150.97	2650						4.66	164.31	500		SSC	
20/	11	53	0	-8.67	150.79	2588						5.22	164.32	500		SSC	
20/	11	54	0	-6.20	150.61	2523						5.78	164.31	500		SSC	
20/	11	55	0	-3.69	150.43	2458	SP(-1.8), STV, ME					6.29	164.29	500		SSC	
20/	11	56	0	-1.15	150.25	2390	VSP, STV, RSP, ME					6.80	164.25	500		SSC	
20/	11	57	0	1.44	150.07	2322	VWSP, STV, ET(2.2), RSP					7.31	164.20	500		SSC	
20/	11	58	0	4.07	149.89	2252	VSP, STV, ET(2), RSP					7.83	164.13	500		SC	
20/	11	59	0	6.74	149.71	2182	VWSP, STV, ET(1.8), RSP					8.37	164.03	500		SC	
20/	12	0	0	9.46	149.53	2110	VSP, STV, ET(2), RSP					8.95	163.91	500		SC	
20/	12	1	0	12.22	149.36	2038	VWSP, STV, ET(2.3), RSP					9.57	163.75	500		SSC	
20/	12	2	0	15.05	149.19	1965	SP, STV, RSP					10.27	163.56	500		SSC	
20/	12	3	0	17.89	149.03	1892	SP, STV, ET(4), RSP					11.07	163.32	500		SSC	
20/	12	4	0	20.80	148.86	1819	SM					12.02	163.01	500		SSC	
20/	12	5	0	23.76	148.71	1745	SM, CE(1.6)					13.16	162.63	500		VSSC	
20/	12	6	0	26.78	148.56	1672	SM, ME, CE(1.4)					14.56	162.15	500		VSSC	
20/	12	7	0	29.85	148.41	1598	SM, ME, ER					15.33	161.55	500		SSC	
20/	12	8	0	32.97	148.28	1526	SM, ME					16.54	160.82	500		SSC	
20/	12	9	0	36.15	148.16	1454	SM, WSP, ME					17.28	159.97	500		SSC	

OBJECT: 4669 1515 L PASS SUMMARY FOR AUG JUL 61 FOR 26 JULY 1978 DAY 207

DAY	TIME (Z) HR MM SS			SATELLITE LOCATION LAT LONG		ALT KM	DESCRIPTION	IONOGRAM SUMMARY		PENETRATION LOCATION LAT LONG		ALT KM	SCINTILLATION SUMMARY
								F-MAX MHZ					
20/	23	20	0	31.68	157.79	803	SM, ER		9.1	22.48	162.21	300	Q
20/	23	21	0	27.88	157.68	850	SM, ER		9.8	18.84	162.77	300	Q
20/	23	22	0	24.13	157.56	901	SM, ER		10.1	15.89	163.26	300	Q
20/	23	23	0	20.44	157.42	955	SM, ER		10.4	13.57	163.66	300	Q
20/	23	24	0	16.79	157.28	1012	SM, ER		10.8	11.76	163.95	300	Q
20/	23	25	0	13.20	157.14	1072	SM, ER		10.4	10.29	164.16	300	Q
20/	23	26	0	9.67	156.99	1134	SM, ER		10.4	9.06	164.29	300	Q
20/	23	27	0	6.20	156.83	1199	SM		>10.0	7.97	164.37	300	Q
20/	23	28	0	2.79	156.67	1265	SM		11.2	6.95	164.40	300	Q
20/	23	29	0	-0.56	156.51	1334	SM		12.0	5.97	164.38	300	Q
20/	23	30	0	-3.86	156.35	1403	SM		>12.0	4.99	164.34	300	Q
20/	23	31	0	-7.09	156.19	1474	SM, ER		510.0	3.96	164.25	300	Q
20/	23	32	0	-10.26	156.03	1546	SM, ER		-10.0	2.87	164.14	300	Q
20/	23	33	0	-13.38	155.87	1619				1.68	164.00	300	
20/	23	34	0	-16.44	155.71	1692				0.37	163.82	300	
20/	23	35	0	-19.44	155.55	1765				-1.07	163.62	300	
20/	23	36	0	-22.38	155.39	1838				-2.68	163.40	300	
20/	23	37	0	-25.28	155.23	1912				-4.44	163.16	300	
20/	23	38	0	-28.12	155.08	1985				-6.36	162.91	300	

OBJECT: 3659		1515 L		PASS SUMMARY FOR KAWAJATI II				FOR 27 JULY 1978		DAY JOB	
DAY	TIME (Z) HR MN SC	SATELLITE LOCATION				DESCRIPTION	IONOGRAM SUMMARY		PENETRATION LOCATION		SCINTILLATION SUMMARY
		LAT	LONG	ALT NM	ALT NM		F-MAX MHz	F2	LAT	LONG	
208	9 5 0	-32.38	-169.18	3108					-5.73	175.02	300
208	9 7 0	30.18	169.35	3061					-4.19	174.66	300
208	9 8 0	-27.95	-169.52	3013					-2.77	174.32	300
208	9 9 0	25.72	-169.59	2963					1.49	173.99	300
208	9 10 0	23.45	-169.87	2910					0.32	173.70	300
208	9 11 0	21.16	-170.05	2856					0.74	173.42	300
208	9 12 0	-18.83	-170.23	2799					1.69	173.18	300
208	9 13 0	16.48	-170.41	2741					2.56	172.96	300
208	9 14 0	-14.09	-170.59	2681					3.35	172.77	300
208	9 15 0	-11.67	-170.77	2619					4.07	172.60	300
208	9 16 0	-9.22	-170.95	2556					4.75	172.46	300
208	9 17 0	-6.73	-171.13	2491		VSP, RSP	>6.0		5.38	172.35	300
208	9 18 0	-4.20	-171.31	2424		VSP, RSP	>5.0		5.98	172.25	300
208	9 19 0	-1.63	-171.49	2356		VSP, RSP	>6.0		6.56	172.19	300
208	9 20 0	0.98	-171.67	2287		VSP, STV, RSP	>7.0		7.12	172.14	300
208	9 21 0	3.63	-171.85	2217		WSP, STV, RSP	>7.0		7.69	172.12	300
208	9 22 0	6.32	-172.03	2146		VSP, RSP	>5.0		8.27	172.13	300
208	9 23 0	9.06	-172.20	2074		SP, ME	>6.0		8.88	172.16	300
208	9 24 0	11.85	-172.38	2002		VSP	>4.0		9.54	172.23	300
208	9 25 0	14.68	-172.54	1929		SP	>10.0		10.26	172.34	300
208	9 26 0	17.57	-172.71	1855		SM, SP	>6.0		11.08	172.50	300
208	9 27 0	20.51	-172.87	1782		SM, WSP(NP)	>9.0		12.03	172.72	300
208	9 28 0	23.49	-173.03	1708		SM	>6.0		13.17	173.01	300
208	9 29 0	26.54	-173.18	1635		SM, ME, ER	>8.1		14.57	173.39	300
208	9 30 0	29.64	-173.37	1562		SM, ME, ER	>6.0		16.33	173.67	300
208	9 31 0	32.79	-173.45	1490		SM, ME, ER	>7.7		18.53	174.48	300
208	9 32 0	36.00	-173.58	1419		SM, ME, ER	6.7		21.26	175.19	300

UNIDET: 3669		1978		PASS SUMMARY FOR KAWAIALEI IN		JULY		1978		MAY 2003	
DAY	TIME (Z) HH MM SS	SATELLITE LOCATION		DESCRIPTION	IONOGRAM SUMMARY		F-MAX MHz		PENETRATION LOCATION		SCINTILLATION SUMMARY
		LAT	LONG		ALT KM				LAT	LONG	ALT KM
2008	11 12 0	-37.42	159.02		3203				-6.98	165.14	300
2008	11 13 0	-35.27	158.86		3162				-5.30	165.22	300
2008	11 14 0	-33.10	158.69		3119				-3.77	165.29	300
2008	11 15 0	-30.91	158.53		3073				-2.39	165.36	300
2008	11 16 0	-28.70	158.35		3025				-1.16	165.43	300
2008	11 17 0	-26.42	158.18		2975				-0.06	165.49	300
2008	11 18 0	-24.20	158.01		2923				0.93	165.54	300
2008	11 19 0	-21.91	157.83		2869				1.81	165.58	300
2008	11 20 0	-19.59	157.65		2814				2.60	165.61	300
2008	11 21 0	-17.24	157.47		2756				3.32	165.64	300
2008	11 22 0	-14.87	157.29		2696				3.97	165.65	300
2008	11 23 0	-12.46	157.11	SM, ME	2635		>3.0		4.57	165.66	300
2008	11 24 0	-10.01	156.93	SM, ME	2572		>6.0		5.13	165.66	300
2008	11 25 0	-7.53	156.75	SP, STV, ET(2.8)	2507		>9.0		5.66	165.65	300
2008	11 26 0	-5.01	156.57	SP	2441		>6.0		6.16	165.64	300
2008	11 27 0	-2.45	156.39	VSP, STV, ET(1.8)	2373		>5.0		6.65	165.61	300
2008	11 28 0	0.14	156.21	VSP, STV, ET(1.4), RSP	2305		>7.0		7.13	165.57	300
2008	11 29 0	2.78	156.03	VSP, STV, ET(1.5), RSP	2235		>6.0		7.62	165.52	300
2008	11 30 0	5.47	155.85	VSP, STV, ET(1.5), RSP	2164		>6.0		8.12	165.46	300
2008	11 31 0	8.19	155.68	VSP, STV, ET(1.5), RSP	2092		>6.0		8.64	165.39	300
2008	11 32 0	10.97	155.50	VSP, STV, ET(1.6), RSP	2020		>7.0		9.20	165.29	300
2008	11 33 0	13.79	155.33	VSP, STV, ET(1.6), RSP	1947		>6.0		9.82	165.17	300
2008	11 34 0	16.67	155.17	SP, STV	1874		>6.0		10.52	165.03	300
2008	11 35 0	19.59	155.00	VSP, STV, ET(2.8)	1800		>9.5		11.34	164.85	300
2008	11 36 0	22.57	154.82	SSP	1727		>7.0		12.31	164.62	300
2008	11 37 0	25.60	154.69	SM, WSP(NP)	1653		>10.0		13.51	164.37	300
2008	11 38 0	28.68	154.55	SM, ME	1580		>7.0		15.03	163.95	300
2008	11 39 0	31.87	154.41	SM, ME, ER	1508		7.2		16.97	163.49	300
2008	11 40 0	35.01	154.29	SM, ME, ER	1436		7.4		19.45	162.91	300
2008	11 41 0	38.77	154.17		1366				22.54	162.24	300

OBJECT: 3669 1515 I

PASS SUMMARY FOR KWAJALEIN

FUR 27

JULY

1970

DAY 208

DAY	TIME (Z) HR MN SC	SATELLITE LOCATION			DESCRIPTION	IONOGRAM SUMMARY			PENETRATION LOCATION			SCINTILLATION SUMMARY
		LAT	LONG	ALT KM		F-MAX	MEZ	ALT NM	LAT	LONG	ALT NM	
208	22 51 0	32.66	163.93	814	SM, ER		9.6		22.66	165.69	300	Q
208	22 52 0	28.88	163.82	862	SM, ER		10.2		18.94	165.88	300	Q
208	22 53 0	25.14	163.70	914	SM, ME, ER		9.7		15.97	166.05	300	Q
208	22 54 0	21.46	163.57	969	SM		>10.0		13.67	166.18	300	Q
208	22 55 0	17.83	163.43	1027	SM		9.6		11.90	166.27	300	Q
208	22 56 0	14.26	163.28	1087	SM		9.3		10.50	166.33	300	Q
208	22 57 0	10.74	163.13	1150	SM		9.6		9.33	166.36	300	Q
208	22 58 0	7.28	162.98	1215	SM		9.8		8.31	166.37	300	Q
208	22 59 0	3.89	162.82	1282	SM		>10.0		7.38	166.36	300	Q
208	23 0 0	0.55	162.66	1351	SM		>10.0		6.49	166.34	300	Q
208	23 1 0	-2.73	162.50	1421	SM		>10.0		5.60	166.30	300	Q
208	23 2 0	5.95	162.34	1492	SM		>10.0		4.69	166.25	300	Q
208	23 3 0	-9.10	162.17	1564	SM		>10.0		3.73	166.18	300	Q
208	23 4 0	-12.21	162.01	1637	SM, ME		9.9		2.70	166.10	300	Q
208	23 5 0	-15.25	161.85	1710	SM, CE(1.3), ER		9.2		1.56	166.00	300	Q
208	23 6 0	-18.24	161.69	1784	SM, ME(<2), ER		8.7		0.29	165.89	300	Q
208	23 7 0	-21.17	161.53	1857	SM, ME(<2), ER		-9.0		-1.12	165.76	300	Q
208	23 8 0	-24.05	161.37	1930	SM, ME(<2), ER		8.5		-2.69	165.62	300	Q
208	23 9 0	-26.88	161.21	2003	SM, ME(<2.5), ER		7.6		-4.43	165.47	300	Q
208	23 10 0	-29.66	161.06	2075	SM, ER		7.8		-6.34	165.31	300	Q

OBJ: 3669 1515 1 PASS SUMMARY FOR KNO JALE IN FOR 28 JULY 1978 DAY 209

DAY	TIME (Z) HR MN SC	SATELLITE LOCATION		DESCRIPTION	IONOGRAM SUMMARY	F-MAX MHZ	PENETRATION LOCATION		SCINTILLATION SUMMARY	
		LAT	LONG				LAT	LONG		ALT KM
209	8 39 0	-29.34	-163.39	3000			-5.49	177.53	300	
209	8 40 0	-27.09	-163.56	2949			-4.00	177.13	300	
209	8 41 0	-24.82	-163.74	2896			-2.61	176.74	300	
209	8 42 0	-22.52	-163.91	2841			-1.34	176.37	300	
209	8 43 0	-20.18	-164.09	2785			-0.17	176.02	300	
209	8 44 0	-17.82	-164.27	2726	SM, ME	>8.0	0.90	175.71	300	Q
209	8 45 0	-15.43	-164.45	2665	SM, ME	>9.0	1.89	175.43	300	Q
209	8 46 0	-13.00	-164.63	2603	NSP, STV, RSP, ET(5)	>9.0	2.79	175.18	300	Q
209	8 47 0	-10.54	-164.81	2539	SP, STV, RSP, ET(3.2)	>10.0	3.63	174.97	300	Q
209	8 48 0	-8.04	-164.99	2474	SP, STV, RSP, ET(2.5)	>9.0	4.42	174.79	300	Q
209	8 49 0	-5.50	-165.17	2407	VSP, STV, RSP, ET(2.2)	>10.0	5.16	174.64	300	Q
209	8 50 0	-2.92	-165.35	2339	VSP, STV, RSP, ET(2.1)	8.4	5.86	174.53	300	Q
209	8 51 0	-0.31	-165.53	2270	VSP, STV, RSP, ET(2)	8.0	6.55	174.46	300	Q
209	8 52 0	2.56	-165.71	2199	SP, STV, ET(2)	8.5	7.24	174.43	300	Q
209	8 53 0	5.06	-165.89	2128	VSP, STV, RSP, ET(2.3), IR	9.3	7.93	174.44	300	Q
209	8 54 0	7.81	-166.06	2056	SM, RSP	>9.5	8.65	174.50	300	Q
209	8 55 0	10.61	-166.23	1983	NSP, STV, RSP, ET(3.8)	>11.0	9.41	174.60	300	Q
209	8 56 0	13.46	-166.40	1910	SM, IR	>10.0	10.25	174.77	300	Q
209	8 57 0	16.36	-166.57	1837	SM, IR	10.3	11.18	175.01	300	Q
209	8 58 0	19.31	-166.73	1763	SM	>10.0	12.27	175.34	300	Q
209	8 59 0	22.31	-166.89	1690	SM	>9.5	13.55	175.76	300	Q
209	9 0 0	25.37	-167.04	1616	SM, ME(<2.5)	8.7	15.09	176.30	300	Q
209	9 1 0	28.48	-167.18	1544	SM, ME(<3)	8.3	16.97	176.97	300	Q
209	9 2 0	31.65	-167.32	1472	SM, ME, IR	7.0	19.27	177.78	300	Q
209	9 3 0	34.88	-167.44	1401			22.03	178.69	300	Q

OBJECT: 3669 ISIS I				PASS SUMMARY FOR KUAJALEIN				FUR 28 JULY 1978		DAY 209	
DAY	TIME (Z) HR MN SC	SATELLITE LOCATION			DESCRIPTION	IONOGRAM SUMMARY		PENETRATION LOCATION		SCINTILLATION	
		LAT	LONG	ALT NM		F-MAX MHz	ALT KM	LAT	LONG	ALT KM	SUMMARY
209	10 43 0	-38.82	165.13	3193				-7.94	166.94	300	
209	10 44 0	-36.67	164.98	3151				-6.14	166.93	300	
209	10 45 0	-34.49	164.82	3107				-4.51	166.93	300	
209	10 46 0	-32.30	164.65	3061	SM, ME, ER	5.4		-3.03	166.93	300	
209	10 47 0	-30.08	164.48	3013	SM, ME, ER	5.8		-1.71	166.92	300	
209	10 48 0	-27.83	164.31	2962	SM, ME	>5.0		-0.53	166.92	300	Q
209	10 49 0	-25.57	164.14	2910	SM, ME, ER	5.5		0.53	166.92	300	Q
209	10 50 0	-23.27	163.96	2855	SM, ME, ER	5.5		1.46	166.91	300	Q
209	10 51 0	-20.95	163.79	2799	SM, ME	5.4		2.30	166.90	300	Q
209	10 52 0	-18.59	163.61	2741	SM, ME, ER	5.6		3.05	166.89	300	Q
209	10 53 0	-16.21	163.43	2680	SM, ME, CE(1.3)	5.5		3.73	166.88	300	Q
209	10 54 0	-13.79	163.25	2619	SM, ME	>7.0		4.35	166.87	300	Q
209	10 55 0	-11.33	163.07	2555	SM, ME	>7.0		4.93	166.85	300	Q
209	10 56 0	-8.84	162.89	2490	SM	>7.0		5.46	166.83	300	Q
209	10 57 0	-6.32	162.71	2424	SM	>10.0		5.97	166.81	300	Q
209	10 58 0	-3.75	162.53	2356	SM	>10.0		6.46	166.78	300	Q
209	10 59 0	-1.14	162.35	2287	SM	>9.0		6.93	166.75	300	Q
209	11 0 0	1.51	162.17	2217	SM	>10.0		7.41	166.72	300	Q
209	11 1 0	4.21	161.99	2146	SM	>10.0		7.89	166.67	300	Q
209	11 2 0	6.95	161.82	2074	SM	>10.0		8.39	166.63	300	Q
209	11 3 0	9.73	161.64	2001	SM	>10.0		8.92	166.57	300	Q
209	11 4 0	12.57	161.47	1928	SM	>10.0		9.49	166.50	300	Q
209	11 5 0	15.46	161.31	1855	SM	>9.0		10.13	166.42	300	Q
209	11 6 0	18.39	161.14	1781	SM	-8.0		10.87	166.32	300	Q
209	11 7 0	21.38	160.98	1708	SM	-8.0		11.75	166.20	300	Q
209	11 8 0	24.43	160.83	1635	SM	8.0		12.81	166.05	300	Q
209	11 9 0	27.53	160.69	1562	SM, ME	>7.0		14.16	165.85	300	Q
209	11 10 0	30.68	160.55	1489	SM, ME	7.8		15.88	165.61	300	Q
209	11 11 0	33.89	160.42	1418	SM, ME, ER	8.2		18.13	165.30	300	Q
209	11 12 0	37.16	160.30	1348	SM, ME	>7.0		21.01	164.92	300	Q
209	11 13 0	40.48	160.20	1279				24.57	164.49	300	Q

OBJECT: 3669 1515 1 PASS SUMMARY FOR KWAJALEIN FOR 28 JULY 1978 DAY 209

DAY	TIME (Z) HR MN SC	SATELLITE LOCATION		DESCRIPTION	IONOGRAM SUMMARY		PERFECTURE LOCATION		SCINTILLATION SUMMARY	
		LAT	LONG		ALT KM	F-MAX MHZ	LAT	LONG		ALT KM
209	22 22 0	33.63	170.07	826			23.33	168.99	300	Q
209	22 23 0	29.86	169.96	875	SM, ER		19.49	168.79	300	Q
209	22 24 0	26.14	169.84	928	SM, ER	10.4	16.41	168.61	300	Q
209	22 25 0	22.47	169.71	983	SM, ER	10.1	14.04	168.46	300	Q
209	22 26 0	18.86	169.57	1042	SM, ER	9.8	12.22	168.35	300	Q
209	22 27 0	15.30	169.43	1103	SM, ER	9.1	10.79	168.25	300	Q
209	22 28 0	11.80	169.28	1167	SM	8.5	9.62	168.18	300	Q
209	22 29 0	8.36	169.13	1232	SM	7.9	8.61	168.12	300	Q
209	22 30 0	4.98	168.97	1300	SM	9.0	7.71	168.06	300	Q
209	22 31 0	1.65	168.81	1369	SM	9.5	6.85	168.01	300	Q
209	22 32 0	-1.61	168.65	1439	SM	>10.0	6.02	167.97	300	Q
209	22 33 0	-4.81	168.48	1511	SM	>10.0	5.17	167.93	300	Q
209	22 34 0	-7.96	168.32	1583	SM	>10.0	4.29	167.89	300	Q
209	22 35 0	-11.04	168.15	1656	SM	>10.0	3.34	167.84	300	Q
209	22 36 0	-14.07	167.99	1729	SM	10.1	2.31	167.80	300	Q
209	22 37 0	-17.05	167.83	1803	SM, ME	9.7	1.17	167.76	300	Q
209	22 38 0	-19.97	167.67	1876			-0.09	167.71	300	
209	22 39 0	-22.84	167.50	1949			-1.51	167.66	300	
209	22 40 0	-25.65	167.35	2022			-3.10	167.60	300	
209	22 41 0	-28.42	167.19	2094			-4.85	167.55	300	
209	22 42 0	-31.14	167.04	2166			-6.77	167.40	300	

PASS SUMMARY FOR NWA-JALEIN															
OBJECT: 3669		ISIS I		TIME (Z)		SATELLITE LOCATION		IONOGRAM SUMMARY		F-MAX MHZ		PENETRATION LOCATION		SCINTILLATION SUMMARY	
				HR MN SC		LAT LONG ALT KM		DESCRIPTION				LAT LONG ALT KM			
210		8	14	0	-21.53	-157.96	2769					-2.72	179.97	300	
210		8	15	0	-19.16	-158.13	2710					-1.42	179.58	300	
210		8	16	0	-16.75	-158.31	2649					-0.21	179.23	300	
210		8	17	0	-14.32	-158.49	2587					0.92	178.90	300	
210		8	18	0	-11.85	-158.67	2522					1.98	178.61	300	WS
210		8	19	0	-9.34	-158.85	2457					2.98	178.36	300	WS
210		8	20	0	-6.79	-159.03	2389					3.92	178.16	300	WS
210		8	21	0	-4.20	-159.21	2321					4.82	178.00	300	WS
210		8	22	0	-1.57	-159.39	2251					5.69	177.90	300	SC
210		8	23	0	1.10	-159.57	2181					6.56	177.85	300	SC
210		8	24	0	3.82	-159.74	2109					7.42	177.86	300	SC
210		8	25	0	6.58	-159.92	2037	SP, STV		>7.0		8.31	177.94	300	SC
210		8	26	0	9.39	-160.09	1964	M				9.25	178.09	300	SC
210		8	27	0	12.26	-160.26	1891	SP, STV, RSP		>9.0		10.26	178.32	300	SSC
210		8	28	0	15.17	-160.43	1818	SP, STV, RSP, ET(4.2)		>9.0		11.39	178.65	300	SSC
210		8	29	0	18.13	-160.59	1744	SM, RSP		>10.0		12.66	179.09	300	SSC
210		8	30	0	21.15	-160.75	1671					14.13	179.65	300	SC
210		8	31	0	24.22	-160.90	1597					15.86	-179.67	300	SC
210		8	32	0	27.35	-161.05	1525					17.90	-178.85	300	

OBJECT: 3649 ISIS 1 PASS SUMMARY FOR KWAJALEIN FOR 29 JULY 1978 DAY 210

DAY	TIME (Z) HR MN SC	SATELLITE LOCATION		DESCRIPTION	IONOGRAM SUMMARY		PENETRATION LOCATION		SCINTILLATION SUMMARY	
		LAT	LONG		ALT KM	F-MAX MHz	LAT	LONG		ALT KM
210	10 15 0	-30.05	171.10	3140			-7.50	168.75	300	
210	10 16 0	-35.87	170.94	3095			-5.73	168.65	300	SSC
210	10 17 0	-33.67	170.78	3049			-4.12	168.56	300	SSC
210	10 18 0	-31.45	170.61	3000			-2.66	168.48	300	SSC
210	10 19 0	-29.20	170.44	2949			-1.36	168.40	300	SSC
210	10 20 0	-26.92	170.27	2896			-0.20	168.33	300	SSC
210	10 21 0	-24.62	170.10	2841			0.83	168.26	300	SC
210	10 22 0	-22.29	169.92	2784			1.75	168.20	300	SC
210	10 23 0	-19.93	169.75	2725			2.57	168.15	300	SC
210	10 24 0	-17.53	169.57	2665			3.31	168.10	300	SC
210	10 25 0	-15.10	169.39	2602			3.98	168.06	300	SC
210	10 26 0	-12.64	169.21	2538			4.59	168.01	300	WS
210	10 27 0	-10.14	169.03	2473			5.16	167.97	300	Q
210	10 28 0	-7.61	168.85	2406			5.69	167.94	300	Q
210	10 29 0	-5.03	168.67	2338			6.20	167.90	300	Q
210	10 30 0	-2.41	168.49	2269			6.69	167.87	300	Q
210	10 31 0	0.25	168.31	2199			7.17	167.84	300	Q
210	10 32 0	2.96	168.14	2127			7.66	167.80	300	Q
210	10 33 0	5.71	167.96	2055			8.15	167.77	300	Q
210	10 34 0	8.51	167.79	1983			8.67	167.74	300	Q
210	10 35 0	11.36	167.62	1909			9.23	167.71	300	Q
210	10 36 0	14.26	167.45	1836			9.85	167.67	300	Q
210	10 37 0	17.21	167.28	1762			10.55	167.64	300	Q
210	10 38 0	20.22	167.13	1689			11.38	167.60	300	WS
210	10 39 0	23.28	166.97	1616			12.37	167.55	300	WS
210	10 40 0	26.39	166.82	1543			13.61	167.50	300	SSC
210	10 41 0	29.56	166.68	1471			15.21	167.43	300	WS
210	10 42 0	32.79	166.55	1400			17.29	167.35	300	Q
210	10 43 0	36.07	166.43	1330			20.00	167.26	300	Q
210	10 44 0	39.41	166.33	1262			23.41	167.15	300	Q

OBJECT: 3659 1515 1 PASS SUMMARY FOR KWAJALEIN

FDR 29 JULY 1978 DAY 210

DAY	TIME (Z) HR MN SC	SATELLITE LOCATION		DESCRIPTION	IONOGRAM SUMMARY		PENETRATION LOCATION		SCINTILLATION SUMMARY
		LAT	LONG	ALT KM		F-MAX MHz	LAT	LONG	ALT KM
210	21 53 0	34.59	176.21	839	SM, ER		24.48	172.46	300
210	21 54 0	30.83	176.11	889	SM, ER	10.0	20.53	171.86	300
210	21 55 0	27.12	175.99	942	SM, ER	10.0	17.27	171.31	300
210	21 56 0	23.47	175.86	998	SM, ER	10.0	14.72	170.86	300
210	21 57 0	19.87	175.72	1058	SM, ER	9.4	12.76	170.50	300
210	21 58 0	16.33	175.58	1119	SM, ER	9.5	11.23	170.23	300
210	21 59 0	12.85	175.43	1184	SM, ER	9.0	9.98	170.02	300
210	22 0 0	9.42	175.27	1250	SM, ER	8.5	8.93	169.87	300
210	22 1 0	6.05	175.12	1318	SM, ER	8.8	8.00	169.75	300
210	22 2 0	2.75	174.96	1387	SM, ER	10.1	7.13	169.66	300
210	22 3 0	-0.50	174.79	1458	SM, ER	11.0	6.30	169.59	300
210	22 4 0	-3.69	174.63	1530	SM, ER	>10.0	5.47	169.54	300
210	22 5 0	-6.82	174.46	1602	SM, ER	10.9	4.62	169.51	300
210	22 6 0	-9.89	174.30	1675	SM, ER	~11.0	3.71	169.49	300
210	22 7 0	-12.91	174.13	1748	SM, ER	10.5	2.74	169.48	300
210	22 8 0	-15.87	173.97	1822	SM, ER	11.0	1.67	169.49	300
210	22 9 0	-18.77	173.81	1895	SM, NE	>8.0	0.49	169.50	300
210	22 10 0	-21.63	173.64	1968	SM, NE	-9.0	-0.82	169.52	300
210	22 11 0	-24.43	173.48	2041	SM, NE	>8.0	-3.29	169.55	300
210	22 12 0	-27.19	173.32	2113	SM, NE	-8.5	-3.92	169.58	300
210	22 13 0	-29.89	173.17	2184	SM, NE	>6.0	-5.72	169.61	300
210	22 14 0	-32.56	173.02	2255	SM, NE		-7.67	169.64	300

OBJECT: 3669 ISIS I			PASS SUMMARY FOR KWAJALEIN			FMR 30 JULY 1978 DAY 211		IONOGRAM SUMMARY		PENETRATION LOCATION		SCINTILLATION SUMMARY	
DAY	TIME (Z) HR MN SC		SATELLITE LOCATION		DESCRIPTION	F-MAX MHZ	LAT LONG		LAT	LONG	ALT KM		
			LAT	LONG			LAT	LONG					
211	9 47 0		-37.24	177.06	3083		-7.48	170.61			300	WS	
211	9 48 0		-35.03	176.90	3036		-5.72	170.42			300	SC	
211	9 49 0		-32.80	176.74	2987		-4.10	170.25			300	VSSC	
211	9 50 0		-30.55	176.57	2935		-2.64	170.08			300	SAT	
211	9 51 0		-28.27	176.40	2881		-1.33	169.93			300	SAT	
211	9 52 0		-25.96	176.23	2826		-0.16	169.79			300	SAT	
211	9 53 0		-23.62	176.06	2769		0.88	169.66			300	VSSC	
211	9 54 0		-21.25	175.88	2709		1.81	169.54			300	VSSC	
211	9 55 0		-18.85	175.70	2648		2.65	169.44			300	SSC	
211	9 56 0		-16.41	175.53	2586	SM, ME	3.40	169.35			300	SC	
211	9 57 0		-13.94	175.35	2521	SM, RSP	4.08	169.27			300	SSC	
211	9 58 0		-11.43	175.17	2456	SM, ME, RSP	4.71	169.20			300	SSC	
211	9 59 0		-8.88	174.97	2388	SP(NP), STV, RSP	5.30	169.14			300	SSC	
211	10 0 0		-6.30	174.81	2320	SP, STV, RSP	5.85	169.09			300	SSC	
211	10 1 0		-3.67	174.63	2250	SP(>5), STV, RSP	6.37	169.04			300	WS	
211	10 2 0		-0.99	174.46	2180	SP, STV, RSP, ET(2.5)	6.80	169.01			300	SC	
211	10 3 0		1.73	174.28	2108	SP, STV, ET(2.5)	7.39	168.98			300	SC	
211	10 4 0		4.47	174.10	2036	VSP, STV, RSP, ET(2.4)	7.91	168.95			300	SC	
211	10 5 0		7.30	173.93	1963	SP, STV, ET(2.6)	8.44	168.94			300	SC	
211	10 6 0		10.17	173.76	1890	VSP, STV, ET(2.9)	8.1	168.93			300	Q	
211	10 7 0		13.08	173.59	1817	SM, RSP	9.63	168.93			300	Q	
211	10 8 0		16.05	173.43	1743	SM	10.33	168.95			300	Q	
211	10 9 0		19.07	173.27	1670	SM	11.15	168.98			300	Q	
211	10 10 0		22.14	173.11	1596	SM, ME	12.12	169.02			300	Q	
211	10 11 0		25.27	172.96	1524	SM, ME	13.33	169.09			300	Q	
211	10 12 0		28.46	172.82	1452	SM, ME	14.87	169.19			300	WS	
211	10 13 0		31.70	172.69	1381	SM, ME	16.87	169.32			300	WS	
211	10 14 0		35.00	172.57	1312	SM, ME	19.47	169.49			300	Q	
211	10 15 0		38.36	172.46	1244	SM	22.78	169.69			300	Q	

OBJECT: 3669 1515 I PASS SUMMARY FOR KWAJALEIN FOR 31 JULY 1978 DAY 212

DAY	TIME (Z) HR MN SC	SATELLITE LOCATION			DESCRIPTION	IONOGRAM SUMMARY		PENETRATION LOCATION			SCINTILLATION	
		LAT	LONG	ALT KM		F-MAX MHz		LAT	LONG	ALT KM	SUMMARY	
210	9 20 0	-34.15	-177.14	2973	SM, ME, ER	4.5		-6.11	172.41	300	WS	
212	9 21 0	-31.89	-177.30	2921	SM, ME	4.9		-4.47	172.14	300	WS	
211	9 22 0	-29.60	-177.47	2867	SM, ME	4.9		-2.98	171.89	300	WS	
212	9 23 0	-27.28	-177.64	2811	SM, ME	4.7		-1.63	171.66	300	WS	
212	9 24 0	-24.94	-177.81	2753	SM, ME	4.5		-0.42	171.44	300	WS	
212	9 25 0	-22.56	-177.98	2693	SM, ME	>6.0		0.67	171.25	300	WS	
212	9 26 0	-20.15	-178.16	2632	SM, ME	~7.0		1.65	171.07	300	WS	
212	9 27 0	-17.70	-178.33	2568	SM, WSP, RSP	>6.5		2.53	170.92	300	SC	
212	9 28 0	-15.22	-178.51	2504	SM, WSP, RSP, ME	>6.0		3.32	170.78	300	SC	
212	9 29 0	-12.70	-178.69	2438	WSP(>5), RSP	>6.5		4.05	170.67	300	SC	
212	9 30 0	-10.15	-178.87	2370	VSP, STV, RSP, ME, ET(2.7)	>5.0		4.72	170.57	300	SC	
212	9 31 0	-7.55	-179.05	2301	VSP, STV, RSP, ME, ET(2.2)	>6.0		5.34	170.48	300	SC	
212	9 32 0	-4.91	-179.22	2232	VSP, STV, RSP, ME, ET(1.9)	>6.0		5.93	170.42	300	SC	
212	9 33 0	-2.22	-179.40	2161	VSP, STV, RSP, ET(1.8)	-7.0		6.50	170.36	300	WS	
212	9 34 0	0.51	-179.58	2089	VWSP, STV, RSP, ET(2)	-6.5		7.06	170.33	300	WS	
212	9 35 0	3.29	-179.75	2017	VSP, STV, RSP, ET(2)	-6.5		7.62	170.31	300	SC	
212	9 36 0	6.11	-179.93	1944	VWSP, STV, RSP, ET(2.2)	>5.0		8.20	170.30	300	SC	
212	9 37 0	8.99	-179.90	1870	SP, STV, RSP, ET(2.4)	>6.0		8.80	170.32	300	WS	
212	9 38 0	11.92	-179.74	1797	SP, STV, RSP, ET(2.8)	>9.0		9.46	170.36	300	SSC	
212	9 39 0	14.90	-179.57	1723	SP, STV, RSP, ET(5)	>7.0		10.19	170.42	300	SSC	
212	9 40 0	17.93	-179.41	1650	SP(>8), STV	>10.0		11.04	170.52	300	SC	
212	9 41 0	21.02	-179.25	1577	SM, ME	>10.0		12.04	170.66	300	SC	
212	9 42 0	24.17	-179.10	1505	SM	~10.0		13.27	170.85	300	SSC	
212	9 43 0	27.37	-178.96	1433	SM	8.8		14.83	171.10	300	VSSC	
212	9 44 0	30.63	-178.83	1363	SM, ME, CE(1.5)	7.8		16.83	171.44	300	VSSC	
212	9 45 0	33.95	-178.70	1294	SM, ME(<2), ER	7.1		19.41	171.87	300	SC	
212	9 46 0	37.32	-178.59	1226	SM, ME, ER	6.5		22.66	172.38	300	Q	

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MISSION RESEARCH CORP SANTA BARBARA CA

F/G 4/1

ISIS TOPSIDE SOUNDER DATA GATHERED ON KWAJALEIN ATOLL DURING TH--ETC(U)

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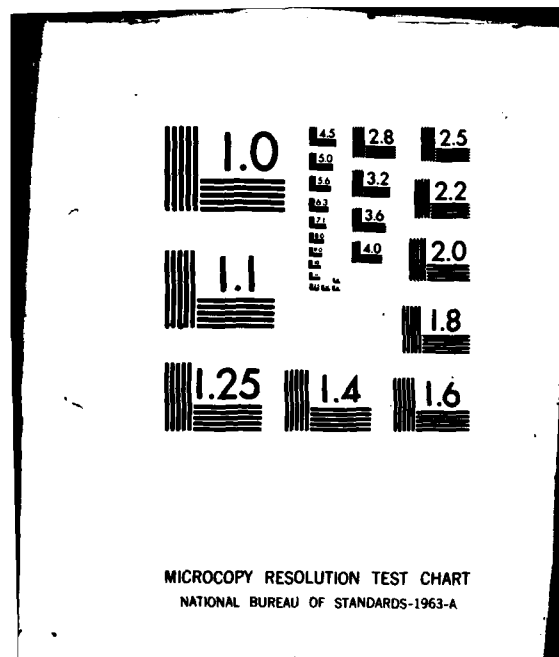
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OBJECT: 3669 ISIS I PASS SUMMARY FOR KWAJALEIN FOR 31 JULY 1978 DAY 212

DAY	TIME (Z) HR MN SC	SATELLITE LOCATION		DESCRIPTION	IONOGRAM SUMMARY		PENETRATION LOCATION		SCINTILLATION SUMMARY	
		LAT	LONG		ALT KM	F-MAX MHZ	LAT	LONG		ALT KM
212	11 28 0	-34.88	150.73	2985			-7.05	162.27	300	WS
212	11 29 0	-32.63	150.57	2934			-5.40	162.44	300	SC
212	11 30 0	-30.35	150.41	2880			-3.89	162.61	300	SSC
212	11 31 0	-28.04	150.24	2825			-2.52	162.77	300	SAT
212	11 32 0	-25.70	150.07	2767			-1.27	162.91	300	SAT
212	11 33 0	-23.33	149.89	2708	SM, ME		-0.14	163.04	300	SAT
212	11 34 0	-20.93	149.72	2647	SM, ME		0.88	163.15	300	SAT
212	11 35 0	-18.49	149.54	2584	SP(>3), STV		1.81	163.24	300	SAT
212	11 36 0	-16.02	149.37	2520	SP(NP), STV, ME		2.65	163.31	300	SAT
212	11 37 0	-13.51	149.19	2454	SM, ME, ER		3.43	163.36	300	SAT
212	11 38 0	-10.96	149.01	2387	SM, ME		4.15	163.40	300	SSC
212	11 39 0	-8.37	148.83	2319	SM, ME, MSP(>5)		4.82	163.41	300	SAT
212	11 40 0	-5.74	148.66	2249	SM, ME		5.47	163.40	300	SSC
212	11 41 0	-3.07	148.48	2178	SM, ME		6.09	163.37	300	SAT
212	11 42 0	-0.35	148.30	2107	MSP, STV, RSP, ME, ET(4.4)		6.71	163.31	300	SC
212	11 43 0	2.42	148.13	2035	SP, STV, RSP, ME, ET(3.3)		7.33	163.22	300	SAT
212	11 44 0	5.23	147.95	1962	SP, STV, RSP, ME, ET(3.1)		7.97	163.10	300	SC
212	11 45 0	8.09	147.78	1889	SP, STV, RSP, ME, ET(3.1)		8.66	162.94	300	SAT
212	11 46 0	11.01	147.61	1815	SP(>5), STV, RSP, ME		9.40	162.73	300	SC
212	11 47 0	13.98	147.45	1742	SP(>4), STV, RSP, ME		10.24	162.47	300	SSC
212	11 48 0	17.00	147.28	1668	SP, STV, RSP, ME		11.20	162.14	300	SSC
212	11 49 0	20.07	147.13	1595	SP, STV, RSP, ME		12.35	161.71	300	SSC
212	11 50 0	23.21	146.97	1523	SP, ME		13.76	161.17	300	SC
212	11 51 0	26.39	146.83	1451	VSP, ME		15.50	160.50	300	SSC
212	11 52 0	29.64	146.69	1380	SM, ME		17.69	159.68	300	SSC
212	11 53 0	32.94	146.56	1311	SP, ME		20.40	158.72	300	WS

OBJECT: 3669		ISIS I		PASS SUMMARY FOR KWAJALEIN				FOR 31 JULY 1978		DAY 212		
DAY	TIME (Z) HR MN SC	SATELLITE LOCATION			DESCRIPTION	IONOGRAM SUMMARY		PENETRATION LOCATION		SCINTILLATION SUMMARY		
		LAT	LONG	ALT KM		F-MAX MHZ	LAT	LONG	ALT KM			
212	20 57 0	29.06	-171.73	971	SM			8.4	20.31	178.43	300	Q
212	20 58 0	25.44	-171.85	1029	SM, ER			8.4	17.27	177.34	300	Q
212	20 59 0	21.87	-171.99	1090	SM, ER			-8.0	14.79	176.38	300	Q
212	21 0 0	18.36	-172.13	1153	SM, ER			8.9	12.78	175.59	300	Q
212	21 1 0	14.91	-172.28	1219	SM, ER			>7.0	11.16	174.96	300	Q
212	21 2 0	11.52	-172.43	1286	SM, ER			8.4	9.81	174.47	300	Q
212	21 3 0	8.18	-172.59	1355	SM, ER			7.3	8.65	174.10	300	Q
212	21 4 0	4.91	-172.75	1425	SM, ER			7.3	7.61	173.83	300	Q
212	21 5 0	1.69	-172.91	1496	SM, ER			7.5	6.65	173.63	300	Q
212	21 6 0	-1.47	-173.08	1568	SM, ER			8.5	5.72	173.49	300	Q
212	21 7 0	-4.56	-173.24	1641	SM			10.0	4.79	173.41	300	Q
212	21 8 0	-7.61	-173.41	1714	SM, ER			10.5	3.84	173.38	300	Q
212	21 9 0	-10.60	-173.58	1788	SM			>11.5	2.84	173.39	300	Q
212	21 10 0	-13.53	-173.74	1861	SM			>12.5	1.78	173.43	300	Q
212	21 11 0	-16.41	-173.91	1934	SM			10.5	0.62	173.51	300	Q
212	21 12 0	-19.24	-174.08	2007	SM, ME			-10.0	-0.63	173.61	300	Q
212	21 13 0	-22.02	-174.24	2080	SM, ME, ER			8.5	-2.01	173.74	300	Q
212	21 14 0	-24.75	-174.40	2151	SM, ME			>7.0	-3.51	173.89	300	Q
212	21 15 0	-27.43	-174.56	2222	SM, ME, CE(1.3), ER			-6.0	-5.15	174.05	300	Q
212	21 16 0	-30.07	-174.72	2292	SM, ME, CE(1.2), ER			6.5	-6.93	174.22	300	Q

PASS SUMMARY FOR KWAJALEIN													
OBJECT: 3669		ISIS I		TIME (Z)		SATELLITE LOCATION		IONOGRAM SUMMARY		PENETRATION LOCATION		SCINTILLATION	
DAY		HR	MIN	SEC	LAT	LONG	ALT KM	DESCRIPTION	F-MAX MHZ	LAT	LONG	ALT KM	SUMMARY
#212*		23	4	0	33.83	156.25	903	SM, ER	8.6	23.30	161.65	300	Q
#212*		23	5	0	30.14	156.14	958	SM, ER	8.7	19.65	162.29	300	Q
#212*		23	6	0	26.51	156.01	1015	SM, ER	9.0	16.68	162.85	300	Q
#212*		23	7	0	22.93	155.88	1075	SM, ER	9.2	14.35	163.31	300	Q
#212*		23	8	0	19.40	155.74	1137	SM	9.5	12.54	163.66	300	Q
#212*		23	9	0	15.94	155.59	1202	SM, ER	9.6	11.10	163.91	300	Q
#212*		23	10	0	12.53	155.44	1269	SM	9.1	9.91	164.08	300	Q
#212*		23	11	0	9.18	155.29	1337	SM, ER	9.5	8.89	164.20	300	Q
#212*		23	12	0	5.89	155.13	1407	SM	10.2	7.97	164.26	300	Q
#212*		23	13	0	2.66	154.96	1478	SM, ER	10.5	7.11	164.29	300	Q
#212*		23	14	0	-0.51	154.80	1550	SM	11.0	6.28	164.27	300	Q
#212*		23	15	0	-3.62	154.63	1623	SM, ER	10.8	5.44	164.23	300	Q
#212*		23	16	0	-6.68	154.47	1696	SM, ER	9.5	4.58	164.15	300	Q
#212*		23	17	0	-9.68	154.30	1769	SM	10.2	3.67	164.05	300	Q
#212*		23	18	0	-12.63	154.13	1843	SM, ER	11.0	2.68	163.92	300	Q
#212*		23	19	0	-15.52	153.97	1916	SM, ER	>10.0	1.61	163.76	300	Q
#212*		23	20	0	-18.36	153.80	1989	SM, ER	~10.0	0.42	163.58	300	Q
#212*		23	21	0	-21.16	153.63	2062	SM, ME(<2)	-9.5	-0.90	163.36	300	Q
#212*		23	22	0	-23.90	153.47	2134	SM	-9.8	-2.35	163.13	300	Q
#212*		23	23	0	-26.59	153.31	2205	SM, ME(<2)	7.8	-3.96	162.88	300	Q
#212*		23	24	0	-29.24	153.15	2275	SM, ME(<2)	7.0	-5.72	162.61	300	Q
#212*		23	25	0	-31.85	153.00	2344	SM, ME	7.0	-7.63	162.33	300	Q

OBJECT: 3669 ISIS I PASS SUMMARY FOR KWAJALEIN FOR 1 AUGUST 1978 DAY 213

DAY	TIME (Z) HR MN SC	SATELLITE LOCATION		DESCRIPTION	IONOGRAM SUMMARY		PENETRATION LOCATION		SCINTILLATION SUMMARY	
		LAT	LONG		ALT NM	F-MAX MHz	LAT	LONG		ALT NM
213	8 52 0	-33.21	-171.18	2906			-6.92	174.77	300	
213	8 53 0	-30.92	-171.34	2852			-5.24	174.43	300	
213	8 54 0	-28.59	-171.51	2795			-3.69	174.10	300	
213	8 55 0	-26.24	-171.68	2737	SM, ME	ER	-2.28	173.79	300	SC
213	8 56 0	-23.86	-171.85	2676	SM, ME	ER	-0.99	173.49	300	SC
213	8 57 0	-21.44	-172.02	2615	SM, ME	WSP	0.18	173.23	300	SC
213	8 58 0	-18.98	-172.20	2551	SM, ME	WSP	1.24	172.98	300	SC
213	8 59 0	-16.49	-172.37	2486	SP, STV, ME		2.19	172.77	300	SC
213	9 0 0	-13.96	-172.55	2419	SP, STV, ME		3.06	172.58	300	SC
213	9 1 0	-11.40	-172.73	2352	SP, STV, ME, RSP	CE(1.2)	3.86	172.42	300	SC
213	9 2 0	-8.79	-172.90	2283	SP, STV, ME, RSP		4.60	172.29	300	SSC
213	9 3 0	-6.13	-173.08	2212	SP, STV, RSP		5.30	172.19	300	SSC
213	9 4 0	-3.44	-173.26	2141	SM, RSP		5.97	172.11	300	SSC
213	9 5 0	-0.69	-173.43	2069	SM, RSP		6.61	172.05	300	SSC
213	9 6 0	2.10	-173.61	1997	SM, RSP		7.25	172.03	300	VSSC
213	9 7 0	4.94	-173.78	1924	SM, RSP		7.90	172.03	300	VSSC
213	9 8 0	7.83	-173.95	1850	SM, RSP		8.58	172.07	300	VSSC
213	9 9 0	10.77	-174.12	1777	SM, RSP		9.31	172.14	300	VSSC
213	9 10 0	13.77	-174.29	1703	SM, RSP, ME		10.11	172.26	300	VSSC
213	9 11 0	16.82	-174.45	1630	SM, RSP, ME		11.03	172.44	300	VSSC
213	9 12 0	19.92	-174.60	1557	WSP, RSP, ER		12.12	172.69	300	SC
213	9 13 0	23.08	-174.76	1485	SP, ME, ER		13.44	173.02	300	WS
213	9 14 0	26.30	-174.90	1414	WSP, ME, ER		15.09	173.46	300	Q
213	9 15 0	29.58	-175.04	1344	SM, ME, ER		17.17	174.02	300	Q
213	9 16 0	32.91	-175.16	1275	SM, ME		19.80	174.70	300	Q
213	9 17 0	36.30	-175.28	1208	SM, ME, ER		23.02	175.48	300	Q

OBJECT: 3669 ISIS I PASS SUMMARY FOR KWAJALEIN

FOR 1 AUGUST 1978 DAY 213

DAY	TIME (Z) HR MN SC	SATELLITE LOCATION		DESCRIPTION	IONOGRAM SUMMARY		PENETRATION LOCATION		SCINTILLATION SUMMARY	
		LAT	LONG		ALT KM	F-MAX MIZ	LAT	LONG		ALT NM
#213#	10 59 0	-36.21	156.86	2972	SP, ME	4.8	-7.31	164.31	300	Q
#213#	11 0 0	-33.95	156.70	2919	SM, ME	>4.0	-5.59	164.41	300	WS
#213#	11 1 0	-31.67	156.53	2865	SM, ME, ER	4.5	-4.01	164.51	300	SC
#213#	11 2 0	-29.35	156.37	2809	SM, ME	-5.0	-2.58	164.61	300	SC
#213#	11 3 0	-27.00	156.20	2751	SM, ME	-5.0	-1.30	164.70	300	SSC
#213#	11 4 0	-24.63	156.03	2691	SM, ME, ER	-5.0	-0.14	164.78	300	SSC
#213#	11 5 0	-22.22	155.86	2630	SM, ME, ER	>3.0	0.90	164.85	300	SSC
#213#	11 6 0	-19.77	155.68	2567	SM, ME	>5.0	1.83	164.90	300	VSSC
#213#	11 7 0	-17.29	155.51	2502	SM, ME	>5.0	2.67	164.95	300	VSSC
#213#	11 8 0	-14.77	155.33	2436	SM, ME, ER	>5.0	3.44	164.98	300	VSSC
#213#	11 9 0	-12.21	155.15	2368	SM, ME	>4.0	4.14	165.00	300	SAT
#213#	11 10 0	-9.61	154.98	2300	SM, ME	-5.0	4.80	165.00	300	VSSC
#213#	11 11 0	-6.97	154.80	2230	SM, ME	>7.0	5.41	164.99	300	SSC
#213#	11 12 0	-4.29	154.62	2159	SM, ME	>6.0	6.01	164.97	300	SSC
#213#	11 13 0	-1.56	154.45	2087	SM	>3.0	6.58	164.94	300	SSC
#213#	11 14 0	1.22	154.27	2015	SM	>9.0	7.16	164.88	300	SSC
#213#	11 15 0	4.05	154.10	1942	SM	>9.0	7.75	164.81	300	SSC
#213#	11 16 0	6.93	153.93	1869	SM	9.1	8.36	164.71	300	VSSC
#213#	11 17 0	9.86	153.76	1795	SM	>8.0	9.02	164.59	300	VSSC
#213#	11 18 0	12.84	153.59	1722	SM, ER	-7.0	9.75	164.43	300	VSSC
#213#	11 19 0	15.68	153.43	1648	SM	6.0	10.58	164.22	300	VSSC
#213#	11 20 0	18.97	153.27	1575	SM	>5.0	11.56	163.96	300	SC
#213#	11 21 0	22.12	153.12	1503	SM, ER	5.8	12.76	163.63	300	SC
#213#	11 22 0	25.32	152.97	1431	SM, ME, ER	>5.0	14.25	163.20	300	WS
#213#	11 23 0	28.58	152.83	1361	SM, ME	5.7	16.16	162.66	300	Q
#213#	11 24 0	31.90	152.70	1292	SM, ME	5.5	18.60	161.99	300	Q
#213#	11 25 0	35.26	152.58	1225	SM, ME	6.5	21.66	161.20	300	Q

OBJECT: 3669	ISIS I	PASS SUMMARY FUK KWAJALEIN	FUR 1 AUGUST 1978	MAY 213						
DAY	TIME (Z) HR MN SC	SATELLITE LOCATION		IONOGRAM SUMMARY		PENETRATION LOCATION		SCINTILLATION		
		LAT	LONG	ALT KM	DESCRIPTION	F-MAX MHZ	LAT	LONG	ALT KM	SUMMARY
213	20 29 0	26.40	-165.71	1046	SM, ER	7.5	19.11	-178.10	300	Q
213	20 30 0	22.85	-165.84	1107	SM, ER	8.6	16.36	-179.30	300	Q
213	20 31 0	19.36	-165.98	1171	SM, ER	8.0	14.05	179.64	300	Q
213	20 32 0	15.92	-166.13	1237	SM, ER	8.3	12.13	178.75	300	Q
213	20 33 0	12.55	-166.28	1305	SM, ER	8.2	10.51	178.02	300	Q
213	20 34 0	9.23	-166.44	1374	SM, ER	7.7	9.12	177.44	300	Q
213	20 35 0	5.97	-166.60	1444	SM, ER	7.1	7.90	176.99	300	Q
213	20 36 0	2.77	-166.77	1516	SM, ER	7.6	6.77	176.66	300	Q
213	20 37 0	-0.37	-166.93	1588	SM, ER	8.6	5.71	176.42	300	Q
213	20 38 0	-3.45	-167.10	1661	SM, ER	9.1	4.67	176.26	300	Q
213	20 39 0	-6.48	-167.26	1734	SM	>9.5	3.63	176.17	300	Q
213	20 40 0	-9.45	-167.43	1808	SM	>10.5	2.55	176.14	300	Q
213	20 41 0	-12.37	-167.60	1881	SM	>10.5	1.42	176.16	300	Q
213	20 42 0	-15.24	-167.77	1954	SM, ER	>10.5	0.22	176.23	300	Q
213	20 43 0	-18.05	-167.94	2027	SM	>10.5	-1.07	176.33	300	Q
213	20 44 0	-20.82	-168.10	2099	SM, ER	-10.6	-2.45	176.47	300	Q
213	20 45 0	-23.54	-168.27	2171	SM, ER		-3.95	176.63	300	Q
213	20 46 0	-26.21	-168.43	2242			-5.55	176.81	300	Q

OBJECT: 3669 ISIS I PASS SUMMARY FOR KWAJALEIN FOR 1 AUGUST 1978 DAY 213

DAY	TIME (Z) HH MM SS	SATELLITE LOCATION			DESCRIPTION	IONOGRAM SUMMARY		PENETRATION LOCATION		SCINTILLATION SUMMARY	
		LAT	LONG	ALT NM		F-MAX MHZ	LAT	LONG	ALT NM		
213	22 35 0	34.76	162.39	918	SM	9.2	23.29	165.01	300	Q	
213	22 36 0	31.09	162.28	973	SM, ER	9.0	19.58	165.30	300	Q	
213	22 37 0	27.47	162.16	1031	SM, ER	8.9	16.61	165.54	300	Q	
213	22 38 0	23.90	162.03	1092	SM, ER	8.8	14.32	165.74	300	Q	
213	22 39 0	20.40	161.89	1155	SM, ER	8.7	12.57	165.88	300	Q	
213	22 40 0	16.95	161.74	1220	SM, ER	8.8	11.20	165.98	300	Q	
213	22 41 0	13.56	161.59	1288	SM, ER	9.5	10.08	166.05	300	Q	
213	22 42 0	10.22	161.43	1356	SM, ER	9.6	9.12	166.08	300	Q	
213	22 43 0	6.95	161.27	1427	SM, ER	9.7	8.28	166.10	300	Q	
213	22 44 0	3.74	161.11	1498	SM	10.0	7.49	166.09	300	Q	
213	22 45 0	0.58	160.95	1570	SM	>10.0	6.74	166.07	300	Q	
213	22 46 0	-2.52	160.78	1643	SM	>10.0	6.00	166.04	300	Q	
213	22 47 0	-5.56	160.61	1716	SM	9.8	5.24	165.99	300	Q	
213	22 48 0	-8.54	160.44	1790	SM, ER	9.4	4.44	165.92	300	Q	
213	22 49 0	-11.48	160.28	1863	SM, CE(1.6)	9.5	3.59	165.85	300	Q	
213	22 50 0	-14.36	160.11	1936			2.66	165.75	300		
213	22 51 0	-17.18	159.94	2009			1.64	165.64	300		
213	22 52 0	-19.96	159.77	2082			0.50	165.52	300		
213	22 53 0	-22.69	159.61	2153			-0.77	165.38	300		
213	22 54 0	-25.38	159.45	2224			-2.19	165.22	300		
213	22 55 0	-28.02	159.29	2294			-3.76	165.05	300		
213	22 56 0	-30.61	159.13	2363			-5.50	164.87	300		
213	22 57 0	-33.17	158.97	2430			-7.39	164.68	300		

OBJECT: 3669 ISIS I PASS SUMMARY FOR KWAJALEIN FOR 2 AUGUST 1978 DAY 214

DAY	TIME (Z) HR MN SC	SATELLITE LOCATION		DESCRIPTION	IONOGRAM SUMMARY		PENETRATION LOCATION		SCINTILLATION SUMMARY
		LAT	LONG		F-MAX MIZ	LAT	LONG	ALT KM	
214	10 30 0	-37.54	163.98	2957		-8.06	166.22	300	
214	10 31 0	-35.27	162.82	2905		-6.23	166.24	300	
214	10 32 0	-32.98	162.66	2850		-4.56	166.27	300	SAT
214	10 33 0	-30.65	162.50	2793	SM, ME	-3.05	166.29	300	SAT
214	10 34 0	-28.30	162.33	2735	SM, ME	-1.68	166.31	300	SAT
214	10 35 0	-25.91	162.16	2675	SM, ME	-0.46	166.33	300	SAT
214	10 36 0	-23.49	161.99	2613	SM, ME, LR	0.63	166.35	300	VSSC
214	10 37 0	-21.04	161.82	2549	SM, ME	1.60	166.36	300	VSSC
214	10 38 0	-18.55	161.65	2484	SM, ME, CE(1.6)	2.47	166.37	300	VSSC
214	10 39 0	-16.02	161.47	2417	SM, ME	3.26	166.37	300	VSSC
214	10 40 0	-13.45	161.29	2350	SM, ME	3.98	166.37	300	VSSC
214	10 41 0	-10.84	161.12	2280	SM, ME, CE(1.4)	4.64	166.36	300	VSSC
214	10 42 0	-8.19	160.94	2210	SM, ME, WSP, ET(4)	5.26	166.34	300	VSSC
214	10 43 0	-5.49	160.77	2139	SP(>5), ME	5.85	166.32	300	SSC
214	10 44 0	-2.74	160.59	2067	VSP, STV, RSP, ET(2.3)	6.41	166.29	300	SSC
214	10 45 0	0.05	160.42	1995	VSP, STV, RSP, ME, ET(1.8)	6.97	166.25	300	VSSC
214	10 46 0	2.89	160.24	1922	WSP, STV, RSP, ET(2.1)	7.53	166.20	300	VSSC
214	10 47 0	5.78	160.07	1848	WSP, STV, RSP, ET(1.5)	8.11	166.14	300	VSSC
214	10 48 0	8.73	159.90	1775	VSP, STV, RSP, ET(1.6)	8.73	166.07	300	VSSC
214	10 49 0	11.72	159.74	1701	WSP, STV, RSP, ET(1.7)	9.40	165.97	300	VSSC
214	10 50 0	14.78	159.57	1628	VSP, STV, RSP, ET(2.6)	10.15	165.86	300	VSSC
214	10 51 0	17.88	159.41	1555	VSP, STV, RSP, ET(3.2)	11.03	165.71	300	VSSC
214	10 52 0	21.05	159.26	1483	SM, ME	12.09	165.53	300	VSSC
214	10 53 0	24.27	159.11	1412	SM, ME	13.41	165.30	300	VSSC
214	10 54 0	27.55	158.97	1342	SM, ME	15.10	164.99	300	VSSC
214	10 55 0	30.88	158.84	1273	SM, ME	17.31	164.60	300	VSSC
214	10 56 0	34.28	158.72	1206	SM, ME	20.15	164.13	300	VSSC
214	10 57 0	37.73	158.61	1141		23.69	163.58	300	SC

OBJECT: 3669 1515 I PASS SUMMARY FOR KWAJALEIN FUR 3 AUGUST 1978 DAY 215

DAY	TIME (Z) HR MN SC	SATELLITE LOCATION		DESCRIPTION	IONOGRAM SUMMARY F-MAX MIZ	PENETRATION LOCATION		SCINTILLATION SUMMARY
		LAT	LONG			LAT	LONG	
215*	10 2 0	-36.57	168.94	SM, ME, ER	5.8	-7.38	168.11	Q
215*	10 3 0	-34.27	168.79	SM, ME	5.5	-5.58	168.05	Q
215*	10 4 0	-31.94	168.63	SM, ME, ER	6.1	-3.95	167.98	Q
215*	10 5 0	-29.58	168.46	SM, ME, ER	5.5	-2.47	167.93	Q
215*	10 6 0	-27.18	168.30	SM, ME, ER	>5.0	-1.14	167.88	Q
215*	10 7 0	-24.76	168.13	SM, ME, ER	>5.5	0.04	167.83	Q
215*	10 8 0	-22.29	167.96	SM, ME, ER	5.0	1.10	167.78	Q
215*	10 9 0	-19.79	167.78	SM, ME, ER	5.5	2.04	167.74	Q
215*	10 10 0	-17.25	167.61	SM, ME, ER	5.0	2.88	167.70	Q
215*	10 11 0	-14.67	167.44	SM, ME, ER	9.5	3.65	167.67	Q
215*	10 12 0	-12.05	167.26	SM, ME, ER	>11.5	4.34	167.63	Q
215*	10 13 0	-9.39	167.09	SM, ME	>11.0	4.99	167.60	Q
215*	10 14 0	-6.68	166.91	SM	>6.0	5.60	167.56	Q
215*	10 15 0	-3.92	166.74	SM	>10.0	6.18	167.53	Q
215*	10 16 0	-1.11	166.56	SM	10.9	6.74	167.49	Q
215*	10 17 0	1.74	166.39	SM	9.4	7.31	167.46	Q
215*	10 18 0	4.65	166.22	SM	>8.0	7.88	167.42	Q
215*	10 19 0	7.61	166.05	SM	>10.0	8.48	167.38	Q
215*	10 20 0	10.62	165.88	SM	>10.0	9.13	167.33	Q
215*	10 21 0	13.69	165.72	SM	>10.0	9.85	167.28	Q
215*	10 22 0	16.81	165.56	SM	>10.0	10.68	167.22	Q
215*	10 23 0	20.00	165.40	SM	>8.0	11.66	167.15	Q
215*	10 24 0	23.23	165.26	SM	>8.5	12.88	167.06	Q
215*	10 25 0	26.53	165.11	SM, ME	6.5	14.44	166.95	Q
215*	10 26 0	29.88	164.98	SM, ME	6.3	16.48	166.81	Q
215*	10 27 0	33.30	164.86	SM, ME	6.3	19.14	166.63	Q
215*	10 28 0	36.76	164.75	SM, ME	6.0	22.54	166.42	Q

OBJECT: 3667 1515 I				PASS SUMMARY FOR NWAJAEIN				FUR 4 AUGUST 1978 DAY 216			
DAY	TIME (Z) HR MN SC	SATELLITE LOCATION			DESCRIPTION	IONOGRAM SUMMARY	F-MAX MIZ	PENETRATION LOCATION			SCINTILLATION SUMMARY
		LAT	LONG	ALT KM				LAT	LONG	ALT NM	
#216#	9 34 0	-35.56	174.91	2818	SM		-4.8	-7.13	170.01	300	VSSC
#216#	9 35 0	-33.22	174.75	2760	SM, ME		3.5	-5.35	169.86	300	VSSC
#216#	9 36 0	-30.85	174.59	2701	SM, ME		>2.5	-3.72	169.71	300	VSSC
#216#	9 37 0	-28.44	174.43	2640	SM, ME, ER		3.5	-2.25	169.57	300	SSC
#216#	9 38 0	-26.01	174.26	2577	SM, ME		>3.0	-0.93	169.44	300	SSC
#216#	9 39 0	-23.53	174.09	2512	SM, ME, ER		-4.0	0.25	169.33	300	SC
#216#	9 40 0	-21.02	173.92	2446	SM, ME		-4.4	1.31	169.22	300	SSC
#216#	9 41 0	-18.47	173.75	2379	SM, ME, WSP(NP)		5.5	2.25	169.13	300	SSC
#216#	9 42 0	-15.88	173.58	2311	SM, ME, WSP(>5)		>6.0	3.10	169.05	300	SSC
#216#	9 43 0	-13.25	173.40	2241	SM, ME		>5.0	3.86	168.97	300	SSC
#216#	9 44 0	-10.57	173.23	2170	SM, ME		>9.0	4.57	168.91	300	SSC
#216#	9 45 0	-7.85	173.05	2099	SM, ME, CE(1.3)		>11.0	5.23	168.85	300	SC
#216#	9 46 0	-5.08	172.88	2026	SM, WSP, RSP, ET(5.8)		>7.0	5.85	168.80	300	SC
#216#	9 47 0	-2.26	172.71	1953	SM, ME, CE(1.2), WSP, RSP, ET(5.2)		>9.0	6.45	168.76	300	SC
#216#	9 48 0	0.61	172.53	1880	SP(>5)		>6.0	7.04	168.73	300	SC
#216#	9 49 0	3.53	172.36	1807	VSP, STV, RSP, ET(4)		>9.0	7.63	168.70	300	SC
#216#	9 50 0	6.51	172.19	1733	SP(>5)		>7.0	8.24	168.68	300	SC
#216#	9 51 0	9.54	172.03	1660	VSP, STV, RSP, ET(4.6)		>9.5	8.90	168.67	300	SC
#216#	9 52 0	12.62	171.86	1587	SP, STV, ET(5)		>9.5	9.62	168.67	300	SC
#216#	9 53 0	15.76	171.70	1514	SP, STV, ET(7.5)		>11.5	10.44	168.68	300	VSSC
#216#	9 54 0	18.96	171.55	1443	SM		>9.5	11.41	168.69	300	VSSC
#216#	9 55 0	22.22	171.40	1372	SM		>9.0	12.59	168.73	300	VSSC
#216#	9 56 0	25.53	171.26	1303	SM, ME		6.8	14.10	168.79	300	SAT
#216#	9 57 0	28.90	171.12	1235	SM, ME		>5.5	16.05	168.87	300	SAT
#216#	9 58 0	32.33	171.00	1169	SM, ME, ER		6.1	18.62	168.97	300	SAT
#216#	9 59 0	35.82	170.89	1106	SM, ME, ER		5.5	21.92	169.10	300	SSC
#216#	10 0 0	39.36	170.79	1044				25.93	169.25	300	Q

DAY	TIME (Z) HR MN SC	SATELLITE LOCATION		DESCRIPTION	IONOGRAM SUMMARY		PENETRATION LOCATION		SCINTILLATION SUMMARY	
		LAT	LONG		ALT KM	F-MAX MHZ	LAT	LONG		ALT KM
000000	11 46 0	-26.79	142.14	2592			-4.54	158.87	300	VSSC
000000	11 47 0	-24.42	141.97	2528			-3.12	159.06	300	SAT
000000	11 48 0	-21.82	141.80	2463			-1.81	159.23	300	VSSC
000000	11 49 0	-19.28	141.63	2396	SM, ME		-0.59	159.38	300	VSSC
000000	11 50 0	-16.70	141.46	2328	SM, ME		0.53	159.50	300	VSSC
000000	11 51 0	-14.08	141.28	2258	SM, ME, ER		1.58	159.59	300	SAT
000000	11 52 0	-11.41	141.11	2188	SM, ME, ER		2.56	159.64	300	VSSC
000000	11 53 0	-8.70	140.93	2116	SM, ME, ER		3.48	159.66	300	VSSC
000000	11 54 0	-5.94	140.75	2044	SM, ME		4.37	159.63	300	SSC
000000	11 55 0	-3.13	140.59	1971	SM, ME		5.24	159.55	300	SSC
000000	11 56 0	-0.28	140.41	1898	SM, ME		6.10	159.41	300	SC
000000	11 57 0	2.63	140.24	1825	VSP, STV, ME, ET?(4.2)		6.98	159.21	300	SSC
000000	11 58 0	5.59	140.07	1751	VSP, STV, RSP, ME, CE(1.3), ET?		7.91	158.94	300	SSC
000000	11 59 0	8.61	139.90	1678	VSP, STV, RSP, ME		8.91	158.58	300	SSC
000000	12 0 0	11.68	139.74	1605	WSP, STV, RSP, ME, CE(1.3), ET?		10.02	158.12	300	SSC
000000	12 1 0	14.81	139.58	1532	VSP, STV, RSP, ME, ET?		11.29	157.53	300	SSC
000000	12 2 0	17.99	139.42	1460	VSP, STV, RSP, ME		12.78	156.81	300	SC
000000	12 3 0	21.23	139.27	1390	SP, STV, ME		14.55	155.94	300	SC
000000	12 4 0	24.53	139.13	1320	SP, STV, ME, CE(1.7)		16.67	154.91	300	SSC
000000	12 5 0	27.89	138.99	1252			19.21	153.74	300	VSSC

OBJECT: 3669 1515 I

PASS SUMMARY FOR KWAJALEIN

FUR 4 AUGUST 1978 DAY 216

DAY	TIME (Z) HR MN SC	SATELLITE LOCATION			DESCRIPTION	IONOGRAM SUMMARY		PENETRATION LOCATION			SCINTILLATION SUMMARY
		LAT	LONG	ALT KM		F-MAX MHZ		LAT	LONG	ALT KM	
216	21 9 0	33.85	-179.30	1022	SM	6.3		22.16	173.99	300	Q
216	21 10 0	30.29	-179.41	1082	SM, ER	7.1		18.79	173.21	300	Q
216	21 11 0	26.77	-179.54	1145	SM, CE(2.2), ER	8.3		16.10	172.54	300	Q
216	21 12 0	23.32	-179.68	1210	SM, ER	8.6		14.01	172.00	300	Q
216	21 13 0	19.92	-179.82	1277	SM, ER	8.6		12.38	171.57	300	Q
216	21 14 0	16.58	-179.97	1346	SM, ER	8.4		11.08	171.25	300	Q
216	21 15 0	13.30	-179.88	1416	SM, ER	8.2		10.02	171.00	300	Q
216	21 16 0	10.08	-179.72	1487	SM, ER	8.1		9.11	170.81	300	Q
216	21 17 0	6.92	-179.55	1559	SM, ER	8.3		8.30	170.66	300	Q
216	21 18 0	3.81	-179.39	1632	SM, ER	9.0		7.55	170.55	300	Q
216	21 19 0	0.76	-179.22	1705	SM	9.6		6.84	170.47	300	Q
216	21 20 0	-2.24	-179.05	1778	SM	>10.0		6.15	170.41	300	Q
216	21 21 0	-5.18	-178.88	1852	SM	>10.0		5.44	170.37	300	Q
216	21 22 0	-8.07	-178.71	1925	SM	>10.0		4.71	170.35	300	Q
216	21 23 0	-10.91	-178.54	1998	SM, ME	>10.0		3.94	170.35	300	Q
216	21 24 0	-13.69	-178.37	2071	SM, ME, CE(1.6)	8.5		3.12	170.36	300	Q
216	21 25 0	-16.43	-178.20	2143	SM, ME	>7.0		2.22	170.38	300	Q
216	21 26 0	-19.13	-178.03	2214	SM, ER	>5.0		1.23	170.42	300	Q
216	21 27 0	-21.77	-177.86	2284	SM, ME	7.6		0.13	170.48	300	Q
216	21 28 0	-24.38	-177.69	2353	SM, ME	>8.0		-1.10	170.54	300	Q
216	21 29 0	-26.94	-177.53	2420	SM, ER	>8.0		-2.46	170.61	300	Q
216	21 30 0	-29.47	-177.37	2487	SM	>8.0		-3.97	170.69	300	Q
216	21 31 0	-31.95	-177.21	2552	SM, ER	>5.0		-5.64	170.78	300	Q
216	21 32 0	-34.40	-177.05	2615	SM, ER	6.8		-7.45	170.86	300	Q

OBJECT: 3669 ISIS I PASS SUMMARY FOR NWAJALEIN FOR 4 AUGUST 1978 DAY 216

DAY	TIME (Z) HR MN SC	SATELLITE LOCATION		DESCRIPTION	IONOGRAM SUMMARY		PENETRATION LOCATION		SCINTILLATION SUMMARY		
		LAT	LONG		ALT NM	F-MAX MHZ	LAT	LONG		ALT NM	
216	23 18 0	31.34	148.45	SM, ER			20.87	158.37	300	Q	
216	23 19 0	27.81	148.33	SM, ER			8.2	17.88	159.25	300	Q
216	23 20 0	24.34	148.19	SM			9.7	15.46	160.00	300	Q
216	23 21 0	20.93	148.05	SM			>10.0	13.52	160.60	300	Q
216	23 22 0	17.58	147.90	SM			>10.0	11.95	161.06	300	Q
216	23 23 0	14.28	147.75	SM			9.5	10.66	161.41	300	Q
216	23 24 0	11.05	147.59	SM			>6.0	9.55	161.65	300	Q
216	23 25 0	7.87	147.43	SM			10.0	8.57	161.81	300	Q
216	23 26 0	4.75	147.27	SM			>10.0	7.68	161.91	300	Q
216	23 27 0	1.68	147.10	SM			>10.0	6.82	161.94	300	Q
216	23 28 0	-1.33	146.93	SM			>10.0	5.98	161.93	300	Q
216	23 29 0	-4.28	146.76	SM			>10.0	5.13	161.86	300	Q
216	23 30 0	-7.18	146.59	SM			>10.0	4.25	161.76	300	Q
216	23 31 0	-10.03	146.42	SM			>10.0	3.32	161.62	300	Q
216	23 32 0	-12.83	146.25	SM			>10.0	2.33	161.43	300	Q
216	23 33 0	-15.58	146.08	SM			>10.0	1.25	161.21	300	Q
216	23 34 0	-18.29	145.91	SM, ME			6.8	0.07	160.96	300	Q
216	23 35 0	-20.95	145.74	SM, ME			>5.0	-1.22	160.67	300	Q
216	23 36 0	-23.56	145.57	SM, ME			>8.0	-2.63	160.36	300	Q
216	23 37 0	-26.14	145.40	SM, ME			>8.0	-4.17	160.02	300	Q
216	23 38 0	-28.67	145.24	SM			>5.0	-5.84	159.67	300	Q

OBJECT: 3660 ISIS 1

PASS SUMMARY FOR KWAJALETH

FUR 5 AUGUST 1978 DAY 217

DAY	TIME (Z) HR MN SC	SATELLITE LOCATION		DESCRIPTION	IONOGRAM SUMMARY		PENETRATION LOCATION		SCINTILLATION SUMMARY	
		LAT	LONG		ALT KM	F-MAX MHZ	IAT	LONG		ALT KM
#217#	9 6 0	-34.48	-179.12	2743			-7.31	172.09	300	
#217#	9 7 0	-32.10	-179.28	2683			-5.52	171.84	300	SC
#217#	9 8 0	-29.69	-179.44	2621			-3.87	171.61	300	SC
#217#	9 9 0	-27.24	-179.60	2558			-2.38	171.39	300	VSSC
#217#	9 10 0	-24.76	-179.77	2493			-1.03	171.18	300	VSSC
#217#	9 11 0	-22.24	-179.94	2427	SM, WSP(>5), ER		0.18	170.99	300	VSSC
#217#	9 12 0	-19.68	-179.89	2359	SM, ME		1.27	170.82	300	SSC
#217#	9 13 0	-17.08	-179.72	2290	SM, ME, NSP(>5)		2.25	170.68	300	SSC
#217#	9 14 0	-14.43	-179.55	2220	SP, STV, RSP, ME, ET(2.3)		3.13	170.55	300	SSC
#217#	9 15 0	-11.74	-179.37	2149	VSP, STV, RSP, ME, ET(1.9)		3.94	170.44	300	SSC
#217#	9 16 0	-9.00	-179.20	2078	VSP, STV, RSP, ME, ET(1.5)		4.68	170.34	300	SC
#217#	9 17 0	-6.22	-179.03	2005	VSP, STV, RSP, ME, CE(1.1), ET		5.37	170.27	300	SC
#217#	9 18 0	-3.38	-178.85	1932	WSP, STV, RSP, ME		6.04	170.21	300	SC
#217#	9 19 0	-0.50	-178.68	1859	VSP, RSP		6.68	170.17	300	SC
#217#	9 20 0	2.44	-178.51	1785	VSP, STV		7.33	170.15	300	SSC
#217#	9 21 0	5.43	-178.34	1712	WSP, STV, RSP		7.99	170.14	300	SSC
#217#	9 22 0	8.47	-178.17	1639	WSP, STV, ET(2)		8.68	170.16	300	SSC
#217#	9 23 0	11.57	-178.01	1566	WSP, STV, ET(2.2), ET(1.2)		9.44	170.20	300	SSC
#217#	9 24 0	14.73	-177.85	1494	SP, STV, ET(1.5)		10.29	170.27	300	SSC
#217#	9 25 0	17.95	-177.70	1422	VSP, STV, ET(2.1)		11.29	170.38	300	VSSC
#217#	9 26 0	21.22	-177.55	1352	SM, WSP, ET(5), ER		12.51	170.54	300	SAT
#217#	9 27 0	24.55	-177.40	1283	SM		14.03	170.76	300	SAT
#217#	9 28 0	27.94	-177.27	1216	SM, ME, CE(1.8), ER		16.00	171.06	300	SAT
#217#	9 29 0	31.39	-177.14	1151	SM, ER		18.56	171.44	300	SSC
#217#	9 30 0	34.89	-177.02	1088	SM		21.81	171.90	300	WSC

OBJECT: 4669 1515 L PASS SUMMARY FOR NWA JALEIN FOR 5 AUGUST 1978 DAY 217

DAY	TIME (Z) HR MN SC	SATELLITE LOCATION			DESCRIPTION	IONOGRAM SUMMARY		PENETRATION LOCATION			SCINTILLATION SUMMARY
		LAT	LONG	ALT KM		F-MAX MHz	LAT	LONG	ALT KM		
#21/*	11 16 0	-30.46	148.44	2637	SM, ME			-5.60	161.29	300	Q
#21/*	11 17 0	-28.03	148.27	2574	SM, ME, ER			-4.04	161.47	300	Q
#21/*	11 18 0	-25.55	148.11	2509	SM, ME, ER			-2.61	161.64	300	Q
#21/*	11 19 0	-23.04	147.94	2443	SM, ME, ER			-1.30	161.79	300	Q
#21/*	11 20 0	-20.49	147.77	2376	SM, ME, ER			-0.11	161.93	300	Q
#21/*	11 21 0	-17.90	147.60	2307	SM			0.98	162.04	300	Q
#21/*	11 22 0	-15.26	147.43	2238	SM, ME, ER			1.98	162.13	300	Q
#21/*	11 23 0	-12.58	147.25	2167	SM, ME, ER			2.90	162.19	300	Q
#21/*	11 24 0	-9.86	147.08	2095	SM, ME			3.75	162.22	300	Q
#21/*	11 25 0	-7.09	146.90	2023	SM, ME			4.56	162.22	300	Q
#21/*	11 26 0	-4.26	146.73	1950	SM, ME, CE(1.7)			5.34	162.19	300	Q
#21/*	11 27 0	-1.39	146.56	1877	SM, ME			6.10	162.11	300	Q
#21/*	11 28 0	1.53	146.39	1804	SM, ME			6.87	162.00	300	Q
#21/*	11 29 0	4.51	146.22	1730	SM, ME			7.66	161.84	300	Q
#21/*	11 30 0	7.54	146.05	1657	SM			8.50	161.62	300	Q
#21/*	11 31 0	10.63	145.89	1584	SM			9.42	161.52	300	Q
#21/*	11 32 0	13.77	145.73	1511	SM			10.47	160.94	300	Q
#21/*	11 33 0	16.97	145.57	1440	SM, ER			11.70	160.46	300	Q
#21/*	11 34 0	20.23	145.42	1369	SM, ER			13.19	159.84	300	Q
#21/*	11 35 0	23.55	145.27	1300	SM, ER			15.01	159.07	300	Q
#21/*	11 36 0	26.92	145.13	1233	SM, ME			17.28	158.13	300	Q
#21/*	11 37 0	30.36	145.00	1167	SM, ME			20.05	157.05	300	Q

OBJECT: 3669 ISIS I PASS SUMMARY FOR KWAJALEIN FOR 6 AUGUST 1978 DAY 218

DAY	TIME (Z) HR MN SC	SATELLITE LOCATION		DESCRIPTION	IONOGRAM SUMMARY		PENETRATION LOCATION		SCINTILLATION SUMMARY
		LAT	LONG		F-MAX MHz	ALT KM	LAT	LONG	
218	8 39 0	-30.98	-173.31	SM, ME, ER	4.5	2605	-6.14	174.19	SC
218	8 40 0	-28.53	-173.47	SM, ME, ER	4.5	2541	-4.45	173.87	SC
218	8 41 0	-26.04	-173.63	SM, ME, ER	4.9	2476	-2.90	173.57	SC
218	8 42 0	-23.51	-173.80	SM, ME, ER	5.0	2409	-1.49	173.29	VSSC
218	8 43 0	-20.93	-173.97	SM, WSP(NP), ER	5.5	2341	-0.21	173.03	VSSC
218	8 44 0	-18.32	-174.14	SM, ME, ER	5.5	2272	0.95	172.79	SC
218	8 45 0	-15.66	-174.31	SM, ME, WSP(>5)	>6.5	2202	2.00	172.58	SC
218	8 46 0	-12.96	-174.49	SM, ME	>6.0	2131	2.96	172.41	SC
218	8 47 0	-10.21	-174.66	SM, ME, WSP(>5)	>6.5	2059	3.84	172.26	SC
218	8 48 0	-7.42	-174.83	VSP, STV, RSP, ME, ET(2.7)	>11.0	1986	4.65	172.14	SC
218	8 49 0	-4.57	-175.00	VSP, STV, RSP, ME, ET(2.2)	>9.0	1913	5.43	172.05	SC
218	8 50 0	-1.67	-175.17	VSP, STV, RSP, ME, ET(2.2)	>9.0	1840	6.17	171.99	SC
218	8 51 0	1.28	-175.35	VSP, STV, RSP	>9.0	1766	6.91	171.96	SC
218	8 52 0	4.28	-175.51	VSP, STV, ET(2)	>10.0	1693	7.65	171.97	SC
218	8 53 0	7.34	-175.68	VSP, STV, ET(2.5)	>9.5	1619	8.42	172.01	SC
218	8 54 0	10.46	-175.84	VSP, STV, ET(2.9)	>9.5	1547	9.26	172.10	SC
218	8 55 0	13.63	-176.00	SP, STV, ME, ET(5.5)	>7.0	1475	10.19	172.25	VSSC
218	8 56 0	16.86	-176.16	SM, ME, ER	>8.5	1404	11.28	172.46	VSSC
218	8 57 0	20.15	-176.31	SM	6.1	1334	12.58	172.76	Q
218	8 58 0	23.50	-176.46	SM, ER	5.5	1265	14.19	173.16	Q
218	8 59 0	26.91	-176.59	SM, ME, ER	6.0	1199	16.24	173.68	Q
218	9 0 0	30.37	-176.72	SM, ME	5.5	1134	18.85	174.33	Q
218	9 1 0	33.89	-176.84	SM, ME, ER	5.7	1071	22.08	175.09	Q

UNIT: 466Y JST: I PASS SUMMARY FOR NWA JALEIN FOR 6 AUGUST 1978 DAY 218

DAY	TIME (Z) HR MN SC	SATELLITE LOCATION		DESCRIPTION	IONOGRAM SUMMARY		PENETRATION LOCATION		SCINTILLATION SUMMARY	
		LAT	LONG		ALT NM	F-MAX MHZ	LAT	LONG		ALT NM
#218*	10 46 0	-34.17	154.72	2682	SM, ME, ER	-5.0	-7.36	163.36	300	SC
#218*	10 47 0	-31.76	154.57	2620	SM, ME	>3.0	-5.60	163.49	300	MS
#218*	10 48 0	-29.32	154.40	2557	SM, ME	-5.0	-3.98	163.62	300	MS
#218*	10 49 0	-26.83	154.24	2492	SM, ME	5.5	-2.50	163.74	300	MS
#218*	10 50 0	-24.31	154.07	2426	SM, ME ER	>5.0	-1.17	163.85	300	Q
#218*	10 51 0	-21.75	153.91	2358	SM, ME	5.5	0.03	163.94	300	Q
#218*	10 52 0	-19.15	153.74	2289	SM, ME	5.7	1.12	164.02	300	Q
#218*	10 53 0	-16.50	153.57	2219	SM, ME	5.8	2.10	164.09	300	Q
#218*	10 54 0	-13.81	153.39	2148	SM, ME	>5.0	3.00	164.13	300	Q
#218*	10 55 0	-11.08	153.22	2076	SM, ME	-5.5	3.82	164.16	300	Q
#218*	10 56 0	-8.29	153.05	2004	SM, ME, ER	5.5	4.59	164.16	300	Q
#218*	10 57 0	-5.46	152.88	1931	SM, ME	9.0	5.32	164.15	300	Q
#218*	10 58 0	-2.57	152.70	1858	SM, ME	9.0	6.03	164.11	300	Q
#218*	10 59 0	0.37	152.53	1784	SM, ME	>10.0	6.73	164.04	300	Q
#218*	11 0 0	3.36	152.36	1711	SM	>10.0	7.44	163.95	300	Q
#218*	11 1 0	6.40	152.20	1637	SM	9.9	8.18	163.82	300	Q
#218*	11 2 0	9.51	152.03	1565	SM	9.5	8.99	163.64	300	Q
#218*	11 3 0	12.67	151.87	1492	SM	9.6	9.88	163.41	300	Q
#218*	11 4 0	15.88	151.71	1421	SM	>9.5	10.93	163.11	300	Q
#218*	11 5 0	19.16	151.56	1351	SM	>7.0	12.18	162.72	300	Q
#218*	11 6 0	22.49	151.41	1282	SM, CE(1.6), ER	6.7	13.73	162.22	300	Q
#218*	11 7 0	25.88	151.27	1215	SM, ER	6.3	15.70	161.58	300	Q
#218*	11 8 0	29.33	151.14	1150			18.20	160.79	300	Q
#218*	11 9 0	32.84	151.02	1087			21.32	159.87	300	Q

UNRELI: 3669 ISIS I PASS SUMMARY FOR KWAJALEIN FOR 7 AUGUST 1978 DAY 219

DAY	TIME (Z)		SATELLITE LOCATION		DESCRIPTION	IONOGRAM SUMMARY		PENETRATION LOCATION		SCINTILLATION SUMMARY	
	HR	MM	LAT	LONG		F-MAX	MUF	LAT	LONG	ALT	NM
#219*	8	12	0	-27.27	-167.50	2457	SM, ME, CE(1.7), ER	-5.40	176.73	300	SC
#219*	8	13	0	-24.73	-167.66	2390	SM, ME	-4.0	176.36	300	SSC
#219*	8	14	0	-22.14	-167.83	2322	SM, ME	>6.0	176.02	300	SSC
#219*	8	15	0	-19.52	-168.00	2252	SM, ME	>9.5	175.69	300	SSC
#219*	8	16	0	-16.85	-168.17	2182	SM, ME, WSP(>5)	>9.0	175.40	300	SSC
#219*	8	17	0	-14.14	-168.34	2110	SM, ME, WSP(>4)	>9.5	175.14	300	VSSC
#219*	8	18	0	-11.37	-168.51	2038	SM, WSP(>5)	>8.0	174.92	300	SSC
#219*	8	19	0	-8.56	-168.69	1965	SM, RSP	>9.5	174.74	300	SSC
#219*	8	20	0	-5.70	-168.86	1892	SM, RSP	>8.0	174.61	300	SSC
#219*	8	21	0	-2.79	-169.03	1819	SM, RSP	>7.5	174.52	300	SSC
#219*	8	22	0	0.18	-169.20	1745	SP, STV, RSP	~7.0	174.48	300	SC
#219*	8	23	0	3.20	-169.37	1672	VSP, STV, RSP, ET(2.8)	>9.0	174.50	300	WS
#219*	8	24	0	6.27	-169.53	1599	SP, STV, ET(3.1)	>9.0	174.58	300	WS
#219*	8	25	0	9.41	-169.70	1526	VSP, STV, ET(3.9)	>10.0	174.73	300	Q
#219*	8	26	0	12.60	-169.86	1454	SP, STV, ET(5.9)	>9.5	174.96	300	Q
#219*	8	27	0	15.84	-170.01	1384	SM	11.5	175.30	300	Q
#219*	8	28	0	19.15	-170.17	1314	SM	>9.5	175.76	300	Q
#219*	8	29	0	22.52	-170.31	1246	SM, ER	~8.0	176.35	300	Q
#219*	8	30	0	25.94	-170.45	1180	SM, ER	7.0	177.10	300	Q
#219*	8	31	0	29.42	-170.58	1116	SM, ER	>5.5	177.99	300	SSC

 000000 0000 1015 1 PASS SUMMARY FOR DATE IN FOR / AUGUST 1978 DAY 219 *****

DAY	TIME (Z) HR MN SEC	SATELLITE LOCATION		DESCRIPTION	IONOGRAM SUMMARY		PENETRATION LOCATION		SCINTILLATION SUMMARY	
		LAT	LONG		F-MAX MHz	LAT	LONG			
219	10 17 0	-35.43	160.85	SP, ME, ER		4.8	-7.89	165.43	300	VSSC
219	10 18 0	-33.01	160.69	SP, ME		>5.0	-6.03	165.48	300	VSSC
219	10 19 0	-30.56	160.54	SM, ME, ER		>4.0	-4.33	165.53	300	VSSC
219	10 20 0	-28.07	160.38	SM, ME		>5.0	-2.78	165.58	300	VSSC
219	10 21 0	-25.53	160.21	SM, ME, CE(1.8), ER		>4.8	-1.38	165.63	300	SAT
219	10 22 0	-22.96	160.04	SM, ME		>4.8	-0.13	165.67	300	VSSC
219	10 23 0	-20.35	159.88	SM, ME, CE(1.6), ER		4.8	0.99	165.71	300	VSSC
219	10 24 0	-17.69	159.71	SM, ME		5.0	1.99	165.73	300	VSSC
219	10 25 0	-14.99	159.54	SM, ME		5.0	2.90	165.75	300	VSSC
219	10 26 0	-12.24	159.36	SM		>6.0	3.73	165.75	300	SSC
219	10 27 0	-9.44	159.19	SM, MSP(>8.5), ME		>9.0	4.50	165.75	300	SSC
219	10 28 0	-6.59	159.02	SM		>7.0	5.21	165.73	300	SSC
219	10 29 0	-3.69	158.85	SM, RSP, ET(3.8), ME		>11.0	5.90	165.70	300	SSC
219	10 30 0	-0.74	158.68	SM, RSP		>9.0	6.57	165.66	300	SSC
219	10 31 0	2.27	158.51	SM, RSP, ET(2.8), ME		>9.0	7.24	165.60	300	SSC
219	10 32 0	5.33	158.34	SP, STV, RSP, ET(2.8), ET(6)		>8.0	7.93	165.52	300	SSC
219	10 33 0	8.45	158.18	MSP, RSP, ET(3)		>7.5	8.67	165.42	300	VSSC
219	10 34 0	11.63	158.02	SP, STV, ET(4.2), ET(7)		>9.5	9.48	165.28	300	SSC
219	10 35 0	14.86	157.86	SM		>9.5	10.41	165.11	300	SC
219	10 36 0	18.15	157.71	SM		>10.0	11.52	164.89	300	WSC
219	10 37 0	21.50	157.56	SM		8.0	12.88	164.60	300	Q
219	10 38 0	24.91	157.42	SM		7.2	14.61	164.22	300	Q
219	10 39 0	28.38	157.29	SM, ER		6.9	16.87	163.74	300	Q
219	10 40 0	31.90	157.16	SM, ME(<2.5)		7.0	19.77	163.15	300	Q
219	10 41 0	35.48	157.05	SM, ME		7.0	23.37	162.48	300	Q

OBJECT: 3669 ISIS 1 PASS SUMMARY FOR KWAJALEIN FOR 7 AUGUST 1978 DAY 219

DAY	TIME (Z) HR MN SC	SATELLITE LOCATION			DESCRIPTION	IONOGRAM SUMMARY		PENETRATION LOCATION			SCINTILLATION SUMMARY
		LAT	LONG	ALT KM		F-MAX	MEZ	LAT	LONG	ALT NM	
#219*	21 50 0	37.74	166.98	1057	SM, ME			24.14	167.37	300	Q
#219*	21 51 0	34.20	166.87	1119	SM		9.8	20.40	167.38	300	Q
#219*	21 52 0	30.73	166.75	1183	SM, ME, ER		9.7	17.41	167.38	300	Q
#219*	21 53 0	27.31	166.63	1249	SM		9.3	15.11	167.38	300	Q
#219*	21 54 0	23.95	166.49	1317	SM, ER		9.0	13.36	167.37	300	Q
#219*	21 55 0	20.65	166.34	1387	SM, ME(<2), ER		8.9	12.00	167.36	300	Q
#219*	21 56 0	17.41	166.19	1458	SM, ER		8.6	10.92	167.35	300	Q
#219*	21 57 0	14.22	166.03	1529	SM, ER		8.7	10.02	167.33	300	Q
#219*	21 58 0	11.09	165.87	1602	SM		8.6	9.25	167.31	300	Q
#219*	21 59 0	8.02	165.71	1675	SM, ER		8.8	8.56	167.29	300	Q
#219*	22 0 0	5.00	165.54	1748	SM		9.6	7.93	167.26	300	Q
#219*	22 1 0	2.04	165.37	1822	SM		>10.0	7.32	167.24	300	Q
#219*	22 2 0	-0.87	165.20	1895	SM		>10.0	6.73	167.20	300	Q
#219*	22 3 0	-3.73	165.02	1969	SM		>10.0	6.13	167.17	300	Q
#219*	22 4 0	-6.54	164.85	2041	SM, CE(1.6)		>10.0	5.52	167.13	300	Q
#219*	22 5 0	-9.30	164.68	2114	SM, CE(1.3)		>10.0	4.88	167.08	300	Q
#219*	22 6 0	-12.02	164.50	2185	SM		>10.0	4.20	167.03	300	Q
#219*	22 7 0	-14.68	164.33	2255	SM, CE(1.3)		>10.0	3.46	166.97	300	Q
#219*	22 8 0	-17.31	164.16	2325	SM, ME		>10.0	2.65	166.91	300	Q
#219*	22 9 0	-19.89	163.98	2393	SM, ME		>10.0	1.75	166.84	300	Q
#219*	22 10 0	-22.43	163.81	2460	SM, ME, CE(1.7)		>10.0	0.75	166.77	300	Q
#219*	22 11 0	-24.94	163.64	2526	SM, ME		>10.0	-0.37	166.68	300	Q
#219*	22 12 0	-27.40	163.47	2590	SM, ME		9.5	-1.63	166.59	300	Q
#219*	22 13 0	-29.83	163.31	2653	SM, ME, ER		8.2	-3.03	166.48	300	Q
#219*	22 14 0	-32.23	163.15	2713	SM, ME		8.0	-4.60	166.37	300	Q
#219*	22 15 0	-34.59	162.99	2772	SM, ME		8.5	-6.32	166.26	300	Q
#219*	22 16 0	-36.92	162.84	2830	SM, ME		8.0	-8.20	166.13	300	Q

ORBIT: 4669 ISIS I PASS SUMMARY FOR KWAJALEIN FUR 8 AUGUST 1978 DAY 220

DAY	TIME (Z) HR MM SS	SATELLITE LOCATION			DESCRIPTION	IONOGRAM SUMMARY		PENETRATION LOCATION			SCINTILLATION SUMMARY
		LAT	LONG	ALT KM		F-MAX MHZ	LAT	LONG	ALT KM		
#220*	7 46 0	-20.70	-161.86	2232	SM, CE(1.8)	>5.0	-3.42	179.66	300	MS	
#220*	7 47 0	-18.02	-162.03	2161	SM, ME, CE(1.3)	>8.0	-1.92	179.31	300	MS	
#220*	7 48 0	-15.29	-162.20	2089	SM, ME, RSP	>6.0	-0.52	179.00	300	MS	
#220*	7 49 0	-12.52	-162.37	2017	SM, ME, RSP, ET(2.7)	>9.5	0.79	178.72	300	MS	
#220*	7 50 0	-9.69	-162.54	1944	SM	>8.0	2.02	178.50	300	SC	
#220*	7 51 0	-6.82	-162.71	1871	SM, RSP	>9.8	3.19	178.32	300	SC	
#220*	7 52 0	-3.89	-162.88	1797	SM, RSP, ER	>8.5	4.32	178.21	300	SC	
#220*	7 53 0	-0.91	-163.05	1724	SM, ER	>8.0	5.42	178.16	300	SSC	
#220*	7 54 0	2.13	-163.22	1651	SM, RSP(NP)	8.8	6.52	178.20	300	SSC	
#220*	7 55 0	5.22	-163.38	1578	SM	>8.0	7.64	178.32	300	VSSC	
#220*	7 56 0	8.37	-163.55	1505	SM	>10.0	8.84	178.54	300	VSSC	
#220*	7 57 0	11.58	-163.71	1434	SM	>10.0	10.14	178.88	300	VSSC	
#220*	7 58 0	14.84	-163.87	1364	SM	>10.0	11.61	179.34	300	VSSC	
#220*	7 59 0	18.17	-164.02	1294	SM	>10.0	13.32	179.96	300	SAT	
#220*	8 0 0	21.55	-164.17	1227	SM	>8.0	15.32	-179.28	300	SAT	
#220*	8 1 0	24.99	-164.31	1161	SM, ER	7.8	17.71	-178.37	300	VSSC	

OBJECT: 3659 ISIS 1

PASS SUMMARY FOR KWAJALEIN

FOK 8 AUGUST 1978

MAY 220

DAY	TIME (Z) HR MN SC	SATELLITE LOCATION			DESCRIPTION	IONOGRAM SUMMARY	F-MAX MIZ	PENETRATION LOCATION			SCINTILLATION SUMMARY
		LAT	LONG	ALT KM				LAT	LONG	ALT KM	
#220#	9 49 0	-34.25	166.82	2584	SM, ME, ER		-4.9	-6.96	167.43	300	VSSC
#220#	9 50 0	-31.79	166.67	2520	SM, ME, ER		5.0	-5.14	167.40	300	SSC
#220#	9 51 0	-29.28	166.51	2454	SM, ME, ER		5.0	-3.48	167.37	300	WS
#220#	9 52 0	-26.74	166.35	2387	SM, ME, ER		4.9	-1.99	167.34	300	SSC
#220#	9 53 0	-24.16	166.18	2318	SM, ME, ER		5.0	-0.65	167.31	300	SSC
#220#	9 54 0	-21.53	166.02	2249	SM, ME, CE(1.5)		4.3	0.55	167.28	300	SSC
#220#	9 55 0	-18.86	165.85	2178	SM, ME, ER		5.0	1.62	167.26	300	VSSC
#220#	9 56 0	-16.15	165.68	2107	SM, ME		>5.0	2.58	167.23	300	SSC
#220#	9 57 0	-13.38	165.51	2035	SM, ME		>9.0	3.45	167.20	300	VSSC
#220#	9 58 0	-10.57	165.34	1962	SM, ME, MSP(>5)		>8.0	4.24	167.18	300	VSSC
#220#	9 59 0	-7.71	165.17	1889	SM, MSP, ET(2.6)		>9.0	4.98	167.15	300	VSSC
#220#	10 0 0	-4.79	165.00	1815	SM, RSP, ET(2.3g, 3.7)		>9.0	5.68	167.11	300	VSSC
#220#	10 1 0	-1.83	164.83	1742	SP, STV, RSP, ET(2.1, 3.2, 4)		>7.0	6.35	167.08	300	VSSC
#220#	10 2 0	1.20	164.66	1669	VSP, STV, RSP, ET(2.2, 9.3, 2)		-8.5	7.02	167.03	300	SSC
#220#	10 3 0	4.28	164.49	1596	VSP, STV, RSP, ET(2.9)		>6.5	7.70	166.99	300	SSC
#220#	10 4 0	7.41	164.33	1523	VSP, STV, RSP, ET(3)		>5.0	8.41	166.93	300	VSSC
#220#	10 5 0	10.60	164.17	1451	VSP, STV, ET(3.2)		>7.0	9.18	166.86	300	SSC
#220#	10 6 0	13.86	164.01	1381	SP, STV, ET(5)		>7.0	10.05	166.78	300	SSC
#220#	10 7 0	17.16	163.85	1311	SP, STV, ET(7)		>10.0	11.08	166.68	300	VSSC
#220#	10 8 0	20.53	163.71	1243	SM		>10.0	12.33	166.55	300	VSSC
#220#	10 9 0	23.96	163.56	1177	SM		9.7	13.92	166.39	300	VSSC
#220#	10 10 0	27.44	163.43	1113	SM, ER		8.9	15.99	166.18	300	VSSC
#220#	10 11 0	30.99	163.31	1052	SM, ME(<2.2), ER		8.1	18.71	165.91	300	SAT
#220#	10 12 0	34.58	163.19	992	SM, ER		8.0	22.17	165.59	300	SC

OBJECT: 3669 TSIS I PASS SUMMARY FOR KWAJALEIN FOR 8 AUGUST 1978 DAY 220

DAY	TIME (Z) HR MN SC	SATELLITE LOCATION			DESCRIPTION	IONOGRAM SUMMARY		PENETRATION LOCATION			SCINTILLATION SUMMARY
		LAT	LONG	ALT KM		F-MAX MHz	LAT	LONG	ALT KM		
#220*	21 21 0	38.65	173.11	1074	SM, ME			24.98	170.31	300	Q
#220*	21 22 0	35.13	173.01	1137	SM, ME			21.14	169.95	300	Q
#220*	21 23 0	31.68	172.90	1202	SM, ME			18.02	169.63	300	Q
#220*	21 24 0	28.28	172.77	1269	SM, ME(<2.2), CE(1.9), ER			15.60	169.37	300	Q
#220*	21 25 0	24.93	172.63	1337	SM, ER			13.76	169.16	300	Q
#220*	21 26 0	21.65	172.49	1407	SM			12.34	169.00	300	Q
#220*	21 27 0	18.42	172.34	1478	SM, ER			11.21	168.87	300	Q
#220*	21 28 0	15.25	172.18	1550	SM			10.28	168.77	300	Q
#220*	21 29 0	12.14	172.02	1623	SM			9.49	168.69	300	Q
#220*	21 30 0	9.09	171.85	1696	SM, ER			8.9	168.62	300	Q
#220*	21 31 0	6.08	171.69	1770	SM			8.16	168.56	300	Q
#220*	21 32 0	3.14	171.52	1843	SM			7.57	168.51	300	Q
#220*	21 33 0	0.24	171.34	1917	SM			6.99	168.47	300	Q
#220*	21 34 0	-2.60	171.17	1990	SM, ME			6.41	168.43	300	Q
#220*	21 35 0	-5.40	171.00	2063	SM, ME, CE(1.5)			5.83	168.40	300	Q
#220*	21 36 0	-8.15	170.82	2134	SM, ME, CE(1.4)			5.23	168.37	300	Q
#220*	21 37 0	-10.85	170.65	2206	SM, ME			4.59	168.34	300	Q
#220*	21 38 0	-13.50	170.47	2276	SM, ME			3.91	168.32	300	Q
#220*	21 39 0	-16.12	170.30	2345	SM, ME			3.16	168.29	300	Q
#220*	21 40 0	-18.69	170.12	2413	SM, ME, ER			2.34	168.27	300	Q
#220*	21 41 0	-21.22	169.95	2480	SM, ME			1.43	168.25	300	Q
#220*	21 42 0	-23.71	169.78	2545	SM			0.42	168.23	300	Q
#220*	21 43 0	-26.16	169.61	2608	SM, ER			-0.72	168.21	300	Q
#220*	21 44 0	-28.58	169.44	2670	SM, ER			-2.00	168.19	300	Q
#220*	21 45 0	-30.97	169.28	2731	SM			-3.43	168.16	300	Q
#220*	21 46 0	-33.33	169.12	2789	SM, ER			-5.01	168.14	300	Q
#220*	21 47 0	-35.65	168.96	2846	SM, ME			-6.75	168.11	300	Q

DAY	TIME (Z)	IR	HR	SC	SAT	LAT	LONG	ALT NM	DESCRIPTION	IONOGRAM SUMMARY	F-MAX MIZ	LAT	LONG	ALT NM	SCINTILLATION SUMMARY
#221*	9 20	0			-35.43	172.95	2565					-8.43	169.53	300	
#221*	9 21	0			-33.00	172.80	2500					-6.47	169.40	300	
#221*	9 22	0			-30.49	172.64	2434		SM, ME, LR		-5.0	-4.67	169.27	300	Q
#221*	9 23	0			-27.93	172.48	2367		SM, ME, ER		-5.0	-3.04	169.15	300	Q
#221*	9 24	0			-25.34	172.32	2298		SM, ME, ER		-5.2	-1.56	169.04	300	Q
#221*	9 25	0			-22.70	172.16	2228		SM, ME, ER		-5.0	-0.24	168.94	300	Q
#221*	9 26	0			-20.02	171.99	2157		SM, ME, ER		-5.0	0.94	168.85	300	Q
#221*	9 27	0			-17.29	171.82	2086		SM, ME, ER		-5.0	1.99	168.77	300	Q
#221*	9 28	0			-14.51	171.65	2013		SM, ME		>9.5	2.94	168.69	300	Q
#221*	9 29	0			-11.69	171.48	1941		SM, ME		-11.0	3.81	168.53	300	Q
#221*	9 30	0			-8.81	171.31	1867		SM, ME, RSP, ET(5.3), CE(1.5)		>10.0	4.60	168.57	300	Q
#221*	9 31	0			-5.88	171.14	1794		SM, ME, RSP, ET(3.8)		>9.0	5.34	168.52	300	SC
#221*	9 32	0			-2.90	170.97	1720		SP, ME, RSP, ET(3.1, 5.2), CE(1.3)		>9.5	6.05	168.48	300	WS
#221*	9 33	0			0.14	170.81	1647		VSP, STV, RSP, ET(2.9, 4.3)		-9.0	6.74	168.44	300	WS
#221*	9 34	0			3.24	170.64	1574		SM, RSP, ET(2.9, 4.8)		-9.0	7.44	168.41	300	Q
#221*	9 35	0			6.39	170.48	1502		SM, RSP, ET(3, 4.2)		8.6	8.16	168.38	300	Q
#221*	9 36	0			9.60	170.31	1431		SM, RSP, ET(4, 5.8)		9.1	8.93	168.36	300	VSSC
#221*	9 37	0			12.87	170.16	1360		SM		>7.0	9.80	168.35	300	VSSC
#221*	9 38	0			16.20	170.00	1291		SM		>10.0	10.80	168.35	300	SAT
#221*	9 39	0			19.58	169.85	1224		SM		>10.0	12.01	168.35	300	WS
#221*	9 40	0			23.03	169.71	1158		SM, ER		9.5	13.54	168.36	300	WS
#221*	9 41	0			26.53	169.58	1095		SM, CE(1.8), ER		7.4	15.52	168.39	300	Q
#221*	9 42	0			30.09	169.45	1034		SM, ME, ER		6.9	18.13	168.43	300	Q
#221*	9 43	0			33.70	169.34	976		SM		6.7	21.49	168.48	300	Q
#221*	9 44	0			37.37	169.24	920		SM, ER		6.4	25.57	168.53	300	Q

OBJECT: 4669 1515 I

PASS SUMMARY FOR KWAJALEIN

FOR 10 AUGUST 1978 MAY 222

DAY	TIME (Z) HR MN SS	SATELLITE LOCATION		DESCRIPTION	IONOGRAM SUMMARY	F-MAX Mhz	PENETRATION LOCATION		SCINTILLATION SUMMARY	
		LAT	LONG				LAT	LONG		
222	0 53 0	-31.68	178.78	2414	SM, ME, ER	5.5	-6.41	171.50	300	Q
222	0 54 0	-29.11	178.62	2346	SM, ME, ER	>5.0	-4.61	171.28	300	Q
222	0 55 0	-26.51	178.46	2277	SM, ME, CE(1.8), ER	5.2	-2.97	171.07	300	Q
222	0 56 0	-23.86	178.30	2207	SM, ME	>5.5	-1.48	170.88	300	WS
222	0 57 0	-21.16	178.13	2136	SM, ME, ER	5.2	-0.14	170.70	300	Q
222	0 58 0	-18.42	177.96	2064	SM, ME	5.0	1.06	170.54	300	WS
222	0 59 0	-15.63	177.80	1992	SM, ME, CE(1.6), ER	>7.0	2.14	170.41	300	Q
222	0 0 0	-12.79	177.63	1919	SM	>7.0	3.11	170.29	300	Q
222	0 1 0	-9.90	177.46	1845	SM, RSP(>5)	>11.0	4.00	170.19	300	Q
222	0 2 0	-6.91	177.29	1772	SM, RSP(>5)	>7.0	4.83	170.11	300	SC
222	0 3 0	-3.95	177.12	1698	SM, RSP, ET(2.9)	>7.0	5.61	170.04	300	SC
222	0 4 0	-0.89	176.96	1625	SP, STV, RSP, ET(2.9, 5)	>7.0	6.37	170.00	300	SSC
222	0 5 0	2.22	176.79	1553	SP, STV, RSP, ET(2.9, 4.4)	>9.2	7.12	169.97	300	SSC
222	0 6 0	5.39	176.63	1481	VSP, STV, ET(4.7)	>9.2	7.89	169.97	300	SC
222	0 7 0	8.61	176.46	1410	VSP, STV, ET(5.5), RSP	>10.1	8.71	169.92	300	SC
222	0 8 0	11.90	176.31	1340	WSP, ET(8.9)	>9.5	9.61	170.04	300	WS
222	0 9 0	15.25	176.15	1271	SM	10.2	10.64	170.13	300	SC
222	0 10 0	18.65	176.00	1204	SM, ER	8.6	11.88	170.25	300	WS
222	0 11 0	22.11	175.86	1139	SM, ER	7.1	13.43	170.44	300	Q
222	0 12 0	25.63	175.72	1077	SM, ER	6.8	15.42	170.69	300	Q
222	0 13 0	29.21	175.59	1017	SM, ER	6.7	18.01	171.03	300	Q
222	0 14 0	32.84	175.48	959	SM, ER	6.9	21.32	171.42	300	Q
222	0 15 0	36.53	175.38	905			25.33	171.06	300	Q

OBJECT: 3669 1515 I PASS SUMMARY FOR KMAJALIN FOR 11 AUGUST 1978 DAY 223

DAY	TIME (Z) HR MN SC	SATELLITE LOCATION			DESCRIPTION	IONOGRAM SUMMARY	F-MAX MIZ	PENETRATION LOCATION			SCINTILLATION SUMMARY
		LAT	LONG	ALT NM				LAT	LONG	ALT NM	
223	01 25 0	-30.28	-175.25	2326				-6.78	173.93	300	
223	01 26 0	-27.66	-175.40	2256	SM, ME, ER		-5.0	-4.96	173.63	300	VSSC
223	01 27 0	-25.00	-175.56	2186	SM, ME, ER		>5.5	-3.28	173.34	300	VSSC
223	01 28 0	-22.29	-175.73	2114	SM, ME		>9.5	-1.74	173.06	300	SSC
223	01 29 0	-19.53	-175.89	2042	SM, ME		>7.5	-0.35	172.81	300	SSC
223	01 30 0	-16.73	-176.06	1970	SP, STV, RSP		>9.0	0.91	172.59	300	SSC
223	01 31 0	-13.87	-176.23	1897	VSP, STV, RSP, ET(2.8)		>8.0	2.06	172.40	300	SSC
223	01 32 0	-10.96	-176.39	1823	VSP, STV, RSP, ET(1.9)		>5.0	3.10	172.23	300	SC
223	01 33 0	-8.00	-176.56	1750	WVSP, STV, RSP, ET(1.7)		>4.0	4.07	172.10	300	SC
223	01 34 0	-4.99	-176.73	1676	WVSP, STV, RSP, ET(1.3)		>2.0	4.97	172.01	300	SSC
223	01 35 0	-1.91	-176.90	1603	VSP, STV, RSP, ET(1.3)		>7.0	5.84	171.95	300	VSSC
223	01 36 0	1.21	-177.06	1531	WVSP, STV, RSP, ET(1.3)		>6.0	6.69	171.92	300	VSSC
223	01 37 0	4.40	-177.22	1459	WVSP, STV, RSP, ET(1.3)		>7.0	7.55	171.94	300	VSSC
223	01 38 0	7.65	-177.39	1388	WVSP, STV, ET(1.6)		>9.5	8.46	172.00	300	VSSC
223	01 39 0	10.95	-177.54	1319	WVSP, STV, ET(1.65)		>10.0	9.45	172.12	300	VSSC
223	01 40 0	14.32	-177.70	1251	VSP, STV, ET(2.2)		>10.0	10.58	172.30	300	VSSC
223	01 41 0	17.74	-177.85	1185	SM, RSP, ET(3.4)		>10.0	11.92	172.57	300	SAT
223	01 42 0	21.22	-177.99	1120	SM, RSP, ET(7.8)		>10.0	13.57	172.94	300	SAT
223	01 43 0	24.76	-178.13	1058	SM, ER		9.5	15.66	173.43	300	SAT
223	01 44 0	28.35	-178.26	999	SM, ER		7.2	18.32	174.05	300	WS
223	01 45 0	32.00	-178.38	942	SM, ER		-7.0	21.64	174.77	300	WS

OBJECT: 3669 ISIS I PASS SUMMARY FOR NUAJALFIN FUR 11 AUGUST 1978 DAY 223

DAY	TIME (Z) HR MN SC	SATELLITE LOCATION		DESCRIPTION	IONOGRAM SUMMARY	F-MAX MIZ	PENETRATION LOCATION		SCINTILLATION SUMMARY	
		LAT	LONG				LAT	LONG		ALT KM
223	10 33 0	-31.09	152.63	SM, ME		-5.5	-7.01	162.28	300	SAT
223	10 34 0	-28.48	152.47	SM, ME		-5.5	-5.22	162.43	300	SAT
223	10 35 0	-25.83	152.31	SM, ME		-5.0	-3.56	162.57	300	SAT
223	10 36 0	-23.13	152.15	SM, ME, CR(1.7), ER		-4.2	-2.05	162.71	300	SAT
223	10 37 0	-20.39	151.98	SM, ME, ER		4.5	-0.68	162.83	300	SSC
223	10 38 0	-17.60	151.82	SM, ME		4.5	0.57	162.93	300	VSSC
223	10 39 0	-14.75	151.65	SM, ME, ER		6.0	1.70	163.00	300	VSSC
223	10 40 0	-11.86	151.48	SM, ME, ER		-6.0	2.74	163.05	300	SAT
223	10 41 0	-8.91	151.32	SM		-9.5	3.71	163.07	300	VSSC
223	10 42 0	-5.91	151.15	SM		>9.5	4.62	163.06	300	VSSC
223	10 43 0	-2.85	150.98	SM		>8.0	5.50	163.01	300	VSSC
223	10 44 0	0.26	150.82	SM, RSP(>4)		>10.0	6.36	162.92	300	VSSC
223	10 45 0	3.44	150.65	SP, STV, RSP, ET(3.2, 6.6)		>9.0	7.25	162.79	300	SSC
223	10 46 0	6.67	150.49	SP, STV, RSP, ET(5.5)		>10.0	8.18	162.59	300	WS
223	10 47 0	9.96	150.33	VSP, STV, RSP, ET(3, 5.1)		>9.5	9.19	162.33	300	Q
223	10 48 0	13.31	150.17	SP, STV, ET(5.3)		>11.0	10.35	161.98	300	WS
223	10 49 0	16.72	150.02	SP, STV, ET(7.5)		>10.0	11.73	161.51	300	SSC
223	10 50 0	20.18	149.88	SM, ER		-8.5	13.42	160.91	300	SSC
223	10 51 0	23.71	149.74	SM, ER		7.2	15.53	160.16	300	SC
223	10 52 0	27.29	149.61	SM		>6.0	18.18	159.24	300	SC
223	10 53 0	30.93	149.49	SM			21.43	158.20	300	

OBJECT: 3669 1515 I PASS SUMMARY FOR NWAJALEIN FOR 11 AUGUST 1978 DAY 223

DAY	TIME (Z) HR MN SC	SATELLITE LOCATION		DESCRIPTION	IONOGRAM SUMMARY	PENETRATION LOCATION		SCINTILLATION SUMMARY		
		LAT	LONG			ALT KM	F-MAX MIZ		LAT	LONG
223	19 57 0	31.12	-168.80	1330	SM, ME, ER	7.3	19.51	177.75	300	Q
223	19 58 0	27.83	-169.94	1400	SM, ME, CE(1.9), ER	8.0	16.99	176.74	300	Q
223	19 59 0	24.60	-169.08	1471	SM, ME, CE(1.7), ER	8.1	14.93	175.89	300	Q
223	20 0 0	21.43	-169.23	1543	SM, ME, ER	8.7	13.27	175.19	300	Q
223	20 1 0	18.31	-169.38	1616	SM, ER	8.4	11.92	174.62	300	Q
223	20 2 0	15.25	-169.54	1689	SM	8.0	10.79	174.17	300	Q
223	20 3 0	12.24	-169.70	1762	SM, ER	8.3	9.84	173.82	300	Q
223	20 4 0	9.29	-169.87	1836	SM	8.0	9.00	173.54	300	Q
223	20 5 0	6.39	-170.04	1909	SM, ER	8.3	8.24	173.32	300	Q
223	20 6 0	3.54	-170.22	1982	SM, ER	8.7	7.53	173.16	300	Q
223	20 7 0	0.74	-170.39	2055	SM, ER	9.1	6.86	173.04	300	Q
223	20 8 0	-2.01	-170.57	2127	SM	>10.0	6.20	172.95	300	Q
223	20 9 0	-4.72	-170.74	2198	SM	>10.0	5.54	172.90	300	Q
223	20 10 0	-7.38	-170.92	2269	SM, ME, CE(1.5)	>10.0	4.86	172.88	300	Q
223	20 11 0	-10.00	-171.10	2338	SM, CE(1.5)	>10.0	4.16	172.89	300	Q
223	20 12 0	-12.57	-171.28	2406	SM, ME, CE(1.9)	>10.0	3.41	172.92	300	Q
223	20 13 0	-15.11	-171.45	2473	SM, ME, CE(1.7)	>10.0	2.61	172.97	300	Q
223	20 14 0	-17.61	-171.63	2538	SM, ME	9.2	1.75	173.05	300	Q
223	20 15 0	-20.07	-171.81	2602	SM, ME, CE(1.7)	>7.0	0.80	173.15	300	Q
223	20 16 0	-22.50	-171.98	2664	SM, ME, CE(1.7)	-9.5	-0.23	173.28	300	Q
223	20 17 0	-24.89	-172.15	2725	SM, ME	-8.0	-1.37	173.42	300	Q
223	20 18 0	-27.25	-172.32	2784	SM, ME	>6.0	-2.62	173.58	300	Q
223	20 19 0	-29.58	-172.49	2841	SM, ME	7.5	-3.99	173.75	300	Q
223	20 20 0	-31.88	-172.66	2896	SM, ME	7.5	-5.50	173.94	300	Q
223	20 21 0	-34.15	-172.82	2949			-7.13	174.13	300	Q

OBJECT: 3669 ISIS I PASS SUMMARY FOR KWAJALEIN FOR 11 AUGUST 1978 DAY 223

DAY	TIME (Z) HR MN SC	SATELLITE LOCATION			DESCRIPTION	IONOGRAM SUMMARY	PENETRATION LOCATION			SCINTILLATION ALT KM SUMMARY	
		LAT	LONG	ALT KM			F-MAX MHz	LAT	LONG		ALT KM
223	22 3 0	38.88	159.29	1179	SM, ME, ER		7.5	24.26	163.92	300	
223	22 4 0	35.47	159.18	1245	SM, ME		>6.0	20.68	164.34	300	Q
223	22 5 0	32.11	159.06	1313	SM		8.5	17.79	164.70	300	Q
223	22 6 0	28.81	158.93	1383	SM, CE(2)		>7.0	15.54	165.00	300	Q
223	22 7 0	25.56	158.79	1453	SM, ME, ER		7.8	13.81	165.22	300	Q
223	22 8 0	22.38	158.65	1525	SM, ME, ER		7.5	12.46	165.38	300	Q
223	22 9 0	19.25	158.49	1598	SM, ME(<2)		>5.0	11.38	165.50	300	Q
223	22 10 0	16.17	158.33	1671	SM, CE(1.7)		9.0	10.49	165.59	300	Q
223	22 11 0	13.15	158.17	1744	SM, CE(1.7)		>7.0	9.72	165.64	300	Q
223	22 12 0	10.19	158.01	1818	SM, CE(1.7)		>10.0	9.05	165.67	300	Q
223	22 13 0	7.27	157.84	1891	SM		>10.0	8.43	165.69	300	Q
223	22 14 0	4.41	157.66	1965	SM		>10.0	7.86	165.68	300	Q
223	22 15 0	1.60	157.49	2037	SM		>10.0	7.30	165.67	300	Q
223	22 16 0	-1.16	157.31	2110	SM		>10.0	6.75	165.64	300	Q
223	22 17 0	-3.88	157.14	2181	SM, CE(1.6)		>10.0	6.19	165.59	300	Q
223	22 18 0	-6.55	156.96	2252	SM, ME		>10.0	5.62	165.54	300	Q
223	22 19 0	-9.18	156.78	2321	SM, ME		>7.0	5.02	165.47	300	Q
223	22 20 0	-11.77	156.60	2390	SM, ME		>10.0	4.38	165.39	300	Q
223	22 21 0	-14.31	156.43	2457	SM, ME		>10.0	3.70	165.29	300	Q
223	22 22 0	-16.82	156.25	2522	SM, ME		>7.0	2.94	165.18	300	Q
223	22 23 0	-19.29	156.07	2587	SM, ME		9.7	2.11	165.06	300	Q
223	22 24 0	-21.73	155.90	2649	SM, ME, CE(1.6)		>8.0	1.19	164.91	300	Q
223	22 25 0	-24.13	155.72	2710	SM		>5.0	0.16	164.75	300	Q
223	22 26 0	-26.50	155.55	2769	SM, ME, ER		8.5	-0.99	164.57	300	Q
223	22 27 0	-28.83	155.38	2827	SM, ME, ER		8.0	-2.28	164.38	300	Q
223	22 28 0	-31.14	155.22	2882	SM, ME, ER		7.9	-3.71	164.16	300	Q
223	22 29 0	-33.42	155.05	2936	SP, ME, ER		8.0	-5.28	163.94	300	Q
223	22 30 0	-35.67	154.89	2987	SP, ME		>7.0	-7.01	163.70	300	Q

OBJECT: 3669 ISIS I PASS SUMMARY FOR KWAJALEIN FOR 12 AUGUST 1978 DAY 224

DAY	TIME (Z) HR MN SC	SATELLITE LOCATION		DESCRIPTION	IONOGRAM SUMMARY	F-MAX MIZ	PENETRATION LOCATION		SCINTILLATION SUMMARY	
		LAT	LONG				LAT	LONG		
224	7 58 0	-26.12	-169.43	2164	SP, STV, ME, RSP, ET(1.8)	>7.0	-5.69	176.55	300	SSC
224	7 59 0	-23.40	-169.59	2092	SP, STV, ME	>5.0	-3.95	176.20	300	SSC
224	8 0 0	-20.63	-169.75	2020	VSP, STV	>9.0	-2.35	175.87	300	SSC
224	8 1 0	-17.81	-169.91	1947	VSP, STV, ME, ET(2)	>8.5	-0.86	175.56	300	SSC
224	8 2 0	-14.94	-170.08	1874	WSP, STV, ME	>9.0	0.50	175.29	300	SSC
224	8 3 0	-12.02	-170.25	1801	WSP, STV, RSP, ME, ET(1.4)	>6.0	1.75	175.05	300	SSC
224	8 4 0	-9.04	-170.41	1727	WSP, STV, RSP, ME, ET(1.2)	>5.0	2.92	174.86	300	SSC
224	8 5 0	-6.01	-170.58	1654	WSP, RSP, ET(1.1)	>7.5	4.01	174.72	300	SSC
224	8 6 0	-2.92	-170.75	1581	WSP, RSP	>7.0	5.05	174.63	300	SSC
224	8 7 0	0.23	-170.91	1509	WSP, STV, RSP, ME, CE(1.7), ET(3.2)	>6.0	6.07	174.60	300	SSC
224	8 8 0	3.44	-171.07	1437	WSP, STV, ME, RSP, CE	>8.0	7.09	174.64	300	SSC
224	8 9 0	6.70	-171.24	1367	WSP, ME, RSP, CE	>6.0	8.16	174.75	300	VSSC
224	8 10 0	10.02	-171.39	1298	WSP, ME, RSP	>7.0	9.31	174.95	300	VSSC
224	8 11 0	13.41	-171.55	1230	WSP, STV, ME, RSP, CE(1.8)	>7.0	10.61	175.25	300	VSSC
224	8 12 0	16.85	-171.70	1165	WSP, STV, ME, RSP	>9.0	12.13	175.68	300	SAT
224	8 13 0	20.35	-171.84	1101	WSP, STV, RSP, ET(1.6)	>10.0	13.96	176.26	300	SAT
224	8 14 0	23.90	-171.98	1040	WSP, STV, ET(3)	>10.0	16.22	176.98	300	SAT
224	8 15 0	27.52	-172.11	981	SM	9.0	19.00	177.85	300	SAT

224	10 4 0	-32.24	158.76	2321	SM, ME	-6.0	-7.26	164.55	300	VSSC
224	10 5 0	-29.62	158.61	2252	SM, ME	-6.0	-5.39	164.63	300	VSSC
224	10 6 0	-26.96	158.45	2181	SM, ME	-6.0	-3.66	164.71	300	VSSC
224	10 7 0	-24.25	158.29	2110	SM, ME	6.1	-2.10	164.78	300	VSSC
224	10 8 0	-21.49	158.13	2038	SM, ME	>5.0	-0.69	164.85	300	SC
224	10 9 0	-18.68	157.96	1965	SM, ME, ER	6.0	0.58	164.91	300	SC
224	10 10 0	-15.82	157.80	1892	SM, ME, CE(1.9), ER	6.1	1.72	164.95	300	SC
224	10 11 0	-12.91	157.63	1819	SM, ME	>8.0	2.76	164.97	300	VSSC
224	10 12 0	-9.95	157.46	1745	SM, ME	>8.0	3.71	164.98	300	VSSC
224	10 13 0	-6.93	157.30	1672	SM, ME	>10.0	4.59	164.97	300	VSSC
224	10 14 0	-3.86	157.13	1599	SM, ME, CE(1.6)	>10.0	5.43	164.94	300	VSSC
224	10 15 0	-0.72	156.97	1526	SM	>10.0	6.25	164.89	300	SC
224	10 16 0	2.47	156.80	1455	WSP(NP), RSP	-9.5	7.07	164.81	300	SC
224	10 17 0	5.72	156.64	1384	SM, RSP, ER	7.6	7.92	164.70	300	VSSC
224	10 18 0	9.03	156.48	1315	SM, RSP, ER	7.6	8.84	164.54	300	VSSC
224	10 19 0	12.39	156.33	1247	SM	10.4	9.87	164.34	300	VSSC
224	10 20 0	15.82	156.17	1181	SM	12.6	11.07	164.07	300	VSSC
224	10 21 0	19.31	156.03	1117	SM	>11.0	12.55	163.71	300	VSSC
224	10 22 0	22.85	155.89	1055	SM, ER	9.5	14.41	163.24	300	SC
224	10 23 0	26.45	155.76	996	SM, ER	7.7	16.82	162.64	300	WS
224	10 24 0	30.10	155.63	939	SM	7.1	19.87	161.92	300	Q
224	10 25 0	33.81	155.52	886	SM, ER	7.1	23.61	161.12	300	Q

OBJECT: 3669 ISIS I PASS SUMMARY FOR KWAJALEIN FOR 12 AUGUST 1978 DAY 224

DAY	TIME (Z) HR MN SC	SATELLITE LOCATION		DESCRIPTION	IONOGRAM SUMMARY		PENETRATION LOCATION		SCINTILLATION SUMMARY	
		LAT	LONG		ALT KM	F-MAX MHZ	LAT	LONG		ALT KM
224	19 29 0	28.78	-162.79	1422			18.90	-179.14	300	
224	19 30 0	25.57	-162.93	1493	SM, ME		16.57	179.77	300	Q
224	19 31 0	22.41	-163.08	1565	SM, ME, ER		14.63	178.82	300	Q
224	19 32 0	19.32	-163.23	1638	SM, ME		13.00	178.01	300	Q
224	19 33 0	16.27	-163.39	1711	SM, ME, ER		11.64	177.34	300	Q
224	19 34 0	13.28	-163.56	1785	SM, ME, ER		10.48	176.80	300	Q
224	19 35 0	10.35	-163.72	1858	SM, ME, ER		9.46	176.37	300	Q
224	19 36 0	7.46	-163.90	1932	SM, ME, ER		8.56	176.02	300	Q
224	19 37 0	4.63	-164.07	2005	SM, ME, ER		7.73	175.75	300	Q
224	19 38 0	1.84	-164.24	2077	SP(<3), STV, ME		6.94	175.55	300	Q
224	19 39 0	-0.90	-164.42	2149	SP(<2), STV		6.19	175.40	300	Q
224	19 40 0	-3.59	-164.60	2220	SP(<4), STV		5.44	175.30	300	Q
224	19 41 0	-6.24	-164.77	2290	SP(<3), STV		4.68	175.25	300	Q
224	19 42 0	-8.84	-164.95	2359	SP(<5), STV		3.91	175.24	300	Q
224	19 43 0	-11.41	-165.13	2427	SP(<7), STV		3.10	175.26	300	Q
224	19 44 0	-13.93	-165.31	2493	SP, STV		2.24	175.32	300	Q
224	19 45 0	-16.42	-165.49	2558	SP, STV		1.33	175.40	300	Q
224	19 46 0	-18.87	-165.67	2621	WSP, STV		0.34	175.52	300	Q
224	19 47 0	-21.29	-165.84	2683	WSP, ME		-0.73	175.66	300	Q
224	19 48 0	-23.67	-166.02	2743	WSP, ME		-1.89	175.83	300	Q
224	19 49 0	-26.02	-166.19	2801	SM		-3.14	176.02	300	Q
224	19 50 0	-28.34	-166.36	2858	SM		-4.51	176.23	300	Q
224	19 51 0	-30.63	-166.53	2912	SM, ER		-5.99	176.44	300	Q

OBJECT: 366Y TSIS I PASS SUMMARY FOR KUAJALEIN FOR 12 AUGUST 1978 DAY 224

DAY	TIME (Z) HR MN SC	SATELLITE LOCATION			DESCRIPTION	IONOGRAM SUMMARY		PENETRATION LOCATION			SCINTILLATION SUMMARY
		LAT	LONG	ALT KM		F-MAX	MIZ	LAT	LONG	ALT KM	
224	21 34 0	39.77	165.42	1199				24.44	166.71	300	
224	21 35 0	36.37	165.32	1266				20.80	166.80	300	
224	21 36 0	33.03	165.20	1334	SM, ER		8.7	17.87	166.87	300	Q
224	21 37 0	29.75	165.08	1404	SM, ER		9.0	15.62	166.93	300	Q
224	21 38 0	26.53	164.94	1475	SM		9.9	13.89	166.98	300	Q
224	21 39 0	23.36	164.79	1547	SM, ER		10.2	12.56	167.00	300	Q
224	21 40 0	20.25	164.64	1620	SM		10.5	11.49	167.02	300	Q
224	21 41 0	17.19	164.48	1693	SM, ER		9.9	10.62	167.02	300	Q
224	21 42 0	14.19	164.32	1767	SM, ER		9.4	9.88	167.02	300	Q
224	21 43 0	11.24	164.15	1840	SM		8.5	9.23	167.01	300	Q
224	21 44 0	8.34	163.98	1914	SM, ER		9.7	8.64	167.00	300	Q
224	21 45 0	5.49	163.81	1987	SM		9.5	8.10	166.98	300	Q
224	21 46 0	2.70	163.64	2060	SM		10.0	7.57	166.95	300	Q
224	21 47 0	-0.05	163.46	2132	SM		>6.5	7.06	166.92	300	Q
224	21 48 0	-2.76	163.28	2203	SM		10.5	6.55	166.89	300	Q
224	21 49 0	-5.42	163.11	2273	SM		>10.5	6.03	166.85	300	Q
224	21 50 0	-8.03	162.93	2342	SM, ER		10.7	5.50	166.80	300	Q
224	21 51 0	-10.61	162.75	2410	SM, ER		10.3	4.93	166.75	300	Q
224	21 52 0	-13.14	162.57	2477	SM, SP(<2)		>9.0	4.32	166.70	300	Q
224	21 53 0	-15.64	162.39	2542	SM, ER		9.7	3.66	166.64	300	Q
224	21 54 0	-18.10	162.21	2606	SM, ME		>8.0	2.93	166.56	300	Q
224	21 55 0	-20.52	162.04	2668	M			2.13	166.49	300	Q
224	21 56 0	-22.91	161.86	2729	SM, ME		9.0	1.23	166.40	300	Q
224	21 57 0	-25.27	161.69	2787	SM, ME, ER		>5.0	0.23	166.30	300	Q
224	21 58 0	-27.60	161.52	2844	SM, ME		>8.5	-0.89	166.19	300	Q
224	21 59 0	-29.90	161.35	2899	SM, ME		>7.0	-2.15	166.07	300	Q
224	22 0 0	-32.17	161.18	2952	SM		>7.0	-3.56	165.94	300	Q
224	22 1 0	-34.42	161.02	3003	SM		>7.0	-5.13	165.80	300	Q
224	22 2 0	-36.64	160.86	3052	SM		>5.0	-6.85	165.65	300	Q

OBJECT: 3669 ISIS I PASS SUMMARY FOR KWAJALEIN FOR 13 AUGUST 1978 DAY 225

DAY	TIME (Z) HR MN SC	SATELLITE LOCATION			DESCRIPTION	IONOGRAM SUMMARY	F-MAX MIZ	PENETRATION LOCATION			SCINTILLATION SUMMARY
		LAT	LONG	ALT KM				LAT	LONG	ALT KM	
225	7 32 0	-18.88	-163.77	1925	SM		>8.0	-3.25	179.60	300	Q
225	7 33 0	-15.99	-163.93	1851	SM		>10.0	-1.65	179.28	300	Q
225	7 34 0	-13.05	-164.10	1778	SM, ME		>10.0	-0.15	179.01	300	Q
225	7 35 0	-10.06	-164.26	1704	SM, MSP(>5)		>9.0	1.26	178.78	300	Q
225	7 36 0	-7.01	-164.43	1631	SP, STV, ME, ET(4)		>9.5	2.60	178.61	300	Q
225	7 37 0	-3.90	-164.60	1559	SP, STV, ME, ET(5), CE(1.2)		>6.0	3.88	178.51	300	Q
225	7 38 0	-0.74	-164.76	1487	VSP, STV, ET(3)		>9.5	5.15	178.49	300	Q
225	7 39 0	2.49	-164.92	1415	VSP, STV, ET(3.2)		>9.5	6.41	178.55	300	Q
225	7 40 0	5.77	-165.08	1345	SP, STV, ET(3.5)		>9.5	7.72	178.73	300	Q
225	7 41 0	9.11	-165.24	1277	SP, STV, ET(4.7)		>10.0	9.12	179.02	300	Q
225	7 42 0	12.51	-165.40	1210	SM		>10.0	10.68	179.45	300	Q
225	7 43 0	15.97	-165.55	1145	SM		>10.0	12.46	-179.96	300	Q
225	7 44 0	19.49	-165.69	1082	SM		>10.0	14.54	-179.22	300	Q
225	7 45 0	23.07	-165.83	1022	SM, MSP(NP), CE(1.7), ER		9.5	17.01	-178.33	300	Q

225	9 35 0	-33.38	164.89	2300	SM, ME		5.8	-8.02	166.71	300	Q
225	9 36 0	-30.75	164.74	2230	SM, ME, ER		5.7	-6.04	166.70	300	Q
225	9 37 0	-28.07	164.59	2159	SM, ME, ER		5.7	-4.22	166.70	300	Q
225	9 38 0	-25.35	164.43	2088	SM, ME, ER		-6.0	-2.56	166.69	300	Q
225	9 39 0	-22.57	164.27	2015	SM, ME, ER		5.7	-1.07	166.69	300	Q
225	9 40 0	-19.75	164.11	1942	SM, ME, ER		6.5	0.27	166.69	300	Q
225	9 41 0	-16.88	163.94	1869	SM, ME, ER		7.5	1.46	166.68	300	Q
225	9 42 0	-13.95	163.78	1796	SM, ME		>9.0	2.54	166.66	300	Q
225	9 43 0	-10.97	163.61	1722	SM, ME		>10.0	3.51	166.65	300	Q
225	9 44 0	-7.93	163.45	1649	SP, STV, ME, CE(1.4), ET(5.5)		>10.0	4.41	166.62	300	Q
225	9 45 0	-4.84	163.28	1576	SP, STV, ET(4.9)		>10.0	5.25	166.59	300	SSC
225	9 46 0	-1.69	163.12	1504	VSP, STV, ET(3)		>5.0	6.06	166.55	300	VSSC
225	9 47 0	1.52	162.95	1433	VSP, STV, ET(2.7)		>6.0	6.87	166.50	300	VSSC
225	9 48 0	4.79	162.79	1362	VSP, STV, ET(2.6)		>5.0	7.69	166.43	300	VSSC
225	9 49 0	8.11	162.63	1294	VSP, STV, ET(2.4)		>10.0	8.56	166.35	300	SC
225	9 50 0	11.50	162.48	1226	VSP, STV, ET(2.5)		>8.0	9.52	166.24	300	SC
225	9 51 0	14.95	162.33	1161	VSP, STV, ET(3)		>10.0	10.63	166.11	300	SSC
225	9 52 0	18.45	162.18	1097	VSP, STV, ET(4.6)		>10.0	11.98	165.93	300	SSC
225	9 53 0	22.01	162.04	1036	MSP, STV, ET(9)		>10.0	13.68	165.70	300	VSSC
225	9 54 0	25.63	161.90	978	SM		>10.0	15.90	165.40	300	SAT
225	9 55 0	29.30	161.78	922	SM		>8.0	18.77	165.03	300	VSSC
225	9 56 0	33.02	161.67	870	SM		7.3	22.39	164.60	300	SSC

OBJECT: 3669 ISIS I PASS SUMMARY FOR NWAJALEIN FOR 13 AUGUST 1978 DAY 225

DAY	TIME (Z) HR MN SC	SATELLITE LOCATION		DESCRIPTION	IONOGRAM SUMMARY		PENETRATION LOCATION		SCINTILLATION SUMMARY
		LAT	LONG		F-MAX MHZ	ALT KM	LAT	LONG	
#225*	21 5 0	40.65	171.56	SM	10.0	1220	25.11	169.43	Q
#225*	21 6 0	37.27	171.46	SM	10.3	1287	21.38	169.18	Q
#225*	21 7 0	33.95	171.35	SM	10.1	1356	18.36	168.96	Q
#225*	21 8 0	30.69	171.22	SM, ER		1426	16.02	168.78	Q
#225*	21 9 0	27.48	171.08	NSP	9.4	1498	14.22	168.64	Q
#225*	21 10 0	24.33	170.94	SM, ME, ER	9.4	1570	12.83	168.52	Q
#225*	21 11 0	21.24	170.79	SM, ME, ER	9.5	1643	11.74	168.43	Q
#225*	21 12 0	18.20	170.63	SM, ME, ER	9.3	1716	10.84	168.36	Q
#225*	21 13 0	15.21	170.47	SM, ME	8.7	1790	10.09	168.29	Q
#225*	21 14 0	12.28	170.30	SM, ME	8.5	1863	9.43	168.24	Q
#225*	21 15 0	9.40	170.13	SP, STV, ME	8.1	1937	8.85	168.19	Q
#225*	21 16 0	6.57	169.96	SP(<2.5), ME, CE(1.3)	>7.0	2010	8.31	168.15	Q
#225*	21 17 0	3.79	169.78	SM, SP(<5), ER	8.7	2082	7.80	168.11	Q
#225*	21 18 0	1.05	169.61	SP, STV	>8.0	2154	7.30	168.08	Q
#225*	21 19 0	-1.64	169.43	SM, NSP, ER	10.0	2225	6.81	168.04	Q
#225*	21 20 0	-4.28	169.25	SP(<2.5), ME		2295	6.32	168.01	Q
#225*	21 21 0	-6.89	169.07	SM, ME	11.0	2364	5.81	167.98	Q
#225*	21 22 0	-9.45	168.89	SM, SP(<3)	>9.5	2431	5.28	167.95	Q
#225*	21 23 0	-11.97	168.71	SM, NSP, ME	~12.0	2498	4.72	167.92	Q
#225*	21 24 0	-14.46	168.53	SM, NSP	>10.0	2562	4.11	167.89	Q
#225*	21 25 0	-16.91	168.36	SM, NSP	~11.0	2626	3.46	167.86	Q
#225*	21 26 0	-19.32	168.13	SM	>10.0	2687	2.73	167.82	Q
#225*	21 27 0	-21.70	168.00	SM, ER	10.2	2747	1.93	167.79	Q
#225*	21 28 0	-24.05	167.83	SM, ME, ER	9.7	2805	1.03	167.75	Q
#225*	21 29 0	-26.37	167.65	SM	>6.0	2862	0.02	167.71	Q
#225*	21 30 0	-28.66	167.48	SM	8.5	2916	-1.11	167.67	Q
#225*	21 31 0	-30.93	167.31	SM	>6.0	2968	-2.39	167.62	Q
#225*	21 32 0	-33.17	167.15	SM	>9.0	3018	-3.81	167.57	Q
#225*	21 33 0	-35.38	166.98	SM	>7.0	3066	-5.39	167.52	Q
#225*	21 34 0	-37.57	166.83	SM	>5.0	3112	-7.13	167.46	Q

OBJECT: 3669

ISIS I

PASS SUMMARY FOR KWAJALEIN

FOR 14 AUGUST

1978 DAY 226

DAY	TIME (Z) HR MN SC	SATELLITE LOCATION			DESCRIPTION	IONOGRAM SUMMARY		PENETRATION LOCATION			SCINTILLATION SUMMARY
		LAT	LONG	ALT NM		F-MAX	MUF	LAT	LONG	ALT NM	
226	9 7 0	-31.86	170.88	2208	SM, ME, ER	5.5		-7.22	168.86	300	Q
226	9 8 0	-29.17	170.73	2137	SM, ME, ER	5.5		-5.26	168.76	300	Q
226	9 9 0	-26.43	170.57	2065	SM, ME, ER	5.5		-3.48	168.66	300	Q
226	9 10 0	-23.64	170.41	1992	SM, ME, ER	5.5		-1.86	168.57	300	Q
226	9 11 0	-20.80	170.25	1919	SM, ME, ER	5.3		-0.41	168.48	300	Q
226	9 12 0	-17.91	170.09	1846	SM, ME, ER	5.9		0.88	168.41	300	Q
226	9 13 0	-14.97	169.93	1773	SM, ME, ER	>5.0		2.04	168.34	300	Q
226	9 14 0	-11.97	169.76	1699	SM, ME	>9.5		3.09	168.28	300	Q
226	9 15 0	-8.92	169.60	1626	SM, ME	>10.0		4.05	168.22	300	Q
226	9 16 0	-5.81	169.43	1554	SM	>11.5		4.93	168.17	300	Q
226	9 17 0	-2.64	169.27	1482	SM	11.2		5.78	168.13	300	Q
226	9 18 0	0.59	169.11	1411	SM	11.3		6.60	168.09	300	Q
226	9 19 0	3.87	168.94	1341	SM, ER	10.6		7.43	168.05	300	Q
226	9 20 0	7.22	168.79	1272	SM	10.7		8.31	168.02	300	Q
226	9 21 0	10.62	168.63	1205	SM, ER	11.0		9.26	167.98	300	Q
226	9 22 0	14.09	168.48	1141	SM	>12.0		10.34	167.95	300	Q
226	9 23 0	17.61	168.33	1078	SM, ER	>12.0		11.65	167.92	300	Q
226	9 24 0	21.19	168.19	1018	SM, ER	9.2		13.28	167.89	300	Q
226	9 25 0	24.83	168.06	960	SM	6.3		15.39	167.86	300	Q
226	9 26 0	28.52	167.93	906	SM, ER	6.1		18.16	167.82	300	Q
226	9 27 0	32.26	167.82	855	SM, ER	6.3		21.68	167.77	300	Q
226	9 28 0	36.05	167.72	807	SM, ER			25.90	167.72	300	Q

OBJECT: 3669		ISIS I		PASS SUMMARY FOR KWAJALEIN				FUR 14 AUGUST 1978		MAY 226			
MAY	TIME (Z) HR MN SC	SATELLITE LOCATION			DESCRIPTION	IONOGRAM SUMMARY		PENETRATION LOCATION		SCINTILLATION SUMMARY			
		LAT	LONG	ALT NM		F-MAX MHz	LAT	LONG	ALT NM				
226	20 37 0	38.16	177.60	1309	SM, ER		8.4	22.45	171.73	300	Q		
226	20 38 0	34.86	177.49	1378	SM, ER		8.7	19.28	171.21	300	Q		
226	20 39 0	31.62	177.36	1449	SM, ER		9.0	16.77	170.77	300	Q		
226	20 40 0	28.43	177.23	1520	SM, CE(1.5), ER		9.1	14.83	170.42	300	Q		
226	20 41 0	25.30	177.08	1593	SM, ER		>8.0	13.33	170.14	300	Q		
226	20 42 0	22.22	176.93	1666	SM, ER		9.1	12.14	169.92	300	Q		
226	20 43 0	19.20	176.78	1739	SM, ER		9.2	11.18	169.75	300	Q		
226	20 44 0	16.23	176.61	1813	SM, ER		9.5	10.38	169.61	300	Q		
226	20 45 0	13.32	176.45	1887	SM, ER		9.3	9.69	169.50	300	Q		
226	20 46 0	10.45	176.28	1960	SM, ER		8.6	9.08	169.41	300	Q		
226	20 47 0	7.64	176.11	2033	SM, ER		8.6	8.52	169.34	300	Q		
226	20 48 0	4.87	175.93	2105	SM		8.2	8.00	169.28	300	Q		
226	20 49 0	2.15	175.76	2176	SM		>7.0	7.50	169.23	300	Q		
226	20 50 0	-0.53	175.58	2247	SM		9.6	7.01	169.19	300	Q		
226	20 51 0	-3.16	175.40	2317	SM		>9.5	6.52	169.16	300	Q		
226	20 52 0	-5.75	175.22	2385	SM		>10.0	6.02	169.13	300	Q		
226	20 53 0	-8.30	175.04	2452	SM		>10.0	5.51	169.11	300	Q		
226	20 54 0	-10.81	174.86	2518	SM		>10.0	4.97	169.09	300	Q		
226	20 55 0	-13.28	174.68	2583	SM		>10.0	4.39	169.09	300	Q		
226	20 56 0	-15.72	174.50	2645	SM		>10.0	3.76	169.08	300	Q		
226	20 57 0	-18.13	174.32	2706	SM, ME, CE(1)		>10.0	3.08	169.08	300	Q		
226	20 58 0	-20.50	174.14	2766	SM, ME		>10.0	2.33	169.09	300	Q		
226	20 59 0	-22.84	173.96	2823	SM, ME		>7.0	1.49	169.10	300	Q		
226	21 0 0	-25.15	173.79	2879	SM		>10.0	0.56	169.12	300	Q		
226	21 1 0	-27.43	173.61	2933	SM, ME		>9.0	-0.49	169.14	300	Q		
226	21 2 0	-29.69	173.44	2984	SM, ME		>7.0	-1.66	169.16	300	Q		
226	21 3 0	-31.92	173.28	3034	SM, ME		>5.0	-2.98	169.19	300	Q		
226	21 4 0	-34.13	173.11	3081	SM, ME		>7.0	-4.45	169.21	300	Q		
226	21 5 0	-36.32	172.95	3126	SM		>5.0	-6.07	169.24	300	Q		
226	21 6 0	-38.48	172.79	3169	SM, ME		>5.0	-7.85	169.27	300	Q		

 OBJECT: 5104 ISIS 2 PASS SUMMARY FOR KWAJALEIN FOR 22 JULY 1978 MAY 203

DAY	TIME (Z)		SATELLITE LOCATION		DESCRIPTION	IONOGRAM SUMMARY		PENETRATION LOCATION	
	HR	MIN SC	LAT	LONG		ALT KM	F-MAX MHZ	LAT	LONG
#203#	7	57 0	-23.89	167.87	1373		-6.61	167.79	300
#203#	7	58 0	-20.68	167.74	1372		-3.82	167.73	300
#203#	7	59 0	-17.48	167.60	1371		-1.41	167.68	300
#203#	8	0 0	-14.27	167.46	1370		0.61	167.64	300
#203#	8	1 0	-11.06	167.32	1369		2.30	167.60	300
#203#	8	2 0	-7.85	167.17	1369	SM, ER	3.71	167.56	300
#203#	8	3 0	-4.64	167.03	1368	SM, ER	4.91	167.53	300
#203#	8	4 0	-1.43	166.88	1368	SM, ER	5.95	167.50	300
#203#	8	5 0	1.78	166.73	1367	SM, ER	6.89	167.46	300
#203#	8	6 0	4.99	166.58	1367	SM, ER	7.75	167.43	300
#203#	8	7 0	8.21	166.43	1367	SM, ER	8.58	167.40	300
#203#	8	8 0	11.42	166.29	1367	SM, ER	9.41	167.36	300
#203#	8	9 0	14.63	166.14	1367	SM	10.26	167.32	300
#203#	8	10 0	17.84	166.00	1367	SM	11.17	167.28	300
#203#	8	11 0	21.05	165.87	1367	SM	12.18	167.23	300
#203#	8	12 0	24.25	165.74	1367	SM	13.33	167.17	300
#203#	8	13 0	27.46	165.61	1367	SM	14.67	167.11	300
#203#	8	14 0	30.66	165.49	1368	SM	16.27	167.03	300
#203#	8	15 0	33.86	165.39	1368	SM	18.18	166.94	300
#203#	8	16 0	37.06	165.29	1369	SM	20.46	166.84	300
#203#	8	17 0	40.25	165.20	1370	SM	23.12	166.74	300

OBJECT: 5104 ISIS 2 PASS SUMMARY FOR KWAJALEIN FDR 22 JULY 1978 DAY 203

DAY	TIME (Z)		SATELLITE LOCATION			DESCRIPTION	IONOGRAM SUMMARY		PENETRATION LOCATION		
	HR	MM	SC	LAT	LONG		ALT KM	F-MAX MHz	LAT	LONG	ALT KM
203	20	10	0	41.82	163.22	1423			24.14	165.95	300
203	20	11	0	38.67	163.14	1424	SM, ER		21.38	166.05	300
203	20	12	0	35.52	163.04	1426	SM, ME, ER		19.00	166.15	300
203	20	13	0	32.37	162.94	1427	SM, ME, ER		16.99	166.22	300
203	20	14	0	29.22	162.82	1429	SM, ME, ER		15.32	166.28	300
203	20	15	0	26.07	162.70	1430	SM, ME, CE(1.9), ER		13.91	166.33	300
203	20	16	0	22.92	162.57	1431	SM, ME, ER		12.72	166.35	300
203	20	17	0	19.76	162.44	1433	SM, ME, ER		11.69	166.36	300
203	20	18	0	16.61	162.30	1434	SM, ME, SP(NP), ER		10.77	166.36	300
203	20	19	0	13.45	162.15	1435	SP, STV, ER		9.92	166.34	300
203	20	20	0	10.30	162.01	1435	SP, STV, ER		9.12	166.31	300
203	20	21	0	7.14	161.86	1436	SP, STV, ER		8.33	166.26	300
203	20	22	0	3.99	161.71	1437	SP, STV, ER		7.52	166.20	300
203	20	23	0	0.83	161.56	1437	SP, STV, ER		6.67	166.12	300
203	20	24	0	-2.32	161.41	1437	WSP, STV, ER		5.74	166.02	300
203	20	25	0	-5.48	161.26	1437	SM, WSP(NP), SP(<2)		4.69	165.89	300
203	20	26	0	-8.63	161.11	1438	SM, ME(<2), ER		3.49	165.74	300
203	20	27	0	-11.78	160.96	1438	SM, ME, ER		2.07	165.55	300
203	20	28	0	-14.94	160.82	1437	SM, ME, ER		0.37	165.33	300
203	20	29	0	-18.09	160.67	1437	SM, ME, ER		-1.66	165.07	300
203	20	30	0	-21.24	160.54	1437	SM, ME, ER		-4.06	164.78	300
203	20	31	0	-24.39	160.40	1436	SM, ME, ER		-6.83	164.46	300

OBJECT: 5104 ISIS 2 PASS SUMMARY FOR KWAJALEIN FOR 23 JULY 1978 MAY 204

DAY	TIME (Z) HR MN SC	SATELLITE LOCATION			DESCRIPTION	IONOGRAM SUMMARY	PENETRATION LOCATION			SCINTILLATION SUMMARY
		LAT	LONG	ALT KM			LAT	LONG	ALT KM	
204	6 42 0	-20.94	-174.35	1371			-6.12	176.34	300	
204	6 43 0	-17.73	-174.49	1370			-3.48	175.69	300	
204	6 44 0	-14.53	-174.63	1370			-1.15	175.07	300	
204	6 45 0	-11.32	-174.77	1369			0.87	174.52	300	
204	6 46 0	-8.11	-174.92	1368	SM		2.59	174.04	300	Q
204	6 47 0	-4.90	-175.07	1368	SM		4.07	173.63	300	Q
204	6 48 0	-1.69	-175.22	1368	SM		5.36	173.31	300	Q
204	6 49 0	1.53	-175.36	1367	SM, ER		6.51	173.05	300	Q
204	6 50 0	4.74	-175.51	1367	SM, ER		7.56	172.85	300	Q
204	6 51 0	7.95	-175.66	1367	SM		8.56	172.72	300	Q
204	6 52 0	11.16	-175.81	1367	SM		9.53	172.64	300	Q
204	6 53 0	14.37	-175.95	1367	SM		10.5	172.61	300	Q
204	6 54 0	17.58	-176.09	1367	SM		>10.0	172.63	300	Q
204	6 55 0	20.79	-176.23	1367	SM		>10.0	172.71	300	Q
204	6 56 0	24.00	-176.36	1368	SM, CE(1.7)		>10.0	172.84	300	Q
204	6 57 0	27.20	-176.48	1368	SM, ME		15.52	173.03	300	Q
204	6 58 0	30.40	-176.60	1369	SM, ME(<2.5), ER		9.8	173.27	300	Q
204	6 59 0	33.60	-176.71	1369	SM, ME(<2.5), ER		9.1	173.58	300	Q
204	7 0 0	36.80	-176.81	1370	SM, ME(<2.5), ER		9.0	173.92	300	Q
204	7 1 0	39.99	-176.89	1371	SM, ER		8.8	173.92	300	Q
204							8.1	174.79	300	Q

OBJECT: 5104 ISIS 2 PASS SUMMARY FOR KWAJALEIN FOR 23 JULY 1978 DAY 204

DAY	TIME (Z) HR MN SC	SATELLITE LOCATION			DESCRIPTION	IONOGRAM SUMMARY	PENETRATION LOCATION			SCINTILLATION SUMMARY
		LAT	LONG	ALT KM			LAT	LONG	ALT KM	
204	8 35 0	-23.10	157.23	1372			-6.65	162.88	300	Q
204	8 36 0	-19.89	157.09	1371			-3.92	163.19	300	Q
204	8 37 0	-16.69	156.96	1370	SM, ER		-1.54	163.48	300	Q
204	8 38 0	-13.48	156.81	1369	SM, ME(<2)		0.49	163.74	300	Q
204	8 39 0	-10.27	156.67	1369	SM, ME(<2)		>10.0	163.96	300	Q
204	8 40 0	-7.06	156.52	1368	SM, ME(<2)		>10.0	164.13	300	Q
204	8 41 0	-3.85	156.38	1368	SM		3.65	164.26	300	Q
204	8 42 0	-0.64	156.23	1368	SM		4.90	164.36	300	Q
204	8 43 0	2.58	156.08	1367	SM		6.00	164.44	300	Q
204	8 44 0	5.79	155.93	1367	SM		7.00	164.42	300	Q
204	8 45 0	9.00	155.78	1367	SM		7.93	164.44	300	Q
204	8 46 0	12.21	155.64	1367	SM		8.83	164.43	300	Q
204	8 47 0	15.42	155.50	1367	SM		9.74	164.38	300	Q
204	8 48 0	18.63	155.36	1367	SM		10.69	164.30	300	Q
204	8 49 0	21.84	155.22	1367	SM		11.71	164.19	300	Q
204	8 50 0	25.04	155.09	1368	SM		12.86	164.03	300	Q
204	8 51 0	28.25	154.97	1368	SM		14.16	163.83	300	Q
204	8 52 0	31.45	154.85	1369	SM, ER		15.69	163.57	300	Q
204	8 53 0	34.65	154.75	1370	SM, ER		17.49	163.27	300	Q
204	8 54 0	37.84	154.65	1370	SM, ER		19.61	162.92	300	Q
204	8 55 0	41.03	154.57	1371	SM, ER		22.07	162.53	300	Q
204							24.87	162.13	300	Q

OBJECT: 5104 ISIS 2 PASS SUMMARY FOR KWAJALEIN FOR 23 JULY 1978 DAY 204

DAY	TIME (Z) HR MN SC	SATELLITE LOCATION		DESCRIPTION	IONOGRAM SUMMARY		PENETRATION LOCATION		SCINTILLATION SUMMARY	
		LAT	LONG		ALT KM	F-MAX MHz	LAT	LONG		ALT KM
204	18 55 0	38.96	-178.96	1425	SM, ME, ER		22.55	172.96	300	Q
204	18 56 0	35.81	-179.05	1427	SM, ME, ER		20.05	172.56	300	WS
204	18 57 0	32.66	-179.16	1428	SM, ME, ER		17.90	172.20	300	WS
204	18 58 0	29.51	-179.27	1429	SM, ME, ER		16.07	171.89	300	Q
204	18 59 0	26.36	-179.40	1431	SM, ME, CE(1.8), ER		14.53	171.63	300	Q
204	19 0 0	23.20	-179.52	1432	SM, ME, ER		13.21	171.41	300	Q
204	19 1 0	20.05	-179.66	1433	SM, ME, CE(1.7), ER		12.07	171.24	300	Q
204	19 2 0	16.90	-179.80	1434	SM, ER		11.05	171.11	300	Q
204	19 3 0	13.74	-179.94	1435	SM, ER		10.13	171.02	300	Q
204	19 4 0	10.59	-179.91	1435	SM, ER		9.26	170.96	300	Q
204	19 5 0	7.43	-179.76	1436	SM, CE(1.6), ER		8.40	170.93	300	Q
204	19 6 0	4.28	-179.61	1437	SM, ER		7.3	170.94	300	Q
204	19 7 0	1.12	-179.46	1437	SM, ER		6.64	170.97	300	Q
204	19 8 0	-2.03	-179.31	1437	SM, ER		5.67	171.04	300	Q
204	19 9 0	-5.19	-179.16	1437	SM, ER		4.59	171.14	300	Q
204	19 10 0	-8.34	-179.01	1437	SM, ER		3.34	171.28	300	Q
204	19 11 0	-11.50	-178.87	1437	SM, ME(<1.7), ER		1.89	171.46	300	Q
204	19 12 0	-14.65	-178.72	1437	SM, ME, ER		0.18	171.68	300	Q
204	19 13 0	-17.80	-178.58	1437	SM, ME, CE(1.8), ER		-1.86	171.94	300	Q
204	19 14 0	-20.95	-178.44	1436	SM, ME, ER		-4.24	172.23	300	Q
204	19 15 0	-24.10	-178.31	1435	SM, ME, ER		-6.97	172.54	300	Q

OBJECT: 5104 ISIS 2

PASS SUMMARY FOR KWAJALEIN

FUR 23

JULY

1978

DAY 204

DAY	TIME (Z) HR MN SC	SATELLITE LOCATION			DESCRIPTION	IONOGRAM SUMMARY		PENETRATION LOCATION			SCINTILLATION SUMMARY	
		LAT	LONG	ALT KM		P-MAX	MUF	LAT	LONG	ALT KM		
204	20 48 0	41.08	152.58	1424				24.74	161.37	300		Q
204	20 49 0	37.93	152.50	1426				22.03	161.74	300		Q
204	20 50 0	34.78	152.40	1427	SM, ME, ER		8.5	19.65	162.09	300		Q
204	20 51 0	31.63	152.30	1429	SM, ME, ER		8.3	17.60	162.39	300		Q
204	20 52 0	28.48	152.18	1430	SM, ME, ER		8.5	15.85	162.65	300		Q
204	20 53 0	25.33	152.05	1431	SM, ME, CE(1.8), ER		8.3	14.36	162.85	300		Q
204	20 54 0	22.18	151.92	1432	SM, ME, CE(1.8), ER		9.1	13.07	162.99	300		Q
204	20 55 0	19.02	151.79	1433	SM, ME(<2.5), ER		9.0	11.93	163.08	300		Q
204	20 56 0	15.87	151.65	1434	SM, WSP(<2), ER		8.5	10.91	163.12	300		Q
204	20 57 0	12.71	151.50	1435	SM, ER		8.5	9.95	163.12	300		Q
204	20 58 0	9.56	151.36	1436	SM, ER		7.7	9.03	163.07	300		Q
204	20 59 0	6.40	151.21	1436	SM, ER		8.0	8.11	162.97	300		Q
204	21 0 0	3.25	151.06	1437	SM, ER		8.5	7.16	162.81	300		Q
204	21 1 0	0.09	150.91	1437	SM, WSP(<2), ER		8.6	6.14	162.61	300		Q
204	21 2 0	-3.06	150.76	1437	SM, ER		8.0	5.02	162.34	300		Q
204	21 3 0	-6.22	150.61	1437	SM, ER		8.5	3.75	162.01	300		Q
204	21 4 0	-9.37	150.46	1437	SM, ME, CE(1.6), ER		8.1	2.27	161.60	300		Q
204	21 5 0	-12.52	150.31	1437	SM, ME, ER		8.0	0.56	161.12	300		Q
204	21 6 0	-15.68	150.17	1437	SM, ME, ER		7.8	-1.45	160.57	300		Q
204	21 7 0	-18.83	150.03	1436	SM, ME, ER		7.2	-3.78	159.96	300		Q

 OBJECT: 5104 ISIS 2 PASS SUMMARY FOR KWAJALEIN FOR 24 JULY 1978 DAY 205 *****

DAY	TIME (Z) HR MN SC	SATELLITE LOCATION			DESCRIPTION	IONOGRAM SUMMARY		PENETRATION LOCATION			SCINTILLATION SUMMARY
		LAT	LONG	ALT NM		F-MAX MHz	LAT	LONG	ALT NM		
203	7 19 0	-23.34	175.13	1371	SM, ER			-6.50	171.09	300	Q
205	7 20 0	-20.14	175.00	1371	SM, ER			-3.73	170.76	300	Q
205	7 21 0	-16.93	174.86	1370	SM, ME(<2), ER			-1.34	170.46	300	Q
205	7 22 0	-13.72	174.72	1369	SM, ER			0.68	170.20	300	Q
205	7 23 0	-10.51	174.58	1369	SM, ER			2.38	169.97	300	Q
205	7 24 0	-7.30	174.43	1368	SM			3.80	169.79	300	Q
205	7 25 0	-4.09	174.28	1368	SM			5.00	169.63	300	Q
205	7 26 0	-0.88	174.13	1368	SM			6.06	169.51	300	Q
205	7 27 0	2.33	173.99	1367	SM			7.01	169.41	300	Q
205	7 28 0	5.54	173.84	1367	SM			7.89	169.33	300	Q
205	7 29 0	8.75	173.69	1367	SM			8.73	169.28	300	Q
205	7 30 0	11.97	173.55	1367	SM			9.58	169.24	300	Q
205	7 31 0	15.18	173.40	1367	SM			10.45	169.21	300	Q
205	7 32 0	18.38	173.24	1368	SM			11.39	169.20	300	Q
205	7 33 0	21.59	173.13	1368	SM			12.43	169.21	300	Q
205	7 34 0	24.80	173.00	1369	SM			13.61	169.23	300	Q
205	7 35 0	28.00	172.87	1369	SM			15.00	169.28	300	Q
205	7 36 0	31.20	172.76	1370				16.65	169.34	300	Q
205	7 37 0	34.40	172.65	1370				18.63	169.42	300	Q
205	7 38 0	37.59	172.56	1371				20.97	169.51	300	Q
205	7 39 0	40.79	172.47	1372				23.69	169.62	300	Q

OBJECT: 5104 ISIS 2 PASS SUMMARY FOR KWAJALEIN FOR 24 JULY 1978 DAY 205

DAY	TIME (Z) HR MN SC	SATELLITE LOCATION			DESCRIPTION	IONOGRAM SUMMARY F-MAX MHz	PENETRATION LOCATION			SCINTILLATION SUMMARY
		LAT	LONG	ALT KM			LAT	LONG	ALT KM	
205	9 15 0	-15.88	146.31	1370			-2.90	157.87	300	Q
205	9 16 0	-12.67	146.17	1369			-0.71	158.37	300	Q
205	9 17 0	-9.46	146.02	1369	SM, ME(<2)	>10.0	1.21	158.82	300	Q
205	9 18 0	-6.25	145.87	1368	SM	>10.0	2.90	159.20	300	SC
205	9 19 0	-3.04	145.73	1368	SM	>10.0	4.38	159.51	300	SC
205	9 20 0	0.17	145.58	1368	SM	>10.0	5.72	159.74	300	SC
205	9 21 0	3.38	145.43	1367	SM	>10.0	6.95	159.88	300	SSC
205	9 22 0	6.59	145.28	1367	SM	>10.0	8.11	159.95	300	SSC
205	9 23 0	9.81	145.13	1367	SM	>10.0	9.25	159.95	300	SSC
205	9 24 0	13.02	144.99	1367	SM	>10.0	10.41	159.87	300	SC
205	9 25 0	16.23	144.85	1368	SM	>10.0	11.63	159.72	300	SC
205	9 26 0	19.43	144.71	1368	SM	>10.0	12.94	159.48	300	SSC
205	9 27 0	22.64	144.58	1368			14.40	159.17	300	
205	9 28 0	25.84	144.45	1369			16.04	158.78	300	
205	9 29 0	29.05	144.33	1369			17.90	158.32	300	
205	9 30 0	32.25	144.21	1370			20.01	157.79	300	
205	9 31 0	35.44	144.11	1371			22.39	157.23	300	

SUBJECT: 5104 ISIS 2 PASS SUMMARY FOR KWAJALEIN FOR 24 JULY 1978 DAY 205

DAY	TIME (Z) HR MN SC	SATELLITE LOCATION		DESCRIPTION	IONOGRAM SUMMARY		PENETRATION LOCATION		SCINTILLATION SUMMARY	
		LAT	LONG		ALT KM	F-MAX MHZ	LAT	LONG		ALT KM
#205#	19 32 0	41.35	170.48	SM, ER			23.60	168.80	300	Q
#205#	19 33 0	38.20	170.40	SM, ER			20.90	168.69	300	Q
#205#	19 34 0	35.05	170.31	SM, ER			18.58	168.58	300	Q
#205#	19 35 0	31.90	170.20	SM, ER			16.64	168.49	300	Q
#205#	19 36 0	28.75	170.08	SM, ER			15.01	168.41	300	Q
#205#	19 37 0	25.60	169.96	SM, ME, ER			13.66	168.34	300	Q
#205#	19 38 0	22.45	169.83	SM, ME(<2.5), ER			12.50	168.28	300	Q
#205#	19 39 0	19.30	169.69	SM, ME, CE(1.6), ER			11.50	168.23	300	Q
#205#	19 40 0	16.14	169.55	SM, ME(<2), ER			10.60	168.18	300	Q
#205#	19 41 0	12.99	169.41	SM, ME, SP(NP), ER			9.78	168.14	300	Q
#205#	19 42 0	9.83	169.26	SP, STV, ER			8.99	168.10	300	Q
#205#	19 43 0	6.68	169.11	VSP, STV, ER			8.21	168.07	300	Q
#205#	19 44 0	3.52	168.96	SP, STV, ER			7.42	168.04	300	Q
#205#	19 45 0	0.37	168.81	SP, STV, ER			6.58	168.01	300	Q
#205#	19 46 0	-2.79	168.66	WSP, STV, ER			5.66	167.98	300	Q
#205#	19 47 0	-5.94	168.51	SM, WSP(NP), CE(1.7), ER			4.63	167.95	300	Q
#205#	19 48 0	-9.10	168.36	SM, ME, ER			3.43	167.92	300	Q
#205#	19 49 0	-12.25	168.22	SM, ME, ER			2.02	167.88	300	Q
#205#	19 50 0	-15.40	168.07	SM, ME, ER			0.32	167.85	300	Q
#205#	19 51 0	-18.56	167.93	SM, ME, ER			-1.71	167.80	300	Q
#205#	19 52 0	-21.71	167.79	SM, ME, ER			-4.11	167.76	300	Q
#205#	19 53 0	-24.86	167.66	SM, ME, ER			-6.91	167.70	300	Q

UR #11: 5104 1515 2 PASS SUMMARY FOR KWAJALEIN FOR 25 JULY 1978 DAY 206

DAY	TIME (Z) HR MN SC	SATELLITE LOCATION			DESCRIPTION	IONOGRAM SUMMARY		PENETRATION LOCATION		SCINTILLATION SUMMARY	
		LAT	LONG	ALT NM		F-MAX MHZ	LAT	LONG	ALT NM		
#206#	7 56 0	-25.73	164.62	1372				-8.46	166.26	300	Q
#206#	7 57 0	-22.52	164.49	1371				-5.46	166.32	300	Q
#206#	7 58 0	-19.32	164.35	1370				-2.83	166.38	300	Q
#206#	7 59 0	-16.11	164.22	1370	SM			-0.58	166.44	300	Q
#206#	8 0 0	-12.91	164.07	1369	SM		9.5	1.30	166.49	300	Q
#206#	8 1 0	-9.70	163.93	1369	SM		>10.0	2.88	166.53	300	Q
#206#	8 2 0	-6.48	163.78	1368	SM		>10.0	4.20	166.56	300	Q
#206#	8 3 0	-3.27	163.63	1368	SM		>10.0	5.34	166.57	300	Q
#206#	8 4 0	-0.06	163.49	1368	SM		10.0	6.34	166.58	300	Q
#206#	8 5 0	3.15	163.34	1368	SM		9.1	7.25	166.57	300	Q
#206#	8 6 0	6.36	163.19	1368	SM		9.0	8.11	166.55	300	Q
#206#	8 7 0	9.57	163.04	1368	SM		9.6	8.94	166.52	300	Q
#206#	8 8 0	12.78	162.90	1368	SM		>10.0	9.78	166.48	300	Q
#206#	8 9 0	15.99	162.76	1368	SM		>10.0	10.67	166.43	300	Q
#206#	8 10 0	19.20	162.62	1368	SM		>10.0	11.63	166.36	300	Q
#206#	8 11 0	22.41	162.48	1369	SM		>10.0	12.71	166.28	300	Q
#206#	8 12 0	25.61	162.35	1369	SM		>10.0	13.94	166.18	300	Q
#206#	8 13 0	28.81	162.23	1370	SM		>10.0	15.40	166.05	300	Q
#206#	8 14 0	32.01	162.12	1371				17.15	165.90	300	
#206#	8 15 0	35.21	162.01	1372				19.22	165.72	300	
#206#	8 16 0	38.40	161.92	1372				21.68	165.53	300	
#206#	8 17 0	41.59	161.84	1373				24.50	165.32	300	

OBJECT: 5104 ISIS 2 PASS SUMMARY FOR KWAJALEIN FUK 25 JULY 1978 MAY 206

DAY	TIME (Z) HR MN SC	SATELLITE LOCATION		DESCRIPTION	IONOGRAM SUMMARY		PENETRATION LOCATION		SCINTILLATION SUMMARY	
		LAT	LONG		ALT KM	F-MAX MHZ	LAT	LONG		ALT KM
206	18 17 0	38.46	-171.70	1427			23.59	176.53	300	
206	18 18 0	35.32	-171.79	1428			21.06	175.99	300	Q
206	18 19 0	32.17	-171.90	1430	SM, ER		18.83	175.48	300	MS
206	18 20 0	29.02	-172.01	1431	SM, ER		16.88	175.02	300	MS
206	18 21 0	25.87	-172.14	1432	SM, ER		15.20	174.62	300	MS
206	18 22 0	22.71	-172.27	1433	SM, ER		13.74	174.29	300	MS
206	18 23 0	19.56	-172.40	1434	SM, ER		12.46	174.03	300	MS
206	18 24 0	16.41	-172.54	1434	SM, ER		11.31	173.84	300	MS
206	18 25 0	13.25	-172.69	1435	SM, SP(NP), ER		10.25	173.71	300	MS
206	18 26 0	10.10	-172.83	1436	VSP(>3.5), STV, ER		9.25	173.63	300	Q
206	18 27 0	6.94	-172.98	1436	VSP(>3), STV, ER		8.27	173.62	300	Q
206	18 28 0	3.79	-173.13	1436	VSP(>2), STV, ER		7.27	173.66	300	Q
206	18 29 0	0.63	-173.28	1437	VSP(>2), STV, ER		6.22	173.75	300	Q
206	18 30 0	-2.52	-173.43	1437	VSP(>2), STV, ER		5.08	173.91	300	Q
206	18 31 0	-5.68	-173.58	1437	VSP(>2.5), STV, ER		3.81	174.13	300	Q
206	18 32 0	-8.83	-173.73	1436	VSP(>3), STV, ER		2.37	174.42	300	Q
206	18 33 0	-11.99	-173.88	1436	SP(>4), STV, ER		0.70	174.77	300	Q
206	18 34 0	-15.14	-174.02	1436	SM, ER		-1.23	175.18	300	Q
206	18 35 0	-18.29	-174.16	1435			-3.46	175.64	300	
206	18 36 0	-21.45	-174.30	1435			-6.00	176.13	300	

OBJECT: 5104 ISIS 2 PASS SUMMARY FOR NWAJALEIN FUR 25 JULY 1978 DAY 206

DAY	TIME (Z) HR MN SC	SATELLITE LOCATION		DESCRIPTION	IONOGRAM SUMMARY		PENETRATION LOCATION		SCINTILLATION SUMMARY
		LAT	LONG		F-MAX MHz		LAT	LONG	
206	20 10 0	40.58	159.85	1426			23.24	164.67	300
206	20 11 0	37.44	159.77	1427			20.62	164.86	300
206	20 12 0	34.29	159.67	1429			18.38	165.03	300
206	20 13 0	31.14	159.56	1430			16.49	165.17	300
206	20 14 0	27.99	159.44	1431			14.90	165.29	300
206	20 15 0	24.84	159.31	1432			13.56	165.37	300
206	20 16 0	21.68	159.18	1433			12.41	165.42	300
206	20 17 0	18.53	159.04	1434			11.41	165.45	300
206	20 18 0	15.38	158.90	1435			10.50	165.46	300
206	20 19 0	12.22	158.76	1435			9.65	165.44	300
206	20 20 0	9.07	158.61	1436			8.83	165.40	300
206	20 21 0	5.91	158.46	1436			8.01	165.33	300
206	20 22 0	2.76	158.31	1436			7.16	165.24	300
206	20 23 0	-0.40	158.16	1437			6.25	165.12	300
206	20 24 0	-3.55	158.01	1437			5.24	164.96	300
206	20 25 0	-6.71	157.86	1437			4.10	164.77	300
206	20 26 0	-9.86	157.71	1436			2.76	164.53	300
206	20 27 0	-13.02	157.57	1436			1.18	164.25	300
206	20 28 0	-16.17	157.42	1435			-0.70	163.91	300
206	20 29 0	-19.32	157.28	1435			-2.93	163.53	300
206	20 30 0	-22.47	157.15	1434			-5.52	163.10	300

OBJECT: 5104

ISIS 2

PASS SUMMARY FOR NWAJALE IN

FUR 26

JULY

1978

MAY 207

DAY	TIME (Z) HR MN SEC	SATELLITE LOCATION		DESCRIPTION	IONOGRAM SUMMARY		PENETRATION LOCATION		SCINTILLATION SUMMARY
		LAT	LONG		F-MAX MHz	ALT NM	LAT	LONG	
#207#	6 41 0	-22.74	-177.60	1371			-7.05	174.75	300
#207#	6 42 0	-19.54	-177.74	1370			-4.27	174.18	300
#207#	6 43 0	-16.33	-177.88	1369	SM		-1.82	173.64	300
#207#	6 44 0	-13.13	-178.02	1369	SM		0.29	173.16	300
#207#	6 45 0	-9.92	-178.16	1369	SM		2.07	172.73	300
#207#	6 46 0	-6.71	-178.31	1368	SM		3.59	172.37	300
#207#	6 47 0	-3.49	-178.46	1368	SM		4.89	172.08	300
#207#	6 48 0	-0.28	-178.61	1368	SM		6.04	171.85	300
#207#	6 49 0	2.93	-178.75	1368	SM, ER		7.06	171.67	300
#207#	6 50 0	6.14	-178.90	1368	SM, ER		8.02	171.54	300
#207#	6 51 0	9.35	-179.05	1368	SM		8.94	171.45	300
#207#	6 52 0	12.56	-179.19	1368	SM		9.86	171.40	300
#207#	6 53 0	15.77	-179.34	1369	SM		10.82	171.39	300
#207#	6 54 0	18.98	-179.48	1369	SM		11.85	171.42	300
#207#	6 55 0	22.18	-179.61	1370	SM		12.99	171.49	300
#207#	6 56 0	25.39	-179.74	1370	SM		14.30	171.61	300
#207#	6 57 0	28.59	-179.86	1371	SM		15.81	171.77	300
#207#	6 58 0	31.79	-179.98	1372	SM		17.60	171.98	300
#207#	6 59 0	34.98	179.92	1372	SM		19.71	172.23	300
#207#	7 0 0	38.10	179.83	1373	SM, ER		22.17	172.51	300
#207#	7 1 0	41.37	179.75	1374	SM, ME(<2), ER		24.97	172.82	300

OBJECT: 5104 ISIS 2 PASS SUMMARY FOR KWAJALEIN FOR 26 JULY 1978 DAY 207

DAY	TIME (Z) HR MN SC	SATELLITE LOCATION		DESCRIPTION	IONOGRAM SUMMARY		PENETRATION LOCATION		SCINTILLATION SUMMARY
		LAT	LONG	ALT KM		P-MAX MHZ	LAT	LONG	ALT KM
207	8 35 0	-21.69	153.84	1370			-5.97	161.30	300
207	8 36 0	-18.49	153.71	1370	SM, ER	8.0	-3.34	161.70	300
207	8 37 0	-15.28	153.57	1369	SM, ER	7.7	-1.06	162.07	300
207	8 38 0	-12.07	153.43	1369	SM, ER	9.5	0.89	162.40	300
207	8 39 0	-8.86	153.28	1368	SM	>10.0	2.56	162.68	300
207	8 40 0	-5.65	153.13	1368	SM	>10.0	3.99	162.91	300
207	8 41 0	-2.44	152.99	1368	SM	>10.0	5.23	163.08	300
207	8 42 0	0.77	152.84	1368	SM	>10.0	6.34	163.19	300
207	8 43 0	3.98	152.69	1368	SM	>10.0	7.36	163.26	300
207	8 44 0	7.19	152.54	1368	SM	9.9	8.32	163.28	300
207	8 45 0	10.40	152.39	1368	SM	10.1	9.28	163.26	300
207	8 46 0	13.61	152.25	1369	SM	>10.0	10.26	163.19	300
207	8 47 0	16.82	152.11	1369	SM	>10.0	11.29	163.08	300
207	8 48 0	20.03	151.97	1369	SM	>10.0	12.42	162.91	300
207	8 49 0	23.23	151.84	1370	SM	>10.0	13.70	162.69	300
207	8 50 0	26.44	151.71	1370	SM	10.5	15.16	162.41	300
207	8 51 0	29.64	151.59	1371	SM	>10.0	16.87	162.06	300
207	8 52 0	32.83	151.48	1372	SM	>10.0	18.86	161.66	300
207	8 53 0	36.03	151.38	1373	SM	10.5	21.18	161.22	300
207	8 54 0	39.22	151.29	1374	SM	9.7	23.81	160.75	300

OBJECT: 3669 1515 J PASS SUMMARY FOR KWAJALEIN FOR 26 JULY 1978 DAY 267

DAY	TIME (Z) HR MN SC	SATELLITE LOCATION			DESCRIPTION	IONOGRAM SUMMARY		PENETRATION LOCATION			SCINTILLATION SUMMARY
		LAT	LONG	ALT KM		F-MAX MHZ	F1	LONG	ALT KM		
207	18 54 0	40.83	177.75	1427				23.70	171.71	300	Q
207	18 55 0	37.69	177.67	1428	SM, ER			21.02	171.39	300	Q
207	18 56 0	34.54	177.57	1429	SM, ER			18.71	171.10	300	Q
207	18 57 0	31.39	177.46	1430	SM, ER			16.75	170.83	300	Q
207	18 58 0	28.24	177.34	1431	SM, ME, ER			15.11	170.61	300	Q
207	18 59 0	25.09	177.22	1432	SM, ME, ER			13.72	170.43	300	Q
207	19 0 0	21.94	177.09	1433	SM, ME, ER			12.54	170.28	300	Q
207	19 1 0	18.78	176.95	1434	SM, ER			11.50	170.16	300	Q
207	19 2 0	15.63	176.81	1435	SM, NSP(<2.5), ER			10.57	170.08	300	Q
207	19 3 0	12.48	176.67	1435	SM, NSP(<2), ER			9.71	170.01	300	Q
207	19 4 0	9.32	176.52	1436	SM, NSP(NP), ER			8.89	169.97	300	Q
207	19 5 0	6.17	176.37	1436	SM, NSP(>3.5), ER			8.07	169.95	300	Q
207	19 6 0	3.01	176.22	1436	SM, NSP(>4), ER			7.24	169.95	300	Q
207	19 7 0	-0.15	176.07	1436	SM, NSP(>4), ER			6.35	169.97	300	Q
207	19 8 0	-3.30	175.92	1436	SM, ER			5.38	170.02	300	Q
207	19 9 0	-6.46	175.77	1436	SM, ER			4.28	170.08	300	Q
207	19 10 0	-9.61	175.62	1436	SM, ER			3.00	170.18	300	Q
207	19 11 0	-12.77	175.47	1435	SM, ER			1.50	170.30	300	Q
207	19 12 0	-15.92	175.33	1435				-0.29	170.45	300	Q
207	19 13 0	-19.07	175.19	1434				-2.42	170.63	300	Q
207	19 14 0	-22.23	175.05	1433				-4.92	170.83	300	Q
207	19 15 0	-25.38	174.92	1433				-7.79	171.03	300	Q

OBJECT: 5104 1515 2 PASS SUMMARY FOR NWAJALEIN FOR 26 JULY 1978 DAY 207

DAY	TIME (Z) HR MN SC	SATELLITE LOCATION		DESCRIPTION	IONOGRAM SUMMARY	PENETRATION LOCATION		SCINTILLATION SUMMARY
		LAT	LONG			LAT	LONG	
#207#	20 48 0	39.80	149.22	1427		24.26	159.85	300
#207#	20 49 0	36.66	149.13	1428		21.66	160.27	300
#207#	20 50 0	33.51	149.03	1430		19.38	160.66	300
#207#	20 51 0	30.36	148.92	1431		17.39	161.00	300
#207#	20 52 0	27.21	148.80	1432		15.68	161.29	300
#207#	20 53 0	24.06	148.67	1433	SM, ME(<2), CE(1.5), ER	14.20	161.50	300
#207#	20 54 0	20.91	148.53	1434	OFF	12.91	161.66	300
#207#	20 55 0	17.75	148.40	1434	SM, ME, ER	11.75	161.75	300
#207#	20 56 0	14.60	148.25	1435	SM, ER	10.69	161.78	300
#207#	20 57 0	11.44	148.11	1435	SM, ER	9.68	161.75	300
#207#	20 58 0	8.29	147.96	1436	SM, ER	8.69	161.66	300
#207#	20 59 0	5.13	147.81	1436	SM, ER	7.69	161.51	300
#207#	21 0 0	1.98	147.66	1436	SM, ER	6.63	161.29	300
#207#	21 1 0	-1.18	147.51	1436	SM, CE(1.4), ER	5.49	161.00	300
#207#	21 2 0	-4.33	147.36	1436	SM, ME, ER	4.21	160.63	300
#207#	21 3 0	-7.49	147.21	1436	SM, ME, ER	2.76	160.18	300
#207#	21 4 0	-10.64	147.06	1436	SM, ME, CE(1.5)	1.08	159.65	300
#207#	21 5 0	-13.80	146.92	1435		-0.86	159.04	300
#207#	21 6 0	-16.95	146.78	1435		-3.09	158.36	300

OBJECT: 5104 ISIS 2 PASS SUMMARY FOR KUAJALEIN FOR 27 JULY 1970 DAY 208

DAY	TIME (Z) HR MN SC	SATELLITE LOCATION			DESCRIPTION	IONOGRAM SUMMARY		PENETRATION LOCATION			SCINTILLATION SUMMARY
		LAT	LONG	ALT KM		F-MAX MHZ	LAT	LONG	ALT KM		
208	7 18 0	-25.10	171.88	1371	SM, ER			-7.91	169.67	300	Q
208	7 19 0	-21.90	171.75	1370	SM, ER			-4.96	169.46	300	Q
208	7 20 0	-18.70	171.62	1370	SM, ER			-2.39	169.26	300	Q
208	7 21 0	-15.49	171.48	1369	SM, ER			-0.20	169.08	300	Q
208	7 22 0	-12.28	171.33	1369	SM, ER			1.63	168.93	300	Q
208	7 23 0	-9.07	171.19	1369	SM			3.16	168.81	300	Q
208	7 24 0	-5.86	171.04	1368	SM			4.45	168.70	300	Q
208	7 25 0	-2.65	170.89	1368	SM			5.55	168.61	300	Q
208	7 26 0	0.56	170.75	1368	SM			6.53	168.54	300	Q
208	7 27 0	3.77	170.60	1368	SM			7.43	168.48	300	Q
208	7 28 0	6.98	170.45	1368	SM, ER			8.27	168.43	300	Q
208	7 29 0	10.19	170.30	1369	SM			9.09	168.38	300	Q
208	7 30 0	13.40	170.16	1369	SM			9.93	168.35	300	Q
208	7 31 0	16.61	170.02	1370	SM, ER			10.82	168.32	300	Q
208	7 32 0	19.82	169.88	1370	SM, ER			11.78	168.30	300	Q
208	7 33 0	23.02	169.75	1371	SM, ER			12.86	168.28	300	Q
208	7 34 0	26.22	169.62	1371	SM, ER			14.11	168.27	300	Q
208	7 35 0	29.42	169.50	1372	SM, ER			15.59	168.27	300	Q
208	7 36 0	32.62	169.39	1373	SM, ER			17.36	168.27	300	Q
208	7 37 0	35.82	169.28	1374	SM, ER			19.47	168.27	300	Q
208	7 38 0	39.01	169.19	1375	SM, ER			21.97	168.28	300	Q
208	7 39 0	42.19	169.12	1376	SM			24.84	168.30	300	Q

OBJECT: 5104 ISIS 2 PASS SUMMARY FOR KWAJALEIN FOR 27 JULY 1978 MAY 208

DAY	TIME (Z) HR MN SC	SATELLITE LOCATION			DESCRIPTION	IONOGRAM SUMMARY		PENETRATION LOCATION		SCINTILLATION SUMMARY	
		LAT	LONG	ALT KM		F-MAX MHZ		LAT	LONG	ALT KM	
208	19 31 0	43.19	167.19	1426	SM, ME, ER			25.28	167.51	300	Q
208	19 32 0	40.04	167.12	1428	SM, WSP, ER	8.0		22.37	167.50	300	Q
208	19 33 0	36.89	167.03	1429	SM, WSP, ER	8.2		19.84	167.49	300	Q
208	19 34 0	33.75	166.93	1430	SM, WSP, ER	8.5		17.69	167.47	300	Q
208	19 35 0	30.60	166.82	1431	SM, ME, ER	8.5		15.90	167.46	300	Q
208	19 36 0	27.45	166.70	1432	SM, ME, ER	8.2		14.40	167.44	300	Q
208	19 37 0	24.30	166.57	1433	VSP, ME, ER	7.5		13.15	167.42	300	Q
208	19 38 0	21.14	166.44	1434	VSP, STV, ME, ER	7.5		12.07	167.40	300	Q
208	19 39 0	17.99	166.30	1434	VWSP, STV, ME, ER	7.0		11.12	167.37	300	Q
208	19 40 0	14.84	166.16	1435	VWSP, STV, ME, ER	6.9		10.25	167.34	300	Q
208	19 41 0	11.68	166.02	1435	VWSP(<6), STV, ME, ER	7.2		9.45	167.31	300	Q
208	19 42 0	8.53	165.87	1436	VSP(<4), STV, ME, ER	7.2		8.67	167.27	300	Q
208	19 43 0	5.37	165.72	1436	VSP(<3), STV, ME, ER	7.3		7.89	167.23	300	Q
208	19 44 0	2.22	165.57	1436	VSP(<4), STV, ME, ER	7.8		7.07	167.18	300	Q
208	19 45 0	-0.94	165.42	1436	VSP(<5), STV, ME, ER	7.9		6.20	167.13	300	Q
208	19 46 0	-4.09	165.27	1436	SP(<7), STV, ER	8.0		5.23	167.06	300	Q
208	19 47 0	-7.25	165.12	1435	SP, STV, ER	7.5		4.13	166.98	300	Q
208	19 48 0	-10.40	164.97	1435	SM, RSP, ER	7.5		2.84	166.89	300	Q
208	19 49 0	-13.56	164.83	1435	SM, ME(<1.7), RSP, ER	7.0		1.31	166.78	300	Q
208	19 50 0	-16.71	164.68	1434	SM, ME(<2), ER	6.6		-0.54	166.64	300	Q
208	19 51 0	-19.87	164.54	1433	SM, ME, ER	6.6		-2.74	166.49	300	Q
208	19 52 0	-23.02	164.41	1432	SM, ME, ER	6.0		-5.33	166.32	300	Q
208	19 53 0	-26.17	164.28	1431	SM, ME, ER			-8.30	166.14	300	Q

OBJECT: 5104 ISIS 2 PASS SUMMARY FOR KWAJALEIN FOR 28 JULY 1978 DAY 209

DAY	TIME (Z) HR MN SC	SATELLITE LOCATION			DESCRIPTION	IONOGRAM SUMMARY		PENETRATION LOCATION		SCINTILLATION SUMMARY	
		LAT	LONG	ALT KM		F-MAX MHZ	LAT	LONG	ALT KM		
209	6 5 0	-15.69	-170.61	1369				-2.81	177.71	300	
209	6 6 0	-12.48	-170.76	1369				-0.57	177.02	300	
209	6 7 0	-9.27	-170.90	1369	SM			1.38	176.40	300	Q
209	6 8 0	-6.06	-171.05	1369	SM			3.08	175.85	300	Q
209	6 9 0	-2.85	-171.20	1369	SM			4.57	175.40	300	Q
209	6 10 0	0.37	-171.35	1369	SM ER			5.88	175.03	300	Q
209	6 11 0	3.58	-171.49	1369	SM			7.08	174.74	300	Q
209	6 12 0	6.79	-171.64	1369	SM			8.19	174.53	300	Q
209	6 13 0	10.00	-171.79	1369	SM			9.26	174.40	300	Q
209	6 14 0	13.21	-171.93	1370	SM			10.34	174.33	300	Q
209	6 15 0	16.41	-172.07	1370	SM			11.46	174.33	300	Q
209	6 16 0	19.62	-172.21	1371	SM			12.66	174.41	300	Q
209	6 17 0	22.82	-172.35	1371	SM			13.99	174.55	300	Q
209	6 18 0	26.02	-172.47	1372	SM			15.50	174.76	300	Q
209	6 19 0	29.22	-172.60	1373	SM			17.22	175.04	300	Q
209	6 20 0	32.42	-172.71	1374				19.21	175.39	300	Q
209	6 21 0	35.61	-172.81	1375				21.48	175.78	300	

8.5

209	7 56 0	-24.25	161.24	1370	SM, ME, ER			-7.27	164.73	300	Q
209	7 57 0	-21.05	161.11	1370	SM, ME, CE(1.6), ER			-4.42	164.91	300	Q
209	7 58 0	-17.84	160.97	1369	SM, ME, ER			-1.95	165.08	300	Q
209	7 59 0	-14.63	160.83	1369	SM			0.15	165.24	300	Q
209	8 0 0	-11.42	160.69	1369	SM			1.92	165.37	300	Q
209	8 1 0	-8.21	160.54	1369	SM			3.40	165.48	300	Q
209	8 2 0	-5.00	160.39	1369	SM			4.66	165.55	300	Q
209	8 3 0	-1.79	160.25	1369	SM			5.75	165.61	300	Q
209	8 4 0	1.42	160.10	1369	SM			6.73	165.64	300	Q
209	8 5 0	4.63	159.95	1369	SM			7.63	165.65	300	Q
209	8 6 0	7.84	159.80	1369	SM			8.50	165.64	300	Q
209	8 7 0	11.05	159.66	1369	SM			9.35	165.60	300	Q
209	8 8 0	14.26	159.51	1370	SM			10.23	165.55	300	Q
209	8 9 0	17.47	159.37	1370	SM			11.17	165.47	300	Q
209	8 10 0	20.67	159.23	1371	SM			12.21	165.37	300	Q
209	8 11 0	23.87	159.10	1372	SM			13.38	165.24	300	Q
209	8 12 0	27.07	158.98	1373	SM			14.75	165.07	300	Q
209	8 13 0	30.27	158.86	1373	SM			16.36	164.87	300	Q
209	8 14 0	33.47	158.75	1374				18.29	164.63	300	Q
209	8 15 0	36.66	158.65	1375				20.56	164.36	300	Q
209	8 16 0	39.85	158.56	1376				23.19	164.07	300	Q

OBJECT: 5104 ISIS 2 PASS SUMMARY FOR NWAJALLIN FOR 28 JULY 1978 DAY 209

UT	TIME (Z) HR MIN SC	SATELLITE LOCATION		DESCRIPTION	IONOGRAM SUMMARY		PENETRATION LOCATION		SCINTILLATION SUMMARY	
		LAT	LONG		ALT KM	F-MAX MIZ	LAT	LONG		ALT NM
209	18 17 0	37.12	-175.06	1429	SM, ME, ER		21.73	174.54	300	Q
209	18 18 0	33.97	-175.16	1430	SM, ME, ER	7.5	19.38	174.08	300	Q
209	18 19 0	30.83	-175.27	1431	SM, ME, ER	7.1	17.35	173.66	300	Q
209	18 20 0	27.68	-175.39	1432	SM, ME, ER	7.0	15.61	173.29	300	Q
209	18 21 0	24.53	-175.52	1433	SM, ME, ER	6.9	14.12	172.98	300	Q
209	18 22 0	21.37	-175.65	1434	SM, ME, ER	6.7	12.83	172.74	300	Q
209	18 23 0	18.22	-175.79	1434	SM, ME, ER	7.0	11.70	172.55	300	Q
209	18 24 0	15.07	-175.93	1435	SM, MSP(<2), ER	6.8	10.67	172.41	300	Q
209	18 25 0	11.91	-176.08	1435	SM, MSP(<2), ER	6.4	9.71	172.32	300	Q
209	18 26 0	8.76	-176.22	1435	SM, ER	6.5	8.79	172.28	300	Q
209	18 27 0	5.60	-176.37	1436	SM, ER	6.7	7.88	172.28	300	Q
209	18 28 0	2.45	-176.52	1436	SM, ER	6.6	6.94	172.32	300	Q
209	18 29 0	-0.71	-176.67	1436	SM, ER	6.5	5.93	172.41	300	Q
209	18 30 0	-3.87	-176.82	1435	SM, ER	6.5	4.82	172.55	300	Q
209	18 31 0	-7.02	-176.97	1435	SM, ER	6.5	3.57	172.74	300	Q
209	18 32 0	-10.18	-177.12	1434	SM, ER	7.0	2.12	172.99	300	Q
209	18 33 0	-13.33	-177.27	1434	SM, ER	6.6	0.43	173.29	300	Q
209	18 34 0	-16.49	-177.41	1433	SM, SP(<1.6), ER	6.5	-1.55	173.64	300	Q
209	18 35 0	-19.64	-177.55	1432	SM, MSP(<1.7), ER	6.4	-3.86	174.04	300	Q
209	18 36 0	-22.80	-177.68	1432	SM, ME, ER	6.4	-6.50	174.46	300	Q

209	20 9 0	42.38	156.56	1427	SM, ME, MSP, ER		25.27	163.10	300	Q
209	20 10 0	39.24	156.49	1429	SM, ME, ER	9.0	22.45	163.39	300	Q
209	20 11 0	36.09	156.40	1430	SM, ME, ER	9.0	19.97	163.65	300	Q
209	20 12 0	32.94	156.29	1431	SM, ME, ER	9.0	17.85	163.89	300	Q
209	20 13 0	29.79	156.18	1432	SM, ME, CE(1.6), ER	8.5	16.05	164.09	300	Q
209	20 14 0	26.64	156.06	1433	SM, ME, ER	7.7	14.54	164.24	300	Q
209	20 15 0	23.49	155.93	1433	SM, ME, CE(1.5), ER	7.1	13.25	164.36	300	Q
209	20 16 0	20.34	155.80	1434	SM, ME, SP, ER	6.9	12.12	164.43	300	Q
209	20 17 0	17.19	155.66	1435	SM, SP(<2.5), ER	7.6	11.13	164.47	300	Q
209	20 18 0	14.03	155.51	1435	SM, SP(<2.5), ER	7.5	10.21	164.47	300	Q
209	20 19 0	10.88	155.37	1435	SM, SP(<2), ER	7.7	9.34	164.44	300	Q
209	20 20 0	7.72	155.22	1436	SM, SP(<2), ER	8.1	8.48	164.38	300	Q
209	20 21 0	4.57	155.07	1436	SM, SP(<2), ER	7.8	7.62	164.28	300	Q
209	20 22 0	1.41	154.92	1436	SM, SP(<2), ER	7.2	6.70	164.14	300	Q
209	20 23 0	-1.74	154.77	1435	SM, SP(<2), ER	7.0	5.71	163.96	300	Q
209	20 24 0	-4.90	154.62	1435	SM, MSP(<2), ER	7.0	4.59	163.74	300	Q
209	20 25 0	-8.06	154.47	1435	SM, ME, ER	7.0	3.30	163.45	300	Q
209	20 26 0	-11.21	154.32	1434	SM, ME, ER	7.1	1.80	163.11	300	Q
209	20 27 0	-14.37	154.18	1434	SM, ME, ER	6.6	0.02	162.71	300	Q
209	20 28 0	-17.52	154.04	1433	SM, ME, ER		-2.09	162.24	300	Q
209	20 29 0	-20.68	153.90	1432			-4.54	161.72	300	Q

OBJECT: 5104 ISIS 2

PASS SUMMARY FOR KWAJALEIN

FOR 29

JULY

1978

DAY 210

DAY	TIME (Z) HR MN SC	SATELLITE LOCATION			DESCRIPTION	IONOGRAM SUMMARY		PENETRATION LOCATION			SCINTILLATION SUMMARY
		LAT	LONG	ALT KM		F-MAX MHz	LAT	LONG	ALT NM		
210	6 41 0	-21.23	179.02	1370				-5.14	172.75	300	Q
210	6 42 0	-18.02	178.88	1369	SM			-2.55	172.30	300	Q
210	6 43 0	-14.82	178.74	1369	SM			-0.34	171.89	300	Q
210	6 44 0	-11.61	178.60	1369	SM			1.53	171.54	300	Q
210	6 45 0	-8.40	178.45	1369	SM			3.11	171.24	300	Q
210	6 46 0	-5.19	178.30	1369	SM			4.45	170.99	300	Q
210	6 47 0	-1.98	178.16	1369	SM, ER			5.60	170.79	300	Q
210	6 48 0	1.23	178.01	1369	SM, ER			6.62	170.63	300	Q
210	6 49 0	4.45	177.86	1369	SM, ER			7.56	170.51	300	Q
210	6 50 0	7.66	177.71	1370	SM, ER			8.45	170.42	300	Q
210	6 51 0	10.86	177.57	1370	SM			9.32	170.37	300	Q
210	6 52 0	14.07	177.42	1371	SM			10.21	170.34	300	Q
210	6 53 0	17.28	177.28	1371	SM			11.15	170.33	300	Q
210	6 54 0	20.48	177.14	1372	SM			12.18	170.36	300	Q
210	6 55 0	23.69	177.01	1373	SM			13.34	170.42	300	Q
210	6 56 0	26.89	176.88	1373	SM			14.69	170.51	300	Q
210	6 57 0	30.08	176.77	1374	SM			16.27	170.63	300	Q
210	6 58 0	33.28	176.66	1375				18.15	170.79	300	Q
210	6 59 0	36.47	176.56	1376				20.38	170.98	300	Q
210	7 0 0	39.66	176.47	1377				22.97	171.19	300	Q

210	8 35 0	-20.18	150.46	1370				-5.34	159.64	300	Q
210	8 36 0	-16.97	150.33	1369				-2.83	160.11	300	Q
210	8 37 0	-13.76	150.19	1369	SM, ER			-0.63	160.56	300	Q
210	8 38 0	-10.55	150.04	1369	SM, ER			1.27	160.94	300	Q
210	8 39 0	-7.34	149.90	1369	SM			2.90	161.27	300	Q
210	8 40 0	-4.13	149.75	1369	SM			4.32	161.53	300	Q
210	8 41 0	-0.92	149.60	1369	SM			5.58	161.73	300	Q
210	8 42 0	2.29	149.45	1369	SM			6.72	161.86	300	Q
210	8 43 0	5.50	149.30	1369	SM			7.78	161.93	300	Q
210	8 44 0	8.71	149.15	1370	SM			8.81	161.94	300	Q
210	8 45 0	11.92	149.01	1370	SM			9.84	161.89	300	Q
210	8 46 0	15.13	148.87	1371	SM			10.91	161.78	300	Q
210	8 47 0	18.33	148.73	1371	SM			12.06	161.62	300	Q
210	8 48 0	21.54	148.59	1372	SM			13.34	161.38	300	Q
210	8 49 0	24.74	148.46	1373	SM, ER			14.78	161.08	300	Q
210	8 50 0	27.94	148.34	1374	SM, ER			16.43	160.71	300	Q
210	8 51 0	31.13	148.22	1375	SM, ER			18.34	160.28	300	Q
210	8 52 0	34.33	148.11	1376	SM, ER			20.55	159.79	300	Q
210	8 53 0	37.52	148.07	1377	SM			23.04	159.26	300	Q

OBJECT: 5104 ISIS 2

PASS SUMMARY FOR KWAJALEIN

FOR 29

JULY

1978

DAY 210

DAY	TIME (Z) HR MN SC	SATELLITE LOCATION			DESCRIPTION	IONOGRAM SUMMARY		PENETRATION LOCATION			SCINTILLATION SUMMARY
		LAT	LONG	ALT KM		F-MAX	MEZ	LAT	LONG	ALT KM	
210	18 53 0	42.60	174.47	1428	SM, ER			24.98	170.45	300	
210	18 54 0	39.45	174.39	1429	SM, ER		7.0	22.13	170.23	300	Q
210	18 55 0	36.31	174.30	1430	SM, ER		7.2	19.64	170.01	300	MS
210	18 56 0	33.16	174.20	1431	SM, ER		7.5	17.53	169.81	300	MS
210	18 57 0	30.01	174.09	1432	SM, ER		7.6	15.76	169.64	300	Q
210	18 58 0	26.86	173.97	1433	SM, ER		8.0	14.28	169.50	300	Q
210	18 59 0	23.71	173.84	1433	SM, ER		8.1	13.03	169.38	300	Q
210	19 0 0	20.56	173.70	1434	SP(>3.5), STV, ER		7.8	11.95	169.29	300	Q
210	19 1 0	17.40	173.56	1434	WSP(>2), STV, ER		8.0	11.00	169.21	300	Q
210	19 2 0	14.25	173.42	1435	WSP(>1.5), STV, ME, ER		7.8	10.13	169.15	300	Q
210	19 3 0	11.10	173.28	1435	WSP(>1.4), STV, ME, ER		7.5	9.32	169.11	300	Q
210	19 4 0	7.94	173.13	1435	WSP, STV, ME, ER		7.0	8.53	169.07	300	Q
210	19 5 0	4.78	172.98	1435	WSP, STV, ME, ER		7.0	7.73	169.05	300	Q
210	19 6 0	1.63	172.83	1435	WSP(>1.6), STV, ME, ER		7.1	6.90	169.04	300	Q
210	19 7 0	-1.53	172.68	1435	WSP, STV, ME, ER		7.0	6.00	169.05	300	Q
210	19 8 0	-4.68	172.53	1435	WSP, STV, ME, ER		7.2	5.00	169.06	300	Q
210	19 9 0	-7.84	172.38	1434	WSP, STV, ME, ER		7.0	3.86	169.09	300	Q
210	19 10 0	-11.00	172.23	1434	VSP(>2.5), STV, ME, ER		7.0	2.52	169.13	300	Q
210	19 11 0	-14.15	172.09	1433	SM, WSP(>4.5), ER		6.8	0.93	169.19	300	Q
210	19 12 0	-17.31	171.94	1432	SM, ME, ER		6.0	-0.98	169.26	300	Q
210	19 13 0	-20.46	171.81	1431	SM, ME, ER		6.0	-3.26	169.35	300	Q
210	19 14 0	-23.62	171.67	1430	SM, ME, ER			-5.92	169.43	300	Q

210	20 49 0	35.27	145.76	1430				21.36	158.65	300	
210	20 50 0	32.13	145.66	1431				19.16	159.07	300	
210	20 51 0	28.98	145.54	1432	SM, WSP, ME, ER		8.5	17.23	159.43	300	Q
210	20 52 0	25.83	145.42	1433	SM, WSP, ME, ER		8.0	15.54	159.72	300	Q
210	20 53 0	22.68	145.29	1434	SM, ME, ER		8.7	14.06	159.94	300	Q
210	20 54 0	19.52	145.15	1434	SM, ME(<2), ER		8.0	12.74	160.09	300	Q
210	20 55 0	16.37	145.01	1435	SM, SP(<2), ER		7.7	11.54	160.16	300	Q
210	20 56 0	13.22	144.87	1435	SM, SP(<1.7), ER		6.8	10.42	160.16	300	Q
210	20 57 0	10.06	144.72	1435	SM, ER		6.6	9.33	160.09	300	Q
210	20 58 0	6.91	144.57	1435	SM, WSP(<1.8), ER		6.6	8.25	159.94	300	Q
210	20 59 0	3.75	144.42	1435	SM, WSP(<1.7), ER		6.7	7.13	159.71	300	Q
210	21 0 0	0.59	144.27	1435	SM, ER		7.2	5.93	159.40	300	Q
210	21 1 0	-2.56	144.12	1435	SM, WSP(<1.7), ER		7.3	4.62	159.00	300	Q
210	21 2 0	-5.72	143.97	1434	SM, ER		7.2	3.15	158.51	300	Q
210	21 3 0	-8.88	143.82	1434	SM, ME, ER		6.5	1.48	157.93	300	Q
210	21 4 0	-12.03	143.68	1433	SM, ME, ER		6.6	-0.43	157.27	300	Q
210	21 5 0	-15.19	143.53	1433	SM, ME, ER		6.1	-2.61	156.55	300	Q

OBJECT: S104 ISIS 2 PASS SUMMARY FOR KUJAJALEIN FOR 30 JULY 1978 DAY 211

DAY	TIME (Z) HR MN SC	SATELLITE LOCATION		DESCRIPTION	IONOGRAM SUMMARY	PENETRATION LOCATION		SCINTILLATION SUMMARY
		LAT	LONG			LAT	LONG	
#211*	7 18 0	-23.55	168.51	1370		-6.33	168.08	300
#211*	7 19 0	-20.35	168.37	1370	SM, ER	-3.57	167.99	300
#211*	7 20 0	-17.14	168.24	1369	SM, ER	-1.19	167.92	300
#211*	7 21 0	-13.93	168.10	1369	SM, ER	0.80	167.86	300
#211*	7 22 0	-10.72	167.95	1369	SM	2.46	167.80	300
#211*	7 23 0	-7.51	167.81	1369	SM	3.85	167.75	300
#211*	7 24 0	-4.30	167.66	1369	SM	5.03	167.71	300
#211*	7 25 0	-1.09	167.51	1369	SM	6.06	167.67	300
#211*	7 26 0	2.12	167.36	1370	SM	6.98	167.63	300
#211*	7 27 0	5.33	167.21	1370	SM	7.84	167.60	300
#211*	7 28 0	8.54	167.06	1370	SM	8.67	167.54	300
#211*	7 29 0	11.74	166.92	1371	SM	9.49	167.52	300
#211*	7 30 0	14.95	166.78	1372	SM	10.34	167.49	300
#211*	7 31 0	18.16	166.64	1372	SM	11.26	167.44	300
#211*	7 32 0	21.36	166.50	1373	SM	12.27	167.40	300
#211*	7 33 0	24.56	166.37	1374	SM	13.42	167.35	300
#211*	7 34 0	27.76	166.24	1375	SM	14.77	167.29	300
#211*	7 35 0	30.95	166.13	1376	SM	16.37	167.23	300
#211*	7 36 0	34.15	166.02	1377	SM	18.30	167.16	300
#211*	7 37 0	37.34	165.92	1378	SM, ER	20.59	167.07	300
#211*	7 38 0	40.52	165.84	1379	SM, ER	23.26	166.99	300

0600: 5104 1515 2

PASS SUMMARY FOR KWADALEH

FUR 30

JULY

1978

DAY 211

DAY	TIME (Z) HR MN SC	SATELLITE LOCATION			DESCRIPTION	IONOGRAM SUMMARY		PENETRATION LOCATION			SCINTILLATION SUMMARY	
		LAT	LONG	ALT KM		F-MAX	MEZ	LAT	LONG	ALT KM		
211*	19 31 0	41.77	163.34	1429	SM, WSP(<2.5), ER			24.00	166.21	300	Q	
211*	19 32 0	38.62	163.76	1430	SM, ME(<2.5), ER		8.2	21.26	166.29	300	Q	
211*	19 33 0	35.40	163.67	1431	SM, WSP(<2.5), ER		8.2	18.90	166.37	300	Q	
211*	19 34 0	32.33	163.56	1432	SM, WSP(<2.5), ER		7.4	16.92	166.43	300	Q	
211*	19 35 0	29.18	163.45	1432	SM, ER		~ 6.5	15.26	166.48	300	Q	
211*	19 36 0	26.03	163.32	1433	SP, ER		6.2	13.87	166.51	300	Q	
211*	19 37 0	22.88	163.19	1434	VSP, ME, ER		6.0	12.69	166.53	300	Q	
211*	19 38 0	19.73	163.06	1434	VSP, ME, ER		5.8	11.67	166.53	300	Q	
211*	19 39 0	16.58	162.92	1434	VWSP, STV, ME, ER		5.7	10.75	166.52	300	Q	
211*	19 40 0	13.42	162.77	1435	VSP, STV, ME, ER		5.7	9.91	166.50	300	Q	
211*	19 41 0	10.27	162.63	1435	VSP, STV, ER		5.8	9.11	166.47	300	Q	
211*	19 42 0	7.11	162.48	1435	VSP(<4), STV, ER		6.0	8.32	166.42	300	Q	
211*	19 43 0	3.95	162.33	1435	VWSP(<4), STV, ER		6.3	7.51	166.36	300	Q	
211*	19 44 0	0.80	162.18	1435	VSP(<5), STV, ME, ER		6.5	6.66	166.28	300	Q	
211*	19 45 0	-2.36	162.03	1434	VSP, STV, ME		~ 7.0	5.73	166.19	300	Q	
211*	19 46 0	-5.52	161.88	1434	VSP, STV, ME		~ 7.0	4.69	166.07	300	Q	
211*	19 47 0	-8.67	161.73	1433	SM, ME, ER		6.8	3.48	165.93	300	Q	
211*	19 48 0	-11.83	161.58	1433	SM, ME, ER		6.0	2.05	165.75	300	Q	
211*	19 49 0	-14.99	161.44	1432	SM, ME, ER		6.0	0.35	165.55	300	Q	
211*	19 50 0	-18.14	161.30	1431	SM, ME, ER		6.0	-1.69	165.30	300	Q	
211*	19 51 0	-21.30	161.16	1430	SM, ME, ER		5.5	-4.11	165.03	300	Q	
211*	19 52 0	-24.48	161.03	1429	SM, ME, CE(1.5), ER		5.5	-6.90	164.73	300	Q	

OBJECT: 5104 ISIS 2

PASS SUMMARY FOR KWAJALEIN

FOR 31 JULY 1978

DAY 212

Day	TIME (Z) HR MN SC	SATELLITE LOCATION		DESCRIPTION	IONOGRAM SUMMARY		PENETRATION LOCATION		SCINTILLATION SUMMARY	
		LAT	LONG		ALT KM	F-MAX MHz	LAT	LONG		ALT KM
212	6 3 0	-20.51	-173.72	1370			-5.91	176.66	300	Q
212	6 4 0	-17.30	-173.85	1369			-3.29	175.99	300	Q
212	6 5 0	-14.09	-173.99	1369	SM, ER		-0.98	175.36	300	Q
212	6 6 0	-10.88	-174.14	1369	SM, ER	12.7	1.01	174.79	300	Q
212	6 7 0	-7.67	-174.28	1369	SM	>10.0	2.73	174.30	300	Q
212	6 8 0	-4.47	-174.43	1370	SM	9.8	4.20	173.89	300	Q
212	6 9 0	-1.25	-174.58	1370	SM, ER	8.5	5.49	173.55	300	Q
212	6 10 0	1.96	-174.73	1370	SM, ER	7.9	6.63	173.29	300	Q
212	6 11 0	5.16	-174.88	1371	SM, ER	8.6	7.69	173.09	300	Q
212	6 12 0	8.37	-175.03	1371	SM	9.7	8.69	172.95	300	Q
212	6 13 0	11.58	-175.17	1372	SM	>10.0	9.68	172.87	300	Q
212	6 14 0	14.79	-175.31	1372	SM	>10.0	10.69	172.85	300	Q
212	6 15 0	17.99	-175.45	1373	SM	>10.0	11.76	172.88	300	Q
212	6 16 0	21.19	-175.59	1374	SM	>10.0	12.93	172.96	300	Q
212	6 17 0	24.39	-175.72	1375	SM	10.0	14.25	173.11	300	Q
212	6 18 0	27.59	-175.85	1376	SM	9.7	15.77	173.31	300	Q
212	6 19 0	30.79	-175.96	1377	SM, ME, CE(1.7), ER	9.2	17.54	173.57	300	Q
212	6 20 0	33.98	-176.07	1378	SM, ME, ER	8.6	19.60	173.88	300	Q
212	6 21 0	37.17	-176.17	1379	SM, ME, ER	7.9	21.98	174.24	300	Q
212	6 22 0	40.35	-176.25	1380	SM, ME, ER	7.5	24.67	174.62	300	Q

ORBIT: 5104 145.2

LOSS SUMMARY FOR KADJALE IR

FOR 31

MAY

1978

DAY 212

DATE	TIME (Z) HR MIN SEC	SATELLITE LOCATION			DESCRIPTION	IONOGRAM SUMMARY		PENETRATION LOCATION			SCINTILLATION SUMMARY
		LAT	LONG	ALT NM		F-MAX	MEZ	LAT	LONG	ALT NM	
212	7 56 0	-22.65	157.86	1370				-6.19	163.24	300	Q
212	7 57 0	-19.45	157.73	1370	SM, ME, ER	6.5		-3.50	163.53	300	Q
212	7 58 0	-16.24	157.59	1369	SM, ME, ER	7.5		-1.17	163.80	300	Q
212	7 59 0	-13.04	157.45	1369	SM, ME, ER	9.0		0.81	164.04	300	Q
212	8 0 0	-9.83	157.31	1369	SM	>10.0		2.47	164.24	300	Q
212	8 1 0	-6.62	157.16	1370	SM	>10.0		3.88	164.39	300	Q
212	8 2 0	-3.41	157.01	1370	SM	>10.0		5.10	164.51	300	Q
212	8 3 0	-0.20	156.86	1370	SM	>10.0		6.17	164.59	300	Q
212	8 4 0	3.01	156.71	1370	SM	>10.0		7.14	164.64	300	Q
212	8 5 0	6.22	156.57	1371	SM	>10.0		8.05	164.66	300	Q
212	8 6 0	9.43	156.42	1371	SM	>10.0		8.94	164.64	300	Q
212	8 7 0	12.64	156.27	1372	SM	>10.0		9.84	164.59	300	Q
212	8 8 0	15.84	156.13	1373	SM	>10.0		10.79	164.52	300	Q
212	8 9 0	19.05	155.99	1373	SM	>10.0		11.81	164.40	300	Q
212	8 10 0	22.25	155.86	1374	SM	>10.0		12.95	164.25	300	Q
212	8 11 0	25.45	155.73	1375	SM	>10.0		14.26	164.05	300	Q
212	8 12 0	28.64	155.61	1376	SM	>10.0		15.79	163.81	300	Q
212	8 13 0	31.84	155.49	1377	SM	9.5		17.59	163.52	300	Q
212	8 14 0	35.03	155.39	1378	SM, ER	8.8		19.72	163.18	300	Q
212	8 15 0	38.22	155.29	1380	SM, ER	8.0		22.20	162.81	300	Q
212	8 16 0	41.40	155.21	1381	SM, ER	7.7		25.02	162.43	300	Q

OBJECT: 5104 ISIS 2

PASS SUMMARY FOR KWAJALEIN

FUR 31

JULY 1978

PAGE 212

DAY	TIME (Z) HR MN SC	SATELLITE LOCATION			DESCRIPTION	IONOGRAM SUMMARY		PENETRATION LOCATION			SCINTILLATION SUMMARY
		LAT	LONG	ALT KM		F-MAX	MEZ	LAT	LONG	ALT KM	
212	18 16 0	38.82	-178.33	1430	SM, ME, ER		6.4	22.49	173.21	300	Q
212	18 17 0	35.57	-178.43	1431	SM, ME, ER		6.3	20.02	172.00	300	Q
212	18 18 0	32.52	-178.53	1432	SM, ME, ER		6.3	17.88	172.43	300	Q
212	18 19 0	29.37	-178.65	1432	SM, ME, ER		6.4	16.06	172.11	300	Q
212	18 20 0	26.22	-178.77	1433	SM, ME, ER		6.3	14.52	171.84	300	Q
212	18 21 0	23.07	-178.90	1434	SM, ME, CE(1.8), ER		6.0	13.20	171.62	300	Q
212	18 22 0	19.92	-179.03	1434	SM, ME, CE(1.3), ER		5.5	12.06	171.44	300	Q
212	18 23 0	16.77	-179.17	1434	SM, ME, CE(1.4), ER		5.0	11.04	171.31	300	Q
212	18 24 0	13.61	-179.32	1434	SM, ER		4.9	10.11	171.22	300	Q
212	18 25 0	10.46	-179.46	1435	SM, MSP, ER		5.0	9.23	171.16	300	Q
212	18 26 0	7.30	-179.61	1434	MSP, STV, ER		5.3	8.37	171.14	300	Q
212	18 27 0	4.15	-179.76	1434	MSP, STV, ER		5.5	7.50	171.14	300	Q
212	18 28 0	0.99	-179.91	1434	SP(>2), STV, ER		5.1	6.58	171.18	300	Q
212	18 29 0	-2.17	-179.94	1434	SP(>2), STV, ER		5.3	5.59	171.26	300	Q
212	18 30 0	-5.33	-179.79	1433	SP(>3), STV, ER		5.2	4.49	171.37	300	Q
212	18 31 0	-8.48	-179.64	1432	SM, ER		4.9	3.22	171.53	300	Q
212	18 32 0	-11.64	-179.49	1432	SM, ME, CE(1.8), ER		4.8	1.74	171.73	300	Q
212	18 33 0	-14.80	-179.35	1431	SM, ME, ER		4.8	-0.02	171.97	300	Q
212	18 34 0	-17.96	-179.21	1430	SM, ME, ER		4.8	-2.09	172.26	300	Q
212	18 35 0	-21.11	-179.07	1429	SM, ME, CE(1.7), ER		4.9	-4.52	172.57	300	Q
212	18 36 0	-24.27	-178.94	1428				7.30	172.90	300	Q

OBJECT: 356Y 1515 I

PASS SUMMARY FOR NWAJALEIN

FOR 31

JULY 1978

DAY 212

DAY	TIME (Z) HR MN SC	SATELLITE LOCATION		DESCRIPTION	IONOGRAM SUMMARY		PENETRATION LOCATION		SCINTILLATION SUMMARY
		LAT	LONG		F-MAX MHz	ALT KM	LAT	LONG	
2017*	20 07 0	40.94	153.21	1429			24.44	161.72	300
2017*	20 10 0	37.78	153.13	1430			21.76	162.07	300
2017*	20 11 0	34.64	153.03	1431	SM, ME, ER		19.42	162.40	300
2017*	20 12 0	31.49	152.92	1432	SM, ME, ER		17.40	162.69	300
2017*	20 13 0	28.34	152.81	1433	SM, ME, CE(1.6), ER		15.68	162.92	300
2017*	20 14 0	25.19	152.68	1433	SM, ME, ER		14.22	163.11	300
2017*	20 15 0	22.04	152.55	1434	SM, ME, ER		12.96	163.24	300
2017*	20 16 0	18.89	152.41	1434	SP, ME, ER		11.84	163.32	300
2017*	20 17 0	15.73	152.27	1434	SP(<4), STV, ER		10.83	163.36	300
2017*	20 18 0	12.58	152.13	1434	VSP(<3), STV, ER		9.89	163.35	300
2017*	20 19 0	9.42	151.98	1434	VSP(<2.5), STV, ER		8.98	163.29	300
2017*	20 20 0	6.27	151.83	1434	VSP(<2.5), STV, ER		8.07	163.19	300
2017*	20 21 0	3.11	151.68	1434	VSP(<2.5), STV, ER		7.13	163.04	300
2017*	20 22 0	-0.05	151.53	1434	VSP(<3.5), STV, CE(1.4), ER		6.12	162.84	300
2017*	20 23 0	-3.21	151.38	1433	SP(<5), STV, CE(1.5), ER		5.00	162.58	300
2017*	20 24 0	-6.36	151.23	1433	OFF		3.73	162.26	300
2017*	20 25 0	-9.52	151.08	1432	SM, ME, ER		2.26	161.86	300
2017*	20 26 0	-12.68	150.94	1431			0.53	161.59	300
2017*	20 27 0	-15.84	150.79	1431			-1.49	160.85	300
2017*	20 28 0	-18.99	150.65	1430			-3.83	160.25	300
2017*	20 29 0	-22.15	150.52	1429			-6.50	159.62	300

OBJECT: 5104 ISIS 2 PASS SUMMARY FOR KWAJALEIN FOR 1 AUGUST 1978 DAY 213

DAY	TIME (Z) HR MN SC	SATELLITE LOCATION LAT LONG ALT NM	DESCRIPTION	IONOGRAM SUMMARY		PENETRATION LOCATION		SCINTILLATION SUMMARY
				F-MAX MHz		LAT LONG	ALT NM	
213	6 40 0	-22.80 175.77 1370				-6.10 171.35 300		
213	6 41 0	-19.60 175.64 1370				-3.37 171.00 300		Q
213	6 42 0	-16.39 175.50 1370	SM, ME, ER		8.9	-1.03 170.68 300		Q
213	6 43 0	-13.18 175.36 1370	SM, ME		>10.0	0.95 170.40 300		Q
213	6 44 0	-9.98 175.22 1370	SM		>10.0	2.60 170.17 300		Q
213	6 45 0	-6.77 175.07 1370	SM		>10.0	3.99 169.97 300		Q
213	6 46 0	-3.56 174.92 1370	SM		9.9	5.18 169.81 300		Q
213	6 47 0	-0.35 174.77 1371	SM, ER		9.1	6.22 169.68 300		Q
213	6 48 0	2.86 174.62 1371	SM, ER		9.2	7.15 169.58 300		Q
213	6 49 0	6.07 174.48 1372	SM		9.7	8.03 169.50 300		Q
213	6 50 0	9.28 174.33 1372	SM		10.0	8.87 169.44 300		Q
213	6 51 0	12.48 174.18 1373	SM		>10.0	9.72 169.40 300		Q
213	6 52 0	15.69 174.04 1374	SM		>10.0	10.60 169.38 300		Q
213	6 53 0	18.89 173.90 1374	SM		>10.0	11.55 169.38 300		Q
213	6 54 0	22.09 173.77 1375	SM		>10.0	12.60 169.39 300		Q
213	6 55 0	25.29 173.64 1376	SM		>10.0	13.81 169.43 300		Q
213	6 56 0	28.49 173.52 1377	SM		>10.0	15.23 169.48 300		Q
213	6 57 0	31.68 173.40 1378	SM		10.4	16.91 169.56 300		Q
213	6 58 0	34.87 173.29 1380	SM, ER		9.1	18.92 169.65 300		Q
213	6 59 0	38.06 173.20 1381	SM, ER		8.1	21.30 169.77 300		Q
213	7 0 0	41.24 173.12 1382	SM, ER		7.8	24.05 169.90 300		Q

213	8 35 0	-18.54 147.09 1370				-4.77 157.86 300		
213	8 36 0	-15.34 146.95 1370				-2.35 158.38 300		Q
213	8 37 0	-12.13 146.81 1370				-0.22 158.87 300		Q
213	8 38 0	-8.92 146.66 1370	SM, ME, ER		8.3	1.64 159.30 300		Q
213	8 39 0	-5.71 146.51 1370	SM		9.2	3.26 159.66 300		Q
213	8 40 0	-2.50 146.36 1370	SM		>10.0	4.69 159.95 300		Q
213	8 41 0	0.71 146.22 1371	SM		>10.0	5.98 160.15 300		Q
213	8 42 0	3.92 146.07 1371	SM		>10.0	7.17 160.28 300		Q
213	8 43 0	7.13 145.92 1372	SM		>10.0	8.30 160.34 300		Q
213	8 44 0	10.34 145.77 1372	SM		>10.0	9.42 160.33 300		Q
213	8 45 0	13.54 145.63 1373	SM		>10.0	10.56 160.24 300		Q
213	8 46 0	16.75 145.49 1374	SM		10.3	11.76 160.08 300		Q
213	8 47 0	19.95 145.35 1375	SM, ER		10.2	13.06 159.85 300		Q
213	8 48 0	23.15 145.22 1376	SM, ER		10.0	14.51 159.54 300		Q
213	8 49 0	26.35 145.09 1377	SM, ER		11.5	16.14 159.15 300		Q
213	8 50 0	29.54 144.97 1378	SM, ER		10.6	18.01 158.69 300		Q
213	8 51 0	32.73 144.86 1379	SM, CE(1.6), ER		10.0	20.13 158.18 300		Q
213	8 52 0	35.92 144.75 1380				22.52 157.62 300		Q

OBJECT: 510°				PASS SUMMARY FOR NWAJALEIN				FOR 1 AUGUST 1978				DAY 213			
DAY	TIME (Z)			SATELLITE LOCATION		DESCRIPTION	IONOGRAM SUMMARY	F-MAX MHz	PENETRATION LOCATION		ALT KM	SCINTILLATION SUMMARY			
	HR	MM	SC	LAT	LONG				LAT	LONG					
213	20	49	0	33.78	142.40	SM, ME, CE(1.7), ER		7.9	21.12	156.84	300	Q			
213	20	50	0	30.64	1432	SM, ME, CE(1.8), ER		8.0	18.99	157.25	300	Q			
213	20	51	0	27.49	1433	SM, ME		~ 7.5	17.09	157.60	300	Q			
213	20	52	0	24.34	1433	SP, ME, STV, ER		6.8	15.41	157.88	300	Q			
213	20	53	0	21.18	141.91	SM, ME, ER		5.8	13.91	158.08	300	Q			
213	20	54	0	18.03	141.77	SM, ME, ER		5.6	12.55	158.20	300	Q			
213	20	55	0	14.88	141.63	SM, MSP(2), ME		5.6	11.28	158.23	300	Q			
213	20	56	0	11.72	141.48	SM, SP(<1.6), ER		5.4	10.07	158.18	300	Q			
213	20	57	0	8.57	141.33	SM, SP(<1.7), ER		5.5	8.87	158.03	300	Q			
213	20	58	0	5.41	141.18	SM, SP(<1.7), ER		5.7	7.66	157.80	300	Q			
213	20	59	0	2.25	141.03	SM, SP(<1.8), ME, ER		5.7	6.38	157.47	300	Q			
213	21	0	0	-0.91	140.88	SM, SP(<1.8), ME, ER		5.5	5.00	157.05	300	Q			
213	21	1	0	-4.07	140.73	SM, ME, ER		5.5	3.48	156.53	300	Q			
213	21	2	0	-7.22	140.58	SM, ME, ER		5.5	1.79	155.92	300	Q			
213	21	3	0	-10.38	140.44	SM, ME, CE(1.7), ER		5.2	-0.13	155.23	300	Q			
213	21	4	0	-13.54	140.29	SM, ME, CE(1.7), ER			-2.27	154.47	300	Q			

214	5 27 0	-13.32	-166.73					-2.05	179.96	300	Q
214	5 28 0	-10.11	-166.87					0.11	179.23	300	Q
214	5 29 0	-6.90	-167.02					2.02	178.56	300	Q
214	5 30 0	-3.70	-167.17					3.71	177.98	300	Q
214	5 31 0	-0.49	-167.32					5.22	177.49	300	Q
214	5 32 0	2.72	-167.46					6.58	177.10	300	Q
214	5 33 0	5.93	-167.61					7.85	176.81	300	Q
214	5 34 0	9.14	-167.76					9.06	176.60	300	Q
214	5 35 0	12.34	-167.91	SM			10.0	10.25	176.49	300	Q
214	5 36 0	15.55	-168.05	SM			9.0	11.47	176.46	300	Q
214	5 37 0	18.75	-168.19	SM			8.5	12.77	176.51	300	Q
214	5 38 0	21.95	-168.32	OFF				14.17	176.65	300	Q
214	5 39 0	25.15	-168.45	SM			7.2	15.73	176.87	300	Q
214	5 40 0	28.34	-168.58					17.49	177.17	300	Q
214	5 41 0	31.54	-168.69					19.48	177.53	300	Q
214	5 42 0	34.73	-168.80					21.72	177.95	300	Q

OBJECT: 5104 ISIS 2 PASS SUMMARY FOR KWAJALEIN FOR 2 AUGUST 1978 MAY 214

DAY	TIME (Z) HR MN SC	SATELLITE LOCATION		DESCRIPTION	IONOGRAM SUMMARY		PENETRATION LOCATION		SCINTILLATION SUMMARY	
		LAT	LONG		ALT KM	F-MAX MHZ	LAT	LONG		ALT KM
214	7 17 0	-25.09	165.26	1370			-7.82	166.58	300	
214	7 18 0	-21.88	165.13	1370			-4.88	166.62	300	
214	7 19 0	-18.68	165.00	1370			-2.32	166.66	300	
214	7 20 0	-15.47	164.86	1370			-0.15	166.70	300	Q
214	7 21 0	-12.26	164.72	1370			1.66	166.73	300	Q
214	7 22 0	-9.05	164.57	1370			3.18	166.75	300	Q
214	7 23 0	-5.85	164.42	1371			4.46	166.76	300	Q
214	7 24 0	-2.64	164.28	1371	SM, ER	11.0	5.56	166.77	300	Q
214	7 25 0	0.57	164.13	1371	SM, ER	11.0	6.54	166.76	300	Q
214	7 26 0	3.78	163.98	1372	SM, ER	10.7	7.43	166.75	300	Q
214	7 27 0	6.99	163.83	1373	SM	>10.0	8.27	166.73	300	Q
214	7 28 0	10.20	163.68	1373	SM	>10.0	9.10	166.70	300	Q
214	7 29 0	13.40	163.54	1374	SM	>10.0	9.94	166.66	300	Q
214	7 30 0	16.60	163.40	1375	SM	>10.0	10.83	166.60	300	Q
214	7 31 0	19.81	163.26	1376	SM	>10.0	11.79	166.54	300	Q
214	7 32 0	23.01	163.13	1377	SM, ME(<2)	10.0	12.88	166.46	300	Q
214	7 33 0	26.20	163.00	1378	SM, ME(<2)	9.1	14.14	166.36	300	Q
214	7 34 0	29.40	162.88	1379	SM, ER	8.0	15.63	166.25	300	Q
214	7 35 0	32.59	162.76	1380			17.40	166.11	300	Q
214	7 36 0	35.78	162.66	1381			19.52	165.95	300	Q
214	7 37 0	38.96	162.57	1382			22.01	165.77	300	
214	7 38 0	42.14	162.50	1384			24.87	165.59	300	

OBJECT: 5104 ISIS 2

PASS SUMMARY FOR KUAJALEIN

FOR 2 AUGUST 1978 DAY 214

DAY	TIME (Z)		SATELLITE LOCATION			DESCRIPTION	IONOGRAM SUMMARY		PENETRATION LOCATION			SCINTILLATION SUMMARY
	HR	MIN	LAT	LONG	ALT NM		F-MAX MHZ	LAT	LONG	ALT NM		
214	19	30	0	43.38	160.56	1429	SP, STV, ME, ER	8.5	25.76	164.78	300	Q
214	19	31	0	40.24	160.49	1430	SP, STV, ER	8.2	22.84	164.96	300	Q
214	19	32	0	37.10	160.40	1431	SP, STV, ME, ER	7.5	20.28	165.13	300	Q
214	19	33	0	33.95	160.30	1432	SP, STV, ME, ER	7.2	18.09	165.28	300	Q
214	19	34	0	30.80	160.19	1432	SM, ME, CE(1.8), ER	6.5	16.25	165.40	300	Q
214	19	35	0	27.65	160.07	1433	SM, ME, CE(1.8), ER	6.4	14.70	165.50	300	Q
214	19	36	0	24.50	159.95	1433	SM, ME, ER	6.5	13.40	165.57	300	Q
214	19	37	0	21.35	159.81	1434	SM, ME, ER	6.1	11.29	165.62	300	Q
214	19	38	0	18.20	159.68	1434	SM, ME, ER	6.0	10.39	165.63	300	Q
214	19	39	0	15.04	159.54	1434	SM, ME, ER	5.7	9.55	165.61	300	Q
214	19	40	0	11.89	159.39	1434	SP(<3), STV, ER	5.5	8.74	165.57	300	Q
214	19	41	0	8.73	159.24	1434	SP(<3), STV, ER	5.5	7.92	165.50	300	Q
214	19	42	0	5.58	159.10	1433	SM, MSP(<2), ER	5.5	7.07	165.41	300	Q
214	19	43	0	2.42	158.95	1433	SM, MSP(<2), ER	> 5.0	6.15	165.29	300	Q
214	19	44	0	-0.74	158.79	1432	SM, MSP(<2)		5.14	165.14	300	Q
214	19	45	0	-3.90	158.64	1432			3.98	164.95	300	
214	19	46	0	-7.06	158.50	1431			2.62	164.72	300	
214	19	47	0	-10.22	158.35	1430			1.01	164.45	300	
214	19	48	0	-13.38	158.20	1429			-0.92	164.12	300	
214	19	49	0	-16.54	158.06	1428			-3.19	163.75	300	
214	19	50	0	-19.69	157.92	1427			-5.84	163.34	300	
214	19	51	0	-22.85	157.78	1426						

215	6	2	0	-22.01	-176.96	1370			-6.52	175.00	300	
215	6	3	0	-18.80	-177.09	1370			-3.79	174.41	300	
215	6	4	0	-15.60	-177.23	1370	SM, CE(1.8)	>10.0	-1.41	173.86	300	Q
215	6	5	0	-12.39	-177.37	1370	SM	>10.0	0.64	173.36	300	Q
215	6	6	0	-9.18	-177.52	1371	SM	>10.0	2.38	172.93	300	Q
215	6	7	0	-5.97	-177.66	1371	SM	9.8	3.86	172.57	300	Q
215	6	8	0	-2.76	-177.81	1372	SM, ER	8.9	5.14	172.28	300	Q
215	6	9	0	0.45	-177.96	1372	SM, ER	8.7	6.26	172.05	300	Q
215	6	10	0	3.65	-178.11	1373	SM	~ 8.5	7.28	171.87	300	Q
215	6	11	0	6.86	-178.26	1373	SM, ER	8.6	8.23	171.74	300	Q
215	6	12	0	10.07	-178.40	1374	SM	9.7	9.15	171.65	300	Q
215	6	13	0	13.27	-178.55	1375	SM	10.8	10.09	171.61	300	Q
215	6	14	0	16.47	-178.69	1376	SM	>10.0	11.06	171.61	300	Q
215	6	15	0	19.68	-178.83	1377	SM, ME(<2)	>10.0	12.11	171.65	300	Q
215	6	16	0	22.87	-178.96	1378	SM, ME(<2)	>10.0	13.29	171.73	300	Q
215	6	17	0	26.07	-179.09	1379	SM, ME(<2)	>1.0	14.63	171.86	300	Q
215	6	18	0	29.26	-179.21	1380	SM, ME(<2)	>11.0	16.20	172.04	300	Q
215	6	19	0	32.45	-179.33	1381	SM, ME(<2)	>10.0	18.04	172.27	300	Q
215	6	20	0	35.64	-179.43	1382			20.21	172.54	300	
215	6	21	0	38.83	-179.52	1384			22.72	172.84	300	

OBJECT: S104 ISIS 2

PASS SUMMARY FOR KWAJALEIN

FUR 3 AUGUST 1978

DAY 215

DAY	TIME (Z)		SATELLITE LOCATION			DESCRIPTION	IONOGRAM SUMMARY		PENETRATION LOCATION			SCINTILLATION SUMMARY	
	HR	MN	SC	LAT	LONG		ALT	KM	F-MAX	MHZ	LAT		LONG
215	7	56	0	-20.95	154.49	1370	SM, ER			-5.21	161.75	300	
215	7	57	0	-17.74	154.36	1370	SM, ER		7.7	-2.67	162.13	300	Q
215	7	58	0	-14.54	154.22	1370	SM, ME(<2), ER		8.5	-0.47	162.48	300	Q
215	7	59	0	-11.33	154.07	1371	SM		>10.0	1.40	162.78	300	Q
215	8	0	0	-8.12	153.93	1371	SM		>10.0	2.98	163.04	300	Q
215	8	1	0	-4.91	153.78	1371	SM		>10.0	4.35	163.24	300	Q
215	8	2	0	-1.70	153.63	1372	SM		>10.0	5.54	163.38	300	Q
215	8	3	0	1.51	153.48	1372	SM		10.5	6.60	163.48	300	Q
215	8	4	0	4.71	153.33	1373	SM		10.0	7.59	163.54	300	Q
215	8	5	0	7.92	153.19	1374	SM		10.0	8.54	163.55	300	Q
215	8	6	0	11.13	153.04	1374	SM		9.9	9.48	163.52	300	Q
215	8	7	0	14.33	152.90	1375	SM		>10.0	10.44	163.44	300	Q
215	8	8	0	17.53	152.75	1376	SM		>10.0	11.48	163.32	300	Q
215	8	9	0	20.73	152.62	1377	SM		>10.0	12.61	163.15	300	Q
215	8	10	0	23.93	152.49	1378	SM		>10.0	13.90	162.93	300	Q
215	8	11	0	27.12	152.36	1379	SM		~ 9.5	15.38	162.66	300	Q
215	8	12	0	30.32	152.24	1380	SM, ME, CE(1.7), ER		7.2	17.11	162.32	300	Q
215	8	13	0	33.51	152.13	1382	SM, ME, ER		7.0	19.14	161.93	300	Q
215	8	14	0	36.69	152.03	1383	SM, ME, ER		6.8	21.49	161.50	300	Q
215	8	15	0	39.87	151.95	1384	SM, ME, ER		7.3	24.16	161.04	300	Q

215	18	15	0	40.40	178.40	1430				23.36	171.93	300	Q
215	18	16	0	37.25	178.31	1431				20.74	171.60	300	Q
215	18	17	0	34.11	178.21	1432	SP, ME, ER		5.8	18.48	171.30	300	Q
215	18	18	0	30.96	178.10	1432	SM, ME, ER		6.0	16.56	171.03	300	Q
215	18	19	0	27.81	177.98	1433	VSP, STV, ME, ER		6.0	14.95	170.80	300	Q
215	18	20	0	24.66	177.86	1433	VSP, STV, ME, ER		5.8	13.59	170.61	300	Q
215	18	21	0	21.51	177.72	1433	VSP, STV, ME, ER		5.5	12.42	170.46	300	Q
215	18	22	0	18.36	177.59	1433	VSP(<3), ME		5.5	11.39	170.34	300	Q
215	18	23	0	15.20	177.45	1433	SM, SP(<2.5), ME, ER		5.5	10.47	170.25	300	Q
215	18	24	0	12.05	177.30	1433	SM, SP(<1.8), ME, ER		5.5	9.61	170.19	300	Q
215	18	25	0	8.89	177.15	1433	SM, SP(<1.7), ER		4.8	8.78	170.15	300	Q
215	18	26	0	5.73	177.01	1433	SM, ER		5.3	7.96	170.14	300	Q
215	18	27	0	2.57	176.86	1432	SM, ER		5.2	7.10	170.15	300	Q
215	18	28	0	-0.59	176.71	1432	SM, ER		5.5	6.20	170.18	300	Q
215	18	29	0	-3.75	176.56	1431	SM, ER		5.4	5.20	170.23	300	Q
215	18	30	0	-6.91	176.41	1430	SM, ER		5.4	4.06	170.32	300	Q
215	18	31	0	-10.07	176.26	1429	SM, ER		5.0	2.74	170.43	300	Q
215	18	32	0	-13.23	176.11	1428	SM, ME CE(1.3), ER		5.6	1.18	170.57	300	Q
215	18	33	0	-16.39	175.97	1427	SM, ME, ER		5.5	-0.68	170.75	300	Q
215	18	34	0	-19.54	175.83	1426	SM, ME, ER		5.0	-2.90	170.95	300	Q
215	18	35	0	-22.70	175.69	1425	SM, ME, ER		4.5	-5.48	171.17	300	Q

OBJECT: 5104 ISIS 2 PASS SUMMARY FOR NWAJALEIN FOR 4 AUGUST 1978 DAY 216

DAY	TIME (Z) HR MN SC	SATELLITE LOCATION		DESCRIPTION	IONOGRAM SUMMARY		PENETRATION LOCATION		SCINTILLATION SUMMARY
		LAT	LONG		F-MAX MHZ	ALT NM	LAT	LONG	
#216*	6 39 0	-24.26	172.53	SM, ME(<2)	7.5	300	-7.15	169.93	Q
#216*	6 40 0	-21.06	172.40	SM, ME(<2), CE(1.6), ER	9.0	300	-4.29	169.70	Q
#216*	6 41 0	-17.86	172.27	SM, ME(<2)	>10.0	300	-1.80	169.48	Q
#216*	6 42 0	-14.65	172.13	SM, ME(<2), CE(1.6)	>10.0	300	0.30	169.29	Q
#216*	6 43 0	-11.44	171.98	SM	>10.0	300	2.05	169.13	Q
#216*	6 44 0	-8.23	171.84	SM	>10.0	300	3.51	168.99	Q
#216*	6 45 0	-5.03	171.69	SM	>10.0	300	4.75	168.88	Q
#216*	6 46 0	-1.82	171.54	SM	>10.0	300	5.82	168.78	Q
#216*	6 47 0	1.39	171.39	SM	10.3	300	6.77	168.70	Q
#216*	6 48 0	4.60	171.24	SM	>10.0	300	7.65	168.64	Q
#216*	6 49 0	7.80	171.10	SM	>10.0	300	8.48	168.59	Q
#216*	6 50 0	11.01	170.95	SM	>10.0	300	9.30	168.55	Q
#216*	6 51 0	14.21	170.81	SM	>10.0	300	10.15	168.51	Q
#216*	6 52 0	17.41	170.67	SM	>10.0	300	11.04	168.49	Q
#216*	6 53 0	20.61	170.53	SM	>10.0	300	12.02	168.47	Q
#216*	6 54 0	23.81	170.40	SM, ME(<2)	>10.0	300	13.13	168.47	Q
#216*	6 55 0	27.00	170.27	SM	10.2	300	14.42	168.47	Q
#216*	6 56 0	30.19	170.15	SM, ER	9.5	300	15.95	168.47	Q
#216*	6 57 0	33.38	170.04	SM, ME(<2), ER	8.4	300	17.78	168.49	Q
#216*	6 58 0	36.57	169.94	SM, ME(<2), ER	~ 8.0	300	19.96	168.51	Q
#216*	6 59 0	39.75	169.85	SM, ER	7.5	300	22.52	168.54	Q
#216*	7 0 0	42.93	169.78	SM		300	25.45	168.58	Q

#216*	8 36 0	-13.59	143.57	1371			-1.89	156.46	Q
#216*	8 37 0	-10.38	143.43	1371			0.18	156.97	Q
#216*	8 38 0	-7.17	143.28	1372	SM		2.02	157.42	Q
#216*	8 39 0	-3.97	143.13	1372	SM		3.66	157.80	Q
#216*	8 40 0	-0.76	142.99	1373	SM		5.12	158.09	Q
#216*	8 41 0	2.45	142.84	1373	SM		6.47	158.29	Q
#216*	8 42 0	5.66	142.69	1374	SM		7.74	158.41	Q
#216*	8 43 0	8.86	142.54	1375	SM		8.97	158.44	Q
#216*	8 44 0	12.07	142.40	1376	SM		10.20	158.38	Q
#216*	8 45 0	15.27	142.25	1377	SM		11.48	158.24	Q
#216*	8 46 0	18.47	142.11	1378	SM		12.84	158.02	Q
#216*	8 47 0	21.67	141.98	1379	SM		14.32	157.71	MS
#216*	8 48 0	24.86	141.85	1380	SM		15.97	157.32	SC
#216*	8 49 0	28.06	141.72	1381			17.83	156.86	Q
#216*	8 50 0	31.25	141.61	1382			19.90	156.34	Q

OBJECT: 5104 ISIS: 2 PASS SUMMARY FOR KWAJALEIN FOR 4 AUGUST 1978 DAY 216

DAY	TIME (Z) HR MN SC	SATELLITE LOCATION		DESCRIPTION	IONOGRAM SUMMARY		PENETRATION LOCATION		SCINTILLATION SUMMARY	
		LAT	LONG		F-MAX MHZ	LAT	LONG	ALT KM		
216	18 52 0	42.65	167.84	1430			24.72	167.78	300	
216	18 53 0	39.51	167.77	1431			21.88	167.74	300	Q
216	18 54 0	36.36	167.68	1431	NSP, STV, ME		19.43	167.71	300	Q
216	18 55 0	33.22	167.58	1432	NSP, STV, ME		17.35	167.68	300	Q
216	18 56 0	30.07	167.47	1432	NSP, STV, ER		15.62	167.65	300	Q
216	18 57 0	26.92	167.34	1433	NSP, STV, ER		14.17	167.62	300	Q
216	18 58 0	23.77	167.22	1433	SP, STV, ER		12.95	167.59	300	Q
216	18 59 0	20.62	167.08	1433	VSP, STV, ER		11.90	167.56	300	Q
216	19 0 0	17.46	166.94	1433	WSP, STV, ME, ER		10.97	167.53	300	Q
216	19 1 0	14.31	166.80	1433	WSP, STV, ME, ER		10.12	167.50	300	Q
216	19 2 0	11.15	166.66	1433	WSP, STV, ME, ER		9.32	167.47	300	Q
216	19 3 0	7.99	166.51	1432	WSP, STV, ME, ER		8.54	167.43	300	Q
216	19 4 0	4.83	166.36	1432	WSP, STV, ME, ER		7.75	167.39	300	Q
216	19 5 0	1.68	166.21	1431	WSP, STV, ME, ER		6.93	167.34	300	Q
216	19 6 0	-1.48	166.06	1431	WSP, STV, ME, ER		6.04	167.29	300	Q
216	19 7 0	-4.65	165.91	1430	WSP, STV, ME, ER		5.05	167.23	300	Q
216	19 8 0	-7.81	165.76	1429	SP, RSP, STV, ER		3.91	167.16	300	Q
216	19 9 0	-10.97	165.61	1428	SM, SP(<1.7), RSP, ER		2.57	167.07	300	Q
216	19 10 0	-14.13	165.47	1427	SM, ME, ER		0.98	166.97	300	Q
216	19 11 0	-17.29	165.32	1426	SM, ME, ER		-0.94	166.86	300	Q
216	19 12 0	-20.45	165.19	1425	SM, ME, ER		-3.23	166.72	300	Q
216	19 13 0	-23.61	165.05	1423	SM, ME, ER		-5.91	166.57	300	Q

OBJECT: 5104 ISIS 2

PASS SUMMARY FOR KWAJALEIN

FOR 5 AUGUST 1978 DAY 217

DAY	TIME (Z)			SATELLITE LOCATION		DESCRIPTION	IONOGRAM SUMMARY		F-MAX MHZ	PENETRATION LOCATION		SCINTILLATION SUMMARY	
	HR	MN	SC	LAT	LONG		ALT KM	LAT		LONG	ALT KM		
217	5	26	0	-14.75	-169.96	1371				-2.27	177.95	300	Q
217	5	27	0	-11.54	-170.10	1372	SM		>10.0	-0.10	177.25	300	Q
217	5	28	0	-8.34	-170.25	1372	SM		9.6	1.80	176.63	300	Q
217	5	29	0	-5.13	-170.40	1373	SM		9.2	3.46	176.09	300	Q
217	5	30	0	-1.92	-170.55	1373	SM		8.2	4.91	175.64	300	Q
217	5	31	0	1.29	-170.69	1374	SM		8.2	6.21	175.28	300	Q
217	5	32	0	4.49	-170.84	1375	SM			7.39	175.00	300	Q
217	5	33	0	7.70	-170.99	1375	SM		10.2	8.50	174.80	300	Q
217	5	34	0	10.90	-171.14	1376	SM		>10.0	9.59	174.68	300	Q
217	5	35	0	14.10	-171.28	1377	SM		>10.0	10.68	174.63	300	Q
217	5	36	0	17.30	-171.42	1378	SM		>10.0	11.83	174.65	300	Q
217	5	37	0	20.50	-171.56	1379	SM		>10.0	13.07	174.74	300	Q
217	5	38	0	23.70	-171.69	1380	SM		>10.0	14.45	174.90	300	Q
217	5	39	0	26.89	-171.82	1382	SM, ME(<2), ER		9.3	16.01	175.14	300	Q
217	5	40	0	30.08	-171.94	1383	SM, ME(<2), ER		7.7	17.80	175.44	300	Q
217	5	41	0	33.27	-172.05	1384	SM, ER		6.7	19.86	175.80	300	Q
217	5	42	0	36.45	-172.15	1385	SM, ER		6.2	22.20	176.21	300	Q

217	7	17	0	-23.30	161.90	1371	SM, ME(<2), ER	8.0	-6.33	165.11	300	Q
217	7	18	0	-20.10	161.76	1371	SM, ME(<2), ER	7.7	-3.59	165.26	300	Q
217	7	19	0	-16.90	161.63	1371	SM, ME(<2), ER	8.3	-1.23	165.41	300	Q
217	7	20	0	-13.69	161.48	1371	SM, ME(<2), CE(1.8), ER	9.0	0.76	165.54	300	Q
217	7	21	0	-10.48	161.34	1372	SM	>10.0	2.43	165.65	300	Q
217	7	22	0	-7.28	161.19	1372	SM	>10.0	3.83	165.73	300	Q
217	7	23	0	-4.07	161.05	1373	SM	>10.0	5.02	165.79	300	Q
217	7	24	0	-0.86	160.90	1373	SM	>10.0	6.07	165.83	300	Q
217	7	25	0	2.35	160.75	1374	SM	>10.0	7.01	165.85	300	Q
217	7	26	0	5.55	160.60	1375	SM	>10.0	7.89	165.85	300	Q
217	7	27	0	8.76	160.45	1376	SM	>10.0	8.74	165.83	300	Q
217	7	28	0	11.96	160.31	1377	SM	>10.0	9.59	165.79	300	Q
217	7	29	0	15.16	160.16	1378	SM	>10.0	10.47	165.74	300	Q
217	7	30	0	18.36	160.02	1379	SM	>10.0	11.42	165.66	300	Q
217	7	31	0	21.56	159.89	1380	SM	>10.0	12.47	165.56	300	Q
217	7	32	0	24.76	159.76	1381	SM	9.4	13.67	165.43	300	Q
217	7	33	0	27.95	159.63	1382	SM, ER	8.8	15.07	165.27	300	Q
217	7	34	0	31.14	159.52	1383	SM, ME(<2), CE(1.7), ER	7.7	16.74	165.07	300	Q
217	7	35	0	34.32	159.41	1385	SM, ME, ER	6.6	18.72	164.84	300	Q
217	7	36	0	37.51	159.31	1386	SM, ME, ER	6.1	21.06	164.59	300	Q
217	7	37	0	40.69	159.23	1387	SM, ER	6.0	23.76	164.31	300	Q

OBJECT: 5104 ISIS 2

PASS SUMMARY FOR KWAJALEIN

FOR 5 AUGUST 1978 DAY 217

DAY	TIME (Z)		SATELLITE LOCATION		DESCRIPTION	IONOGRAM SUMMARY		PENETRATION LOCATION		SCINTILLATION SUMMARY	
	HR	MIN	LAT	LONG		F-MAX	M3Z	LAT	LONG		ALT
217	17	37	0					23.96	175.27	300	Q
217	17	38	0		SM			21.36	174.77	300	Q
217	17	39	0		SM			19.07	174.30	300	Q
217	17	40	0		SM			17.09	173.88	300	Q
217	17	41	0		SM			15.39	173.52	300	Q
217	17	42	0		MSP(NP)			13.93	173.21	300	Q
217	17	43	0		SP(>3), STV, ME			12.66	172.97	300	Q
217	17	44	0		VSP(>2), STV, ER			11.53	172.79	300	Q
217	17	45	0		WSP(>1.5), STV, ER			10.51	172.66	300	Q
217	17	46	0		WSP(>1.5), STV, ME, ER			9.55	172.57	300	Q
217	17	47	0		WSP(>1.5), STV, ME, ER			8.62	172.54	300	Q
217	17	48	0		WSP(>1.5), STV, ME, ER			7.68	172.55	300	Q
217	17	49	0		VSP(>1.5), STV, ER			6.71	172.61	300	Q
217	17	50	0		WSP, STV, ER			5.66	172.72	300	Q
217	17	51	0		VSP, STV, ER			4.51	172.88	300	Q
217	17	52	0		SP, STV, ER			3.19	173.10	300	Q
217	17	53	0		SP(>2.5), STV, ER			1.67	173.38	300	Q
217	17	54	0		MSP(NP), STV, ER			-0.11	173.71	300	Q
217	17	55	0		SM, ER			-2.19	174.10	300	Q
217	17	56	0		SM, ER			-4.61	174.52	300	Q

217	19	30	0		SM, ER			24.56	163.47	300	Q
217	19	31	0		SM, ER			21.81	163.73	300	Q
217	19	32	0		SM, WSP, ER			19.42	163.97	300	Q
217	19	33	0		SP, STV, ME, ER			17.39	164.19	300	Q
217	19	34	0		SP, STV, ME, ER			15.67	164.36	300	Q
217	19	35	0		SP, STV, ME, CE(1.7), ER			14.21	164.49	300	Q
217	19	36	0		VSP, STV, ER			12.97	164.59	300	Q
217	19	37	0		VSP, STV, ER			11.88	164.65	300	Q
217	19	38	0		WSP, STV, ME, ER			10.91	164.68	300	Q
217	19	39	0		VSP, STV, ER			10.02	164.67	300	Q
217	19	40	0		SP(<3), STV, ER			9.16	164.63	300	Q
217	19	41	0		SP(<3), STV, ER			8.31	164.56	300	Q
217	19	42	0		SP(<3), STV, ER			7.44	164.46	300	Q
217	19	43	0		SP(<4), STV, ER			6.52	164.42	300	Q
217	19	44	0		SP, STV, ER			5.50	164.14	300	Q
217	19	45	0		SM, WSP, ER			4.36	163.91	300	Q
217	19	46	0		SM, WSP, ER			3.04	163.63	300	Q
217	19	47	0		SM, ME, WSP, ER			1.48	163.29	300	Q
217	19	48	0		SM, ME, ER			-0.37	162.89	300	Q
217	19	49	0		SM, ME, ER			-2.55	162.43	300	Q
217	19	50	0		SM, ME, ER			-5.08	161.92	300	Q

OBJECT: 5104 ISIS 2

PASS SUMMARY FOR KWAJALEIN

FOR 6 AUGUST 1978

DAY 218

DAY	TIME (Z) HR MN SC	SATELLITE LOCATION		DESCRIPTION	IONOGRAM SUMMARY		PENETRATION LOCATION		SCINTILLATION SUMMARY	
		LAT	LONG		ALT NM	F-MAX MHZ	LAT	LONG		ALT NM
218	6 1 0	-23.45	179.81	SM, ER			-7.23	173.44	300	Q
218	6 2 0	-20.24	179.67	SM, ER			-4.39	172.95	300	Q
218	6 3 0	-17.04	179.54	SM, ER			-1.91	172.48	300	Q
218	6 4 0	-13.83	179.40	SM			0.21	172.07	300	Q
218	6 5 0	-10.63	179.25	SM			>10.0	171.70	300	Q
218	6 6 0	-7.42	179.10	SM			>10.0	171.40	300	Q
218	6 7 0	-4.21	178.96	SM			>10.0	171.15	300	Q
218	6 8 0	-1.01	178.81	SM			>10.0	170.96	300	Q
218	6 9 0	2.20	178.66	SM			>10.0	170.80	300	Q
218	6 10 0	5.40	178.51	SM			>10.0	170.68	300	Q
218	6 11 0	8.61	178.36	SM			>10.0	170.60	300	Q
218	6 12 0	11.81	178.22	SM			>10.0	170.55	300	Q
218	6 13 0	15.01	178.07	SM			>10.0	170.53	300	Q
218	6 14 0	18.21	177.93	SM			>10.0	170.54	300	Q
218	6 15 0	21.41	177.80	SM			9.2	170.57	300	Q
218	6 16 0	24.60	177.67	SM, ER			8.2	170.65	300	Q
218	6 17 0	27.79	177.54	SM, ER			7.7	170.75	300	Q
218	6 18 0	30.98	177.43	SM, ER			7.1	170.90	300	Q
218	6 19 0	34.17	177.32	SM, ER			6.7	171.08	300	Q
218	6 20 0	37.35	177.22	SM, ER			6.1	171.29	300	Q
218	6 21 0	40.53	177.14	SM, ER			6.0	171.52	300	Q

218	7 56 0	-19.19	151.12	SM, ER			7.7	-4.37	160.20	300	Q
218	7 57 0	-15.98	150.98	SM, ER			7.8	-1.96	160.65	300	Q
218	7 58 0	-12.77	150.84	SM, ER			8.5	0.12	161.07	300	Q
218	7 59 0	-9.57	150.70	SM			10.5	1.91	161.42	300	Q
218	8 0 0	-6.36	150.55	SM			>10.0	3.45	161.71	300	Q
218	8 1 0	-3.16	150.40	SM			>10.0	4.79	161.94	300	Q
218	8 2 0	0.05	150.25	SM			10.4	5.98	162.11	300	Q
218	8 3 0	3.26	150.10	SM			~10.5	7.07	162.21	300	Q
218	8 4 0	6.46	149.95	SM			~10.5	8.10	162.26	300	Q
218	8 5 0	9.67	149.81	SM			~10.5	9.10	162.26	300	Q
218	8 6 0	12.87	149.66	SM			10.5	10.12	162.20	300	Q
218	8 7 0	16.07	149.52	SM			>10.0	11.18	162.08	300	Q
218	8 8 0	19.27	149.38	SM			>10.0	12.33	161.90	300	Q
218	8 9 0	22.46	149.25	SM			~9.8	13.62	161.67	300	Q
218	8 10 0	25.65	149.12	SM, ER			8.7	15.08	161.36	300	Q
218	8 11 0	28.84	149.00	SM, ER			7.7	16.77	160.99	300	Q
218	8 12 0	32.03	148.88	SM, ER			7.0	18.73	160.56	300	Q
218	8 13 0	35.22	148.78	SM, ER			6.3	20.98	160.07	300	Q
218	8 14 0	38.40	148.68	SM, ER			6.0	23.53	159.56	300	Q

 ORBIT: 5104 ISIS 2 PASS SUMMARY FOR KWAJALEIN FOR 6 AUGUST 1978 DAY 218 *****

DAY	TIME (Z)		SATELLITE LOCATION			DESCRIPTION	IONOGRAM SUMMARY		PENETRATION LOCATION			SCINTILLATION SUMMARY
			LAT	LONG	ALT NM		F-MAX MHz	ALT NM	LAT	LONG	ALT NM	
218	18 14	0	41.93	175.13	1430	SM, ER			24.38	170.68	300	Q
218	18 15	0	38.78	175.05	1431	SM, ER	4.9		21.61	170.44	300	Q
218	18 16	0	35.64	174.96	1431	SM, ER	4.9		19.21	170.21	300	Q
218	18 17	0	32.49	174.85	1431	SM, ME, ER	4.8		17.17	170.00	300	Q
218	18 18	0	29.34	174.74	1432	SP, STV, ER	4.8		15.47	169.82	300	Q
218	18 19	0	26.19	174.61	1432	SP, ME, STV, ER	5.0		14.03	169.67	300	Q
218	18 20	0	23.04	174.48	1432	SP, ME, STV, ER	4.9		12.82	169.55	300	Q
218	18 21	0	19.88	174.35	1432	VSP, STV, ME, ER	5.0		11.76	169.46	300	Q
218	18 22	0	16.73	174.21	1432	VSP(<3), STV, ER	5.0		10.83	169.38	300	Q
218	18 23	0	13.57	174.07	1431	VSP(<2.5), STV, ER	4.6		9.97	169.32	300	Q
218	18 24	0	10.41	173.92	1431	VSP(<2), STV, ER	4.6		9.15	169.28	300	Q
218	18 25	0	7.26	173.77	1430	SP(<2), STV, ER	4.9		8.35	169.25	300	Q
218	18 26	0	4.09	173.62	1430	SM, WSP(<2), ER	5.5		7.54	169.23	300	Q
218	18 27	0	0.93	173.47	1429	SP(<2), STV, ER	5.7		6.69	169.23	300	Q
218	18 28	0	-2.23	173.32	1428	SP(<2), STV, ER	5.7		5.76	169.24	300	Q
218	18 29	0	-5.39	173.17	1427	SP(<2), STV, ER	4.9		4.73	169.27	300	Q
218	18 30	0	-8.55	173.02	1426	SP(<2.5), STV, ME, ER	4.4		3.53	169.32	300	Q
218	18 31	0	-11.72	172.88	1425	SM, ME, ER	4.3		2.12	169.38	300	Q
218	18 32	0	-14.88	172.73	1424				0.44	169.46	300	
218	18 33	0	-18.04	172.59	1423				-1.57	169.55	300	
218	18 34	0	-21.20	172.45	1422				-3.96	169.66	300	
218	18 35	0	-24.36	172.32	1420				-6.73	169.77	300	

219	4 50	0	-7.52	-162.98	1374	SM	9.5		0.91	-178.22	300	Q
219	4 51	0	-4.32	-163.13	1375	SM, ER	8.8		2.80	-178.89	300	Q
219	4 52	0	-1.11	-163.28	1375	SM, ER	8.3		4.51	-179.48	300	Q
219	4 53	0	2.09	-163.43	1376	SM, ER	8.4		6.07	-179.97	300	Q
219	4 54	0	5.30	-163.58	1377	SM, ER	9.1		7.51	-179.65	300	Q
219	4 55	0	8.50	-163.72	1378	SM	10.2		8.89	-179.36	300	Q
219	4 56	0	11.70	-163.87	1379	SM	>10.0		10.24	-179.18	300	Q
219	4 57	0	14.90	-164.01	1380	SM	>10.0		11.60	-179.10	300	SC
219	4 58	0	18.10	-164.15	1381	SM	>10.0		13.01	-179.12	300	Q
219	4 59	0	21.30	-164.29	1382	SM	>10.0		14.52	-179.23	300	Q
219	5 0	0	24.49	-164.42	1383	SM	>10.0		16.17	-179.44	300	Q
219	5 1	0	27.68	-164.55	1385	SM	10.1		17.99	-179.72	300	Q
219	5 2	0	30.87	-164.66	1386				20.01	-179.92	300	Q

OBJECT: 5104 ISIS 2 PASS SUMMARY FOR KWAJALEIN FOR 7 AUGUST 1978 DAY 219

DAY	TIME (Z) HR MN SC	SATELLITE LOCATION			DESCRIPTION	IONOGRAM SUMMARY		PENETRATION LOCATION			SCINTILLATION SUMMARY
		LAT	LONG	ALT KM		F-MAX MHz	LAT	LONG	ALT KM		
219	6 38 0	-25.69	169.30	1371	SM, ME(<2), ER		6.5	-8.37	168.47	300	Q
219	6 39 0	-22.49	169.17	1372	SM, ER		7.0	-5.36	168.35	300	Q
219	6 40 0	-19.28	169.03	1372	SM, ER		7.0	-2.72	168.25	300	Q
219	6 41 0	-16.08	168.89	1372	SM, ER		7.5	-0.48	168.15	300	Q
219	6 42 0	-12.87	168.75	1373	SM, ER		~10.0	1.39	168.07	300	Q
219	6 43 0	-9.67	168.61	1374	SM, ER		12.0	2.96	168.00	300	Q
219	6 44 0	-6.46	168.46	1374	SM, ER		12.4	4.27	167.94	300	Q
219	6 45 0	-3.26	168.31	1375	SM, ER		12.0	5.39	167.89	300	Q
219	6 46 0	-0.05	168.16	1376	SM, ER		12.0	6.38	167.85	300	Q
219	6 47 0	3.15	168.01	1376	SM, ER		11.6	7.27	167.80	300	Q
219	6 48 0	6.36	167.87	1377	SM, ER		11.5	8.11	167.76	300	Q
219	6 49 0	9.56	167.72	1378	SM, ER		11.4	8.93	167.73	300	Q
219	6 50 0	12.76	167.57	1379	SM, ER		12.0	9.75	167.69	300	Q
219	6 51 0	15.96	167.43	1380	SM, ER		12.2	10.61	167.65	300	Q
219	6 52 0	19.16	167.29	1381	SM, ER		12.0	11.54	167.62	300	Q
219	6 53 0	22.35	167.16	1383	SM, ER		10.8	12.58	167.58	300	Q
219	6 54 0	25.55	167.03	1384	SM, ER		10.0	13.77	167.53	300	Q
219	6 55 0	28.74	166.91	1385	SM, ER		9.1	15.18	167.48	300	Q
219	6 56 0	31.92	166.79	1386	SM, ER		8.0	16.85	167.43	300	Q
219	6 57 0	35.11	166.69	1388	SM, ER			18.86	167.37	300	Q
219	6 58 0	38.29	166.59	1389				21.24	167.31	300	Q
219	6 59 0	41.46	166.51	1390				24.00	167.25	300	Q

219	8 36 0	-11.81	140.20	1373				-1.47	154.28	300	Q
219	8 37 0	-8.61	140.05	1374	SM, ER		7.7	0.58	154.79	300	Q
219	8 38 0	-5.40	139.90	1374	SM		>10.0	2.42	155.24	300	Q
219	8 39 0	-2.20	139.76	1375	SM		>10.0	4.09	155.60	300	Q
219	8 40 0	1.01	139.61	1376	SM		10.5	5.62	155.88	300	Q
219	8 41 0	4.21	139.46	1377	SM		~10.5	7.05	156.06	300	Q
219	8 42 0	7.42	139.31	1378	SM		>10.0	8.43	156.15	300	Q
219	8 43 0	10.62	139.16	1379	SM		>10.0	9.79	156.14	300	Q
219	8 44 0	13.82	139.02	1380	SM		>10.0	11.17	156.04	300	Q
219	8 45 0	17.02	138.88	1381	SM		>10.0	12.61	155.84	300	Q
219	8 46 0	20.22	138.74	1382	SM		>10.0	14.16	155.55	300	Q
219	8 47 0	23.41	138.61	1383	SM		>10.0	15.85	155.18	300	Q
219	8 48 0	26.60	138.48	1384	SM, MSP(<2)		>10.0	17.71	154.73	300	Q
219	8 49 0	29.79	138.36	1386				19.76	154.23	300	Q

OBJECT: 5104 ISIS 2 PASS SUMMARY FOR NWAJALEIN FOR 7 AUGUST 1978 DAY 219

DAY	TIME (Z) HH MM SC	SATELLITE LOCATION		DESCRIPTION	IONOGRAM SUMMARY		PENETRATION LOCATION		SCINTILLATION SUMMARY	
		LAT	LONG		ALT KM	F-MAX MHz	LAT	LONG		ALT KM
219	18 52 0	41.02	164.50	1430	SM, ME, CE(1.8), ER	6.9	23.27	166.49	300	Q
219	18 53 0	37.88	164.42	1431	SM, ME, ER	6.2	20.63	166.56	300	Q
219	18 54 0	34.73	164.32	1431	SM, ME, CE(1.7), ER	6.0	18.37	166.61	300	Q
219	18 55 0	31.58	164.22	1431	SP, STV, ME, ER	5.9	16.47	166.65	300	Q
219	18 56 0	28.43	164.10	1431	VSP, STV, ME, ER	5.6	14.89	166.68	300	Q
219	18 57 0	25.28	163.97	1431	VSP, STV, ME, CE(1.5), ER	5.2	13.56	166.70	300	Q
219	18 58 0	22.13	163.84	1431	SP, STV, ME, ER	5.3	12.42	166.71	300	Q
219	18 59 0	18.97	163.71	1431	SP, STV, ME, ER	5.4	11.43	166.70	300	Q
219	19 0 0	15.82	163.57	1431	SP(<3), ME, CE(1.8)	5.7	10.54	166.69	300	Q
219	19 1 0	12.66	163.42	1430	SP(<2), ME, ER	5.9	9.71	166.66	300	Q
219	19 2 0	9.50	163.28	1430	SP(<2), ME, ER	5.2	8.91	166.63	300	Q
219	19 3 0	6.34	163.13	1429	SP(<2), ER	4.7	8.12	166.58	300	Q
219	19 4 0	3.18	162.98	1429	SM, ER	4.8	7.31	166.52	300	Q
219	19 5 0	0.02	162.83	1428	SP(<2), ER	4.6	6.44	166.44	300	Q
219	19 6 0	-3.15	162.68	1427	SP(<2.5), ER	4.4	5.48	166.35	300	Q
219	19 7 0	-6.31	162.53	1426	SP(<2), ME, ER	4.2	4.40	166.23	300	Q
219	19 8 0	-9.47	162.38	1425	SP(<2), ME, ER	4.2	3.14	166.09	300	Q
219	19 9 0	-12.64	162.23	1424	SP(<2), ME, ER	4.2	1.64	165.93	300	Q
219	19 10 0	-15.80	162.09	1423	SM, ME, ER	4.3	-0.15	165.73	300	Q
219	19 11 0	-18.96	161.95	1421	SM, ME, ER	5.0	-2.30	165.49	300	Q
219	19 12 0	-22.13	161.81	1420	SM, ME, ER	5.0	-4.83	165.23	300	Q
219	19 13 0	-25.29	161.68	1418			-7.74	164.95	300	Q

OBJECT: 5104 1515 2

PASS SUMMARY FOR KWAJALEIN

FUR 8 AUGUST 1978

DAY 220

IAY	TIME (Z) HR MN SC	SATELLITE LOCATION			DESCRIPTION	IONOGRAM SUMMARY		PENETRATION LOCATION			SCINTILLATION SUMMARY
		LAT	LONG	ALT NM		P-MAX MHZ	LAT	LONG	ALT KM		
220	5 24 0	-19.37	-173.05	1373	SM, ER			-5.08	176.84	300	Q
220	5 25 0	-16.17	-173.19	1373	OFF			-2.56	176.16	300	Q
220	5 26 0	-12.96	-173.34	1374	SM, ER			-0.35	175.53	300	Q
220	5 27 0	-9.76	-173.48	1374	SM			1.56	174.96	300	Q
220	5 28 0	-6.55	-173.63	1375	SM			3.20	174.48	300	Q
220	5 29 0	-3.35	-173.78	1376	SM			4.62	174.07	300	Q
220	5 30 0	-0.14	-173.92	1377	SM, ER			5.87	173.75	300	Q
220	5 31 0	3.06	-174.07	1377	SM, ER			6.99	173.50	300	Q
220	5 32 0	6.27	-174.22	1378	SM			8.04	173.31	300	Q
220	5 33 0	9.47	-174.37	1379	SM			9.04	173.19	300	Q
220	5 34 0	12.67	-174.51	1380	SM			10.04	173.12	300	Q
220	5 35 0	15.87	-174.66	1382	SM			11.07	173.11	300	Q
220	5 36 0	19.06	-174.80	1383	SM			12.18	173.16	300	Q
220	5 37 0	22.26	-174.93	1384	SM			13.40	173.27	300	Q
220	5 38 0	25.45	-175.06	1385	SM			14.78	173.43	300	Q
220	5 39 0	28.64	-175.18	1386	SM			16.37	173.66	300	Q
220	5 40 0	31.82	-175.30	1388	SM			18.23	173.95	300	Q
220	5 41 0	35.01	-175.40	1389	SM, ME(<2), ER			20.38	174.28	300	Q
220	5 42 0	38.18	-175.50	1390	SM, ER			22.84	174.66	300	Q

220	7 16 0	-24.71	158.66	1372	SM, ME(<2), ER			7.0	-7.98	163.43	300	Q
220	7 17 0	-21.51	158.53	1372	SM, ER			7.5	-5.07	163.69	300	Q
220	7 18 0	-18.31	158.39	1373	SM, ER			7.7	-2.52	163.96	300	Q
220	7 19 0	-15.11	158.25	1373	OFF				-0.33	164.19	300	Q
220	7 20 0	-11.90	158.11	1374	SM			>10.0	1.51	164.40	300	Q
220	7 21 0	-8.69	157.96	1375	SM			>10.0	3.06	164.57	300	Q
220	7 22 0	-5.49	157.82	1375	SM			>10.0	4.38	164.70	300	Q
220	7 23 0	-2.28	157.67	1376	SM			10.5	5.52	164.79	300	Q
220	7 24 0	0.92	157.52	1377	SM			10.2	6.54	164.85	300	Q
220	7 25 0	4.12	157.37	1378	SM			10.0	7.48	164.89	300	Q
220	7 26 0	7.33	157.22	1379	SM			>10.0	8.36	164.89	300	Q
220	7 27 0	10.53	157.08	1380	SM			>10.0	9.24	164.86	300	Q
220	7 28 0	13.73	156.93	1381	SM			>10.0	10.13	164.81	300	Q
220	7 29 0	16.93	156.79	1382	SM			>10.0	11.08	164.72	300	Q
220	7 30 0	20.12	156.65	1383	SM			>10.0	12.11	164.61	300	Q
220	7 31 0	23.31	156.52	1384	SM			>10.0	13.28	164.45	300	Q
220	7 32 0	26.50	156.39	1386	SM			>10.0	14.63	164.25	300	Q
220	7 33 0	29.69	156.27	1387	SM			9.7	16.22	164.01	300	Q
220	7 34 0	32.88	156.16	1388	SM			9.0	18.09	163.72	300	Q
220	7 35 0	36.06	156.06	1390	SM, ER			7.5	20.30	163.40	300	Q
220	7 36 0	39.24	155.97	1391	SM, ER			7.0	22.86	163.04	300	Q

PASS SUMMARY FOR KWAJALEIN									
FOR 9 AUGUST 1978 DAY 221									
OBJECT: 5104 ISIS 2									
DAY	TIME (Z)		SATELLITE LOCATION			DESCRIPTION	IONOGRAM SUMMARY		SCINTILLATION SUMMARY
			LAT	LONG	ALT KM		F-MAX MHZ	PENETRATION LOCATION	
	HR	MIN	SC					LAT LONG	ALT KM
221	6	0	0	-24.79	176.57	1372	SM, ER	-8.02 171.92	300
221	6	1	0	-21.59	176.44	1373	SM, ME, ER	-5.07 171.54	300
221	6	2	0	-18.38	176.31	1373	SM, ME, ER	-2.48 171.18	300
221	6	3	0	-15.18	176.17	1374	SM, ME(<2)	-0.27 170.85	300
221	6	4	0	-11.98	176.02	1375	SM, ME(<2)	1.58 170.56	300
221	6	5	0	-8.77	175.88	1375	SM	3.13 170.32	300
221	6	6	0	-5.57	175.73	1376	SM	4.44 170.13	300
221	6	7	0	-2.36	175.58	1377	SM	5.57 169.97	300
221	6	8	0	0.84	175.43	1378	SM	6.57 169.84	300
221	6	9	0	4.05	175.28	1379	SM	7.48 169.74	300
221	6	10	0	7.25	175.14	1380	SM	8.34 169.67	300
221	6	11	0	10.45	174.99	1381	SM	9.18 169.61	300
221	6	12	0	13.65	174.84	1382	SM	10.03 169.58	300
221	6	13	0	16.84	174.70	1383	SM	10.93 169.57	300
221	6	14	0	20.04	174.56	1384	SM	11.91 169.57	300
221	6	15	0	23.23	174.43	1386	SM	13.01 169.60	300
221	6	16	0	26.42	174.30	1387	SM, ME(<2), CE(1.8), ER	14.28 169.65	300
221	6	17	0	29.61	174.18	1388	SM, ME(<2.5), ER	15.77 169.72	300
221	6	18	0	32.79	174.07	1390	SM, ER	17.55 169.81	300
221	6	19	0	35.97	173.97	1391	SM, ER	19.66 169.93	300
221	6	20	0	39.15	173.88	1392	SM, ER	22.15 170.07	300
221	6	21	0	42.32	173.80	1394		25.00 170.22	300

OBJECT: 5104 ISIS 2 PASS SUMMARY FOR KWAJALEIN FOR 9 AUGUST 1978 DAY 221

DAY	TIME (Z) HR MN SC	SATELLITE LOCATION		DESCRIPTION	IONOGRAM SUMMARY		PENETRATION LOCATION	
		LAT	LONG		F-MAX MHz	LAT	LONG	ALT KM
221	18 13 0	43.35	171.86	1430		25.50	169.41	300
221	18 14 0	40.20	171.79	1430		22.59	169.26	300
221	18 15 0	37.06	171.70	1430		20.04	169.11	300
221	18 16 0	33.91	171.60	1431		17.87	168.98	300
221	18 17 0	30.76	171.49	1431	SM, ME, ER	16.05	168.86	300
221	18 18 0	27.61	171.37	1431	VSP, STV, ME, ER	14.53	168.76	300
221	18 19 0	24.46	171.25	1430	VSP, STV, ME, CE(2), ER	13.25	168.68	300
221	18 20 0	21.31	171.11	1430	SP, STV, ME, ER	12.15	168.61	300
221	18 21 0	18.15	170.98	1430	SP, STV, ME, CE(1.6), ER	11.18	168.55	300
221	18 22 0	14.99	170.83	1429	SP, STV, ME, ER	10.51	168.50	300
221	18 23 0	11.83	170.69	1429	SP(<2.5), ME, ER	9.49	168.46	300
221	18 24 0	8.67	170.54	1428	SP(<2), ME, ER	8.70	168.42	300
221	18 25 0	5.51	170.39	1427	SM, WSP(<1.7), ER	7.92	168.39	300
221	18 26 0	2.35	170.24	1427	SP(<1.8), ER	7.10	168.37	300
221	18 27 0	-0.82	170.09	1426	SP(<2), ER	6.22	168.35	300
221	18 28 0	-3.98	169.94	1425	SP(<2), ER	5.25	168.34	300
221	18 29 0	-7.14	169.79	1423		4.14	168.32	300
221	18 30 0	-10.31	169.65	1422		2.85	168.32	300
221	18 31 0	-13.48	169.50	1421		1.31	168.31	300
221	18 32 0	-16.64	169.36	1420		-0.55	168.31	300
221	18 33 0	-19.81	169.22	1418		-2.76	168.31	300
221	18 34 0	-22.97	169.08	1417		-5.37	168.31	300
221	18 35 0	-26.14	168.95	1415		-8.35	168.30	300

OBJECT: 5104 ISIS 2 PASS SUMMARY FOR KWAJALEIN FOR 10 AUGUST 1978 DAY 222

DAY	TIME (Z) HR MN SC	SATELLITE LOCATION		DESCRIPTION	IONOGRAM SUMMARY		PENETRATION LOCATION		SCINTILLATION SUMMARY
		LAT	LONG		F-MAX MHz	ALT NM	LAT	LONG	
222	6 38 0	-23.79	165.93	SM, ER	6.5	1373	-6.53	166.93	300
222	6 39 0	-20.59	165.80	SM, ER	6.8	1374	-3.75	166.94	300
222	6 40 0	-17.38	165.67	SM, ER	7.1	1374	-1.35	166.95	300
222	6 41 0	-14.18	165.52	SM, ER	8.3	1375	0.67	166.96	300
222	6 42 0	-10.98	165.38	SM	>10.0	1376	2.34	166.97	300
222	6 43 0	-7.77	165.23	SM, ER	13.0	1376	3.75	166.98	300
222	6 44 0	-4.57	165.09	SM, ER	12.2	1377	4.94	166.98	300
222	6 45 0	-1.37	164.94	SM, ER	11.5	1378	5.98	166.97	300
222	6 46 0	1.84	164.79	SM, ER	11.1	1379	6.91	166.95	300
222	6 47 0	5.04	164.64	SM, ER	11.1	1380	7.77	166.93	300
222	6 48 0	8.24	164.49	SM, ER	12.1	1381	8.59	166.91	300
222	6 49 0	11.44	164.35	SM, ER	12.7	1382	9.41	166.87	300
222	6 50 0	14.64	164.20	SM, ER	14.1	1384	10.26	166.83	300
222	6 51 0	17.83	164.06	SM, ER	14.1	1385	11.16	166.78	300
222	6 52 0	21.02	163.93	SM, ER	14.0	1386	12.16	166.71	300
222	6 53 0	24.21	163.79	SM, ER	11.1	1387	13.29	166.64	300
222	6 54 0	27.40	163.67	SM, ER	9.5	1389	14.60	166.54	300
222	6 55 0	30.59	163.55	SM, ER	8.4	1390	16.17	166.43	300
222	6 56 0	33.77	163.44	SM, ER	7.5	1391	18.04	166.31	300
222	6 57 0	36.94	163.34	SM, ER	7.1	1393	20.26	166.16	300
222	6 58 0	40.12	163.25	SM, ER	6.7	1394	22.86	166.00	300
222	6 59 0	43.29	163.19	SM, ER		1396	25.82	165.84	300

OBJECT: 5104 ISIS 2 PASS SUMMARY FOR KWAJALEIN FOR 10 AUGUST 1978 DAY 222

DAY	TIME (Z) HR MN SC	SATELLITE LOCATION			DESCRIPTION	IONOGRAM SUMMARY			PENETRATION LOCATION			SCINTILLATION SUMMARY
		LAT	LONG	ALT KM		F-MAX	MUF	Q	LAT	LONG	ALT KM	
222	18 51 0	42.40	161.24	1430	SM, ER		6.5	Q	24.75	165.12	300	Q
222	18 52 0	39.26	161.17	1430	SM, ER		6.5	Q	21.95	165.28	300	Q
222	18 53 0	36.11	161.07	1430	SM, ER		6.0	Q	19.51	165.43	300	Q
222	18 54 0	32.96	160.97	1430	SM, ER		5.8	Q	17.44	165.56	300	Q
222	18 55 0	29.82	160.86	1430	SM, NSP(NP), ER		5.7	Q	15.70	165.66	300	Q
222	18 56 0	26.66	160.74	1430	SP, STV, ER		5.3	Q	14.24	165.73	300	Q
222	18 57 0	23.51	160.61	1430	SP, STV, ME, ER		5.1	Q	13.01	165.79	300	Q
222	18 58 0	20.35	160.47	1429	SP, STV, ME, ER		5.0	Q	11.94	165.82	300	Q
222	18 59 0	17.20	160.33	1429	SP, STV, ME, ER		4.5	Q	10.98	165.83	300	Q
222	19 0 0	14.04	160.19	1428	SP, STV, ME, RSP, ER		4.4	Q	10.11	165.81	300	Q
222	19 1 0	10.88	160.05	1428	SP(<2.5), ME, RSP, ER		5.2	Q	9.28	165.78	300	Q
222	19 2 0	7.72	159.90	1427	SP(<2), ER		6.0	Q	8.47	165.73	300	Q
222	19 3 0	4.55	159.75	1426	SM, NSP(<2), ER		6.5	Q	7.65	165.66	300	Q
222	19 4 0	1.39	159.60	1425	SM, NSP(<2), ER		6.4	Q	6.78	165.57	300	Q
222	19 5 0	-1.78	159.45	1424	SM, NSP(<2), ER		4.4	Q	5.84	165.44	300	Q
222	19 6 0	-4.94	159.30	1423	SM, NSP(<2), ER		4.0	Q	4.78	165.29	300	Q
222	19 7 0	-8.11	159.15	1422	SM, NSP(<2), ER		4.0	Q	3.56	165.10	300	Q
222	19 8 0	-11.27	159.00	1421	SM, NSP(<2), ER		3.8	Q	2.12	164.87	300	Q
222	19 9 0	-14.44	158.86	1419	SM, ER		3.3	Q	0.41	164.59	300	Q
222	19 10 0	-17.61	158.72	1418	SM, ER		3.5	Q	-1.64	164.27	300	Q
222	19 11 0	-20.78	158.58	1416	SM, ER		3.5	Q	-4.06	163.91	300	Q
222	19 12 0	-23.94	158.45	1415	SM, ER			Q	-6.85	163.52	300	Q

DAY	TIME (Z) HR MN SC	SATELLITE LOCATION			DESCRIPTION	IONOGRAM SUMMARY		PENETRATION LOCATION		SCINTILLATION SUMMARY
		LAT	LONG	ALT NM		F-MAX MHz	ALT NM	LAT	LONG	
223	5 23 0	-20.64	-176.28	1374	SM, ER	11.9		-5.42	175.14	Q
223	5 24 0	-17.43	-176.42	1375	SM, ER	15.0		-2.83	174.54	Q
223	5 25 0	-14.23	-176.56	1376	SM, ER	14.9		-0.58	173.98	Q
223	5 26 0	-11.03	-176.71	1376	SM, ER	14.1		1.35	173.49	Q
223	5 27 0	-7.82	-176.85	1377	SM, ER	11.7		2.99	173.07	Q
223	5 28 0	-4.62	-177.00	1378	SM, ER	9.4		4.38	172.72	Q
223	5 29 0	-1.42	-177.15	1379	SM, ER	8.7		5.60	172.44	Q
223	5 30 0	1.78	-177.30	1380	SM, ER	8.5		6.68	172.22	Q
223	5 31 0	4.98	-177.45	1381	SM, ER	9.1		7.67	172.05	Q
223	5 32 0	8.18	-177.59	1382	SM, ER	9.8		8.62	171.93	Q
223	5 33 0	11.38	-177.74	1384	SM, ER	11.4		9.54	171.86	Q
223	5 34 0	14.58	-177.88	1385	SM, ER	~14.0		10.49	171.83	Q
223	5 35 0	17.77	-178.02	1386	SM, ER	~15.3		11.50	171.85	Q
223	5 36 0	20.96	-178.16	1387	SM, ER	~15.0		12.59	171.91	Q
223	5 37 0	24.15	-178.29	1389	SM, ER	~13.0		13.83	172.02	Q
223	5 38 0	27.34	-178.42	1390	SM, ER	9.5		15.25	172.17	Q
223	5 39 0	30.52	-178.54	1391	SM, ME(<2.5), ER	7.7		16.92	172.38	Q
223	5 40 0	33.70	-178.65	1393	SM, ME(<2.5), ER	7.1		18.88	172.64	Q
223	5 41 0	36.88	-178.75	1394	SM, ME(<2), ER	6.6		21.17	172.93	Q
223	5 42 0	40.05	-178.83	1396	SM, ME(<2), ER	6.5		23.79	173.25	Q

OBJECT: 5104 ISIS 2 PASS SUMMARY FOR KWAJALEIN FOR 11 AUGUST 1978 DAY 223

DAY	TIME (Z)		SATELLITE LOCATION			DESCRIPTION	IONOGRAM SUMMARY	PENETRATION LOCATION			SCINTILLATION SUMMARY
	HR	MM	SC	LAT	LONG			ALT KM	LAT	LONG	
223	17	35	0	42.48	179.15	1430		25.38	172.47	300	Q
223	17	36	0	39.34	179.08	1430	SM, ME, ER	22.54	172.12	300	Q
223	17	37	0	36.19	178.99	1430	SM, ME	20.04	171.78	300	Q
223	17	38	0	33.05	178.88	1430	SM, ME	17.89	171.47	300	Q
223	17	39	0	29.90	178.77	1430	SM, ME, CE(1.8), ER	16.07	171.20	300	Q
223	17	40	0	26.74	178.65	1429	SM, ME, CE(2), ER	14.53	170.97	300	Q
223	17	41	0	23.59	178.52	1429	VSP, STV, ME, CE(1.9), ER	13.23	170.79	300	Q
223	17	42	0	20.43	178.39	1429	VSP, STV, ME, CE(1.7), ER	12.10	170.64	300	Q
223	17	43	0	17.28	178.25	1428	VSP, STV, ME, CE(1.8), ER	11.10	170.53	300	Q
223	17	44	0	14.12	178.10	1427	VSP, STV, ME, CE(1.8)	10.19	170.44	300	Q
223	17	45	0	10.95	177.96	1427	SP(<2), ME, CE(1.7), ER	9.33	170.39	300	Q
223	17	46	0	7.79	177.81	1426	SM, WSP(<2), CE(3.5)	8.50	170.36	300	Q
223	17	47	0	4.63	177.66	1425	SM, WSP(NP), CE(1.7), ER	7.65	170.36	300	Q
223	17	48	0	1.46	177.51	1424	SM, CE(1.7), ER	6.77	170.38	300	Q
223	17	49	0	-1.70	177.36	1423	SM, CE(1.8), ER	5.82	170.42	300	Q
223	17	50	0	-4.87	177.21	1422	SM, CE(1.8), ER	4.76	170.50	300	Q
223	17	51	0	-8.04	177.06	1421	SM, ME, CE(1.8), ER	3.54	170.61	300	Q
223	17	52	0	-11.20	176.92	1419	SM, ME, ER	2.12	170.75	300	Q
223	17	53	0	-14.37	176.77	1418	SM, ME, CE(1.6), ER	0.42	170.93	300	Q
223	17	54	0	-17.54	176.63	1417	SM, ME, ER	-1.59	171.14	300	Q
223	17	55	0	-20.71	176.49	1415	SM, ME, ER	-3.97	171.37	300	Q
223	17	56	0	-23.88	176.36	1414	SM, ME, ER	-6.72	171.62	300	Q

223	19	30	0	38.30	150.54	1430	VSP, STV, ER	5.5	22.67	160.76	300	Q
223	19	31	0	35.15	150.45	1430	VSP, ME, CE(1.6)	5.0	20.25	161.14	300	Q
223	19	32	0	32.00	150.34	1430	VSP, ME, CE(1.5), ER	5.5	18.14	161.48	300	Q
223	19	33	0	28.85	150.22	1429	VSP, ME, ER	5.5	16.33	161.77	300	Q
223	19	34	0	25.70	150.10	1429	SP, ME, ER	5.5	14.77	162.00	300	Q
223	19	35	0	22.54	149.97	1429	SM, ER	4.8	13.42	162.17	300	Q
223	19	36	0	19.39	149.83	1428	SM, WSP(NP), CE(1.5), ER	4.8	12.23	162.28	300	Q
223	19	37	0	16.23	149.69	1428	SM, ER	3.7	11.15	162.33	300	Q
223	19	38	0	13.07	149.55	1427	SM, RSP	3.9	10.14	162.32	300	Q
223	19	39	0	9.91	149.40	1426	SM, RSP	~ 3.9	9.17	162.27	300	Q
223	19	40	0	6.74	149.25	1426	VSP, STV	4.1	8.20	162.15	300	Q
223	19	41	0	3.58	149.11	1425	VSP, STV	4.5	7.20	161.98	300	Q
223	19	42	0	0.41	148.96	1424	SP, STV	~ 4.0	6.13	161.74	300	Q
223	19	43	0	-2.75	148.81	1423	SM, RSP, ER	~ 4.8	4.95	161.43	300	Q
223	19	44	0	-5.92	148.66	1421	SM	4.2	3.61	161.05	300	Q
223	19	45	0	-9.09	148.51	1420	SM, ME, ER	4.7	2.07	160.58	300	Q
223	19	46	0	-12.25	148.36	1419	SM, ME, ER	4.0	0.28	160.04	300	Q
223	19	47	0	-15.42	148.22	1417	SM, ME, ER	3.5	-1.80	159.42	300	Q
223	19	48	0	-18.59	148.08	1416		-4.19	158.75	300	Q	

OBJECT: 5104 ISIS 2

PASS SUMMARY FOR AMAJALEIN

FUR 12 AUGUST 1978

DAY 224

DAY	TIME (Z) HR MN SC	SATELLITE LOCATION		DESCRIPTION	IONOGRAM SUMMARY		PENETRATION LOCATION		SCINTILLATION SUMMARY	
		LAT	LONG		ALT NM	F-MAX MHz	LAT	LONG		ALT NM
224	6 0 0	-22.81	173.21	1375	SM, ME(<2), ER		-5.82	170.15	300	Q
224	6 1 0	-19.61	173.08	1375	SM, ME(<2), ER		-3.12	169.89	300	Q
224	6 2 0	-16.41	172.94	1376	SM, ME(<2), ER		-0.81	169.66	300	Q
224	6 3 0	-13.21	172.80	1377	SM, ER		1.12	169.46	300	Q
224	6 4 0	-10.00	172.65	1378	SM, ER		2.74	169.29	300	Q
224	6 5 0	-6.80	172.51	1379	SM, ER		4.09	169.15	300	Q
224	6 6 0	-3.60	172.36	1380	SM, ER		5.25	169.04	300	Q
224	6 7 0	-0.40	172.21	1381	SM, ER		6.26	168.94	300	Q
224	6 8 0	2.80	172.06	1382	SM, ER		7.17	168.87	300	Q
224	6 9 0	6.00	171.91	1383	SM, ER		8.02	168.80	300	Q
224	6 10 0	9.20	171.76	1384	SM, ER		8.84	168.75	300	Q
224	6 11 0	12.40	171.62	1385	SM, ER		9.66	168.72	300	Q
224	6 12 0	15.59	171.48	1387	SM, ER		10.52	168.69	300	Q
224	6 13 0	18.78	171.34	1388	SM, ER		11.44	168.67	300	Q
224	6 14 0	21.97	171.20	1389	SM, ER		12.46	168.66	300	Q
224	6 15 0	25.16	171.07	1391	SM, ME(<2), CE(1.8), ER		13.63	168.66	300	Q
224	6 16 0	28.34	170.95	1392	SM, ME(<2.5), CE(1.8), ER		15.00	168.68	300	Q
224	6 17 0	31.53	170.83	1393	SM, ME(<2.5), ER		16.63	168.70	300	Q
224	6 18 0	34.70	170.72	1395	VSP(<2.5), ME, CE(1.8), ER		18.58	168.74	300	Q
224	6 19 0	37.88	170.63	1396	VSP(<2.5), ME, ER		20.90	168.78	300	Q
224	6 20 0	41.05	170.55	1398	VSP(<2.5), ME, ER		23.59	168.83	300	Q

OBJECT: 5104 ISIS 2

PASS SUMMARY FOR KWAJALEIN

FOR 12 AUGUST 1978 DAY 224

DAY	TIME (Z)		SATELLITE LOCATION			DESCRIPTION	IONOGRAM SUMMARY		PENETRATION LOCATION			SCINTILLATION SUMMARY
	HR	MIN	LAT	LONG	ALT KM		F-MAX	MUF	LAT	LONG	ALT KM	
224	18	13	0	41.51	168.53	1429	SP, ME, ER	4.5	23.66	168.04	300	Q
224	18	14	0	38.36	168.45	1429	SP, ME, ER	4.5	20.96	167.99	300	Q
224	18	15	0	35.22	168.36	1429	SP, ME, ER	4.5	18.65	167.94	300	Q
224	18	16	0	32.07	168.25	1429	SM, WSP, ME, ER	4.5	16.70	167.89	300	Q
224	18	17	0	28.92	168.14	1429	SM, WSP, ME, ER	4.7	15.08	167.85	300	Q
224	18	18	0	25.76	168.01	1429	SM, WSP, ME, ER	4.6	13.71	167.81	300	Q
224	18	19	0	22.61	167.88	1428	SM, WSP, ME, ER	4.6	12.56	167.77	300	Q
224	18	20	0	19.45	167.75	1428	SM, WSP, ME, ER	4.7	11.55	167.73	300	Q
224	18	21	0	16.29	167.61	1427	SM, WSP, ER	4.6	10.65	167.70	300	Q
224	18	22	0	13.13	167.46	1426	SM, ER	4.6	9.82	167.66	300	Q
224	18	23	0	9.97	167.32	1425	SM, WSP(NP), ER	4.6	9.02	167.63	300	Q
224	18	24	0	6.81	167.17	1425	SP(>3.3), STV, ER	4.5	8.24	167.59	300	Q
224	18	25	0	3.64	167.02	1424	SP(>3.1), STV, ER	5.0	7.44	167.55	300	Q
224	18	26	0	0.47	166.87	1423	VSP(>3.2), STV, ER	4.6	6.59	167.51	300	Q
224	18	27	0	-2.69	166.72	1421	SM, WSP(NP), ER	4.2	5.66	167.46	300	Q
224	18	28	0	-5.86	166.57	1420	SM, ER	4.0	4.61	167.40	300	Q
224	18	29	0	-9.03	166.42	1419	SM, ER	3.8	3.39	167.34	300	Q
224	18	30	0	-12.20	166.27	1418	SM, ME, ER	3.8	1.95	167.26	300	Q
224	18	31	0	-15.37	166.13	1416	SM, ME, ER	3.7	0.22	167.17	300	Q
224	18	32	0	-18.54	165.99	1415	SM, WSP(NP), ER	3.7	-1.86	167.07	300	Q
224	18	33	0	-21.70	165.85	1413	SM, ER	3.7	-4.33	166.96	300	Q
224	18	34	0	-24.87	165.72	1412			-7.18	166.83	300	Q

OBJECT: 5104 ISIS 2 PASS SUMMARY FOR KWAJALEIN FOR 13 AUGUST 1978 DAY 225

DAY	TIME (Z)		SATELLITE LOCATION		DESCRIPTION	IONOGRAM SUMMARY		PENETRATION LOCATION		SCINTILLATION SUMMARY
	HR	MIN	LAT	LONG	ALT NM		F-MAX MHZ	LAT	LONG	ALT NM
225	4	46	-16.43	-169.15	1377	SM, ME(<2.5), ER	12.2	-3.67	178.80	300
225	4	47	-13.23	-169.29	1378	SM, ME(<2.5), ER	13.3	-1.33	178.06	300
225	4	48	-10.03	-169.43	1379	SM, ME(<2), ER	13.0	0.73	177.38	300
225	4	49	-6.83	-169.58	1380	SM, ME(<2), ER	12.0	2.53	176.78	300
225	4	50	-3.63	-169.73	1381	SM, ER	10.6	4.10	176.26	300
225	4	51	-0.43	-169.88	1382	SM, ER	10.3	5.49	175.83	300
225	4	52	2.77	-170.03	1383	SM, ER	10.6	6.74	175.50	300
225	4	53	5.97	-170.17	1384	SM, ER	11.3	7.90	175.25	300
225	4	54	9.17	-170.32	1385	SM, ER	12.5	9.01	175.07	300
225	4	55	12.36	-170.47	1387	SM, ER	13.5	10.11	174.98	300
225	4	56	15.56	-170.61	1388	SM, ER	14.0	11.23	174.95	300
225	4	57	18.75	-170.75	1389	SM, ER	13.4	12.43	175.00	300
225	4	58	21.94	-170.89	1391	SM, ER	12.6	13.73	175.13	300
225	4	59	25.12	-171.02	1392	SM, ME(<2), CE(1.6), ER	11.1	15.19	175.32	300
225	5	0	28.30	-171.14	1393	SM, ER	10.5	16.85	175.59	300
225	5	1	31.48	-171.26	1395		9.5	18.75	175.93	300
225	5	2	34.66	-171.36	1396		8.5	20.92	176.32	300
225	5	3	37.83	-171.46	1397			23.38	176.74	300

225	6	37	-24.97	162.70	1375	SM, ER	9.0	-7.80	165.39	300
225	6	38	-21.77	162.57	1376	SM, ER	9.1	-4.87	165.52	300
225	6	39	-18.57	162.44	1376	SM, ER	9.7	-2.32	165.65	300
225	6	40	-15.37	162.30	1377	SM, ME(<2), ER	11.1	-0.15	165.76	300
225	6	41	-12.17	162.16	1378	SM, ME(<2), ER	13.0	1.66	165.86	300
225	6	42	-8.97	162.01	1379	SM, ER	13.3	3.17	165.94	300
225	6	43	-5.76	161.86	1380	SM, ER	12.7	4.46	166.00	300
225	6	44	-2.56	161.72	1381	SM, ER	11.8	5.56	166.04	300
225	6	45	0.64	161.57	1382	SM, ER	11.0	6.54	166.06	300
225	6	46	3.84	161.42	1383	SM, ER	10.3	7.44	166.07	300
225	6	47	7.03	161.27	1385	SM, ER	10.1	8.29	166.06	300
225	6	48	10.23	161.12	1386	SM, ER	10.9	9.12	166.03	300
225	6	49	13.42	160.98	1387	SM, ER	12.1	9.97	165.99	300
225	6	50	16.62	160.84	1388	SM, ER	12.5	10.86	165.92	300
225	6	51	19.81	160.70	1390	SM, ER	14.8	11.83	165.84	300
225	6	52	23.00	160.56	1391	SM, ER	14.5	12.93	165.74	300
225	6	53	26.18	160.43	1392	SM, ME(<1.7), ER	13.0	14.19	165.61	300
225	6	54	29.36	160.31	1394			15.67	165.45	300
225	6	55	32.54	160.20	1395			17.44	165.26	300
225	6	56	35.72	160.10	1397			19.55	165.03	300
225	6	57	38.89	160.01	1398			22.02	164.79	300
225	6	58	42.06	159.93	1399			24.84	164.53	300

OBJECT: 5104 1515 2 PASS SUMMARY FOR NWAJALEIN FOR 13 AUGUST 1978 DAY 225

DAY	TIME (Z)		SATELLITE LOCATION			DESCRIPTION	F-MAX MHz	PENETRATION LOCATION			SCINTILLATION SUMMARY
	HR	MM	SC	LAT	LONG			ALT NM	LAT	LONG	
0225*	16	58	0	38.42	-173.64	1429		23.09	175.46	300	
0225*	16	59	0	35.27	-173.73	1429	SM, ME	20.60	174.96	300	Q
0225*	17	0	0	32.12	-173.84	1429	SM, ME(<2), ER	18.42	174.49	300	SC
0225*	17	1	0	28.97	-173.95	1428	SM, ER	16.53	174.08	300	SC
0225*	17	2	0	25.82	-174.08	1428	SM, ME, WSP, ER	14.91	173.72	300	?
0225*	17	3	0	22.66	-174.21	1427	SM, ME, ER	13.51	173.43	300	Q
0225*	17	4	0	19.51	-174.34	1427	SM, ME, ER	12.27	173.21	300	Q
0225*	17	5	0	16.35	-174.48	1426	SM, ME, ER	11.17	173.04	300	Q
0225*	17	6	0	13.18	-174.62	1425	SM, RSP, ER	10.16	172.92	300	Q
0225*	17	7	0	10.02	-174.77	1425	SM, RSP, ER	9.19	172.86	300	Q
0225*	17	8	0	6.86	-174.92	1424	VSP, STV, RSP, CE(1.3), ER	8.24	172.85	300	Q
0225*	17	9	0	3.69	-175.07	1423	VSP, STV, RSP, ER	7.27	172.88	300	Q
0225*	17	10	0	0.52	-175.22	1421	VSP, STV, RSP, ME, ER	6.25	172.97	300	Q
0225*	17	11	0	-2.64	-175.37	1420	VSP, STV, RSP, ME, ER	5.14	173.12	300	Q
0225*	17	12	0	-5.81	-175.52	1419	VSP, STV, RSP, ME	4.7	173.32	300	MS
0225*	17	13	0	-8.98	-175.67	1418	SP(>3), ET(3.0), STV, ER	2.47	173.58	300	MS
0225*	17	14	0	-12.15	-175.81	1416	SP(>3.5), ET(3.5), RSP, ME, ER	0.80	173.90	300	MS
0225*	17	15	0	-15.32	-175.96	1415	SP(>3.3), ET(3.3), RSP, ME, ER	-1.14	174.28	300	Q
0225*	17	16	0	-18.49	-176.10	1413		-3.39	174.71	300	
0225*	17	17	0	-21.66	-176.23	1412		-5.97	175.16	300	

OBJECT: 5104 ISIS 2

PASS SUMMARY FOR KWAJALEIN

FOR 13 AUGUST 1978 DAY 225

DAY	TIME (Z) HR MN SC	SATELLITE LOCATION			DESCRIPTION	IONOGRAM SUMMARY F-MAX Mhz	PENETRATION LOCATION			SCINTILLATION SUMMARY
		LAT	LONG	ALT NM			LAT	LONG	ALT NM	
225	18 51 0	40.52	157.91	1429	SM, ME		23.37	163.87	300	Q
225	18 52 0	37.38	157.83	1429	SM, MSP, ER	4.3	20.77	164.11	300	Q
225	18 53 0	34.23	157.73	1429	SP, STV, ER	4.3	18.53	164.33	300	Q
225	18 54 0	31.08	157.62	1428	VSP, STV, ER	4.3	16.62	164.51	300	Q
225	18 55 0	27.93	157.50	1428	WVSP, STV, ME, ER	4.5	15.02	164.65	300	Q
225	18 56 0	24.77	157.37	1428	WVSP, ME, CE(1.4), ER	4.4	13.67	164.76	300	Q
225	18 57 0	21.61	157.24	1427	WVSP, STV, ME, ER	4.2	12.50	164.83	300	Q
225	18 58 0	18.46	157.11	1427	SP, STV, ME, ER	4.3	11.47	164.87	300	Q
225	18 59 0	15.30	156.96	1426	SP, STV, ME, ER	4.5	10.53	164.88	300	Q
225	19 0 0	12.13	156.82	1425	SP, STV, ME, ER	5.2	9.66	164.86	300	Q
225	19 1 0	8.97	156.67	1424	VSP, STV, ME, ER	~ 5.0	8.81	164.81	300	Q
225	19 2 0	5.80	156.53	1423	VSP, STV, ME, ER	4.5	7.96	164.74	300	Q
225	19 3 0	2.64	156.38	1422	VSP, STV, ER	3.8	7.08	164.62	300	Q
225	19 4 0	-0.53	156.23	1421	VSP, STV, ER	4.0	6.13	164.47	300	Q
225	19 5 0	-3.70	156.08	1420	SP, STV, ER	3.5	5.07	164.28	300	Q
225	19 6 0	-6.87	155.93	1418	SP(<2), ER	3.6	3.86	164.05	300	Q
225	19 7 0	-10.04	155.78	1417	SM, ME, ER	3.3	2.45	163.75	300	Q
225	19 8 0	-13.21	155.63	1416	SM, ME, ER	3.0	0.77	163.40	300	Q
225	19 9 0	-16.38	155.49	1414	SM, ME, ER	2.8	-1.21	162.99	300	Q
225	19 10 0	-19.55	155.35	1413	SM, ME, ER	2.8	-3.55	162.53	300	Q
225	19 11 0	-22.72	155.22	1411	SM, ME, ER	3.0	-6.25	162.03	300	Q

OBJECT: 5104 ISIS 2				PASS SUMMARY FOR KWAJALEIN				FOR 14 AUGUST 1978		DAY 226			
DAY	TIME (Z)			SATELLITE LOCATION			DESCRIPTION	IONOGRAM SUMMARY		PENETRATION LOCATION		SCINTILLATION SUMMARY	
	HR	MIN	SEC	LAT	LONG	ALT KM		F-MAX	MEZ	LAT	LONG		ALT KM
226	5	22	0	-21.78	-179.51	1376	SM, ER		7.5	-5.79	173.55	300	Q
226	5	23	0	-18.58	-179.65	1377	SM, ER		10.0	-3.13	173.05	300	Q
226	5	24	0	-15.38	-179.79	1378	SM, ER		12.7	-0.83	172.58	300	Q
226	5	25	0	-12.18	-179.93	1379	SM, ER		13.6	1.12	172.17	300	Q
226	5	26	0	-8.98	-179.93	1380	SM, ER		13.3	2.77	171.82	300	Q
226	5	27	0	-5.78	-179.78	1381	SM, ER		12.3	4.16	171.52	300	Q
226	5	28	0	-2.58	-179.63	1382	SM, ER		10.5	5.36	171.29	300	Q
226	5	29	0	0.62	-179.48	1383	SM, ER		9.7	6.42	171.10	300	Q
226	5	30	0	3.82	-179.33	1385	SM, ER		9.7	7.38	170.96	300	Q
226	5	31	0	7.01	-179.18	1386	SM, ER		10.1	8.28	170.85	300	Q
226	5	32	0	10.21	-179.04	1387	SM, ER		11.2	9.16	170.78	300	Q
226	5	33	0	13.40	-178.89	1388	SM, ER		13.9	10.04	170.75	300	Q
226	5	34	0	16.59	-178.75	1390	SM, ER		14.1	10.97	170.74	300	Q
226	5	35	0	19.78	-178.61	1391	SM, ER		14.7	11.97	170.76	300	Q
226	5	36	0	22.97	-178.48	1392	SM, ER		13.0	13.10	170.82	300	Q
226	5	37	0	26.15	-178.35	1394	SM, ER		12.6	14.38	170.92	300	Q
226	5	38	0	29.33	-178.23	1395	SM, ER		10.5	15.89	171.05	300	Q
226	5	39	0	32.51	-178.11	1397	SM, ER		9.0	17.68	171.23	300	Q
226	5	40	0	35.69	-178.01	1398	SM, ER		8.7	19.79	171.44	300	Q
226	5	41	0	38.86	-177.92	1399	SM, ER		8.0	22.25	171.67	300	Q
226	5	42	0	42.02	-177.84	1401	SM, ER		6.9	25.06	171.93	300	Q

OBJECT: 5104 ISIS 2 PASS SUMMARY FOR NWAJALEIN FOR 14 AUGUST 1978 DAY 226

DAY	TIME (Z) HR MN SC	SATELLITE LOCATION			DESCRIPTION	IONOGRAM SUMMARY		PENETRATION LOCATION			SCINTILLATION SUMMARY
		LAT	LONG	ALT NM		F-MAX MEZ	LAT	LONG	ALT NM		
4226*	7 16 0	-20.72	151.94	1377	SM, ER		7.5	-5.43	160.43	300	Q
4226*	7 17 0	-17.52	151.80	1378	SM, ER		7.4	-2.89	160.88	300	Q
4226*	7 18 0	-14.32	151.66	1378	SM, ER		7.0	-0.67	161.29	300	Q
4226*	7 19 0	-11.12	151.52	1379	SM, ME(<2), ER		11.5	1.23	161.66	300	Q
4226*	7 20 0	-7.92	151.37	1380	SM, ER		13.3	2.85	161.97	300	Q
4226*	7 21 0	-4.72	151.22	1382	SM, ER		13.5	4.25	162.21	300	Q
4226*	7 22 0	-1.52	151.07	1383	SM, ER		12.7	5.48	162.39	300	Q
4226*	7 23 0	1.68	150.92	1384	SM, ER		11.6	6.59	162.52	300	Q
4226*	7 24 0	4.88	150.78	1385	SM, ER		10.7	7.62	162.59	300	Q
4226*	7 25 0	8.08	150.63	1386	SM, ER		10.1	8.60	162.61	300	Q
4226*	7 26 0	11.27	150.48	1388	SM, ER		10.8	9.58	162.58	300	Q
4226*	7 27 0	14.46	150.34	1389	SM, ER		11.5	10.59	162.50	300	Q
4226*	7 28 0	17.66	150.20	1390	SM, ER		12.3	11.66	162.36	300	Q
4226*	7 29 0	20.84	150.06	1392	SM, ER		12.5	12.84	162.16	300	Q
4226*	7 30 0	24.03	149.93	1393	SM, ER		12.2	14.18	161.91	300	Q
4226*	7 31 0	27.21	149.80	1394	SM, ER		9.6	15.71	161.59	300	Q
4226*	7 32 0	30.39	149.68	1396	SM, ME(<2), ER		8.8	17.48	161.20	300	Q
4226*	7 33 0	33.57	149.57	1397	SM, ER		8.9	19.54	160.76	300	Q
4226*	7 34 0	36.74	149.47	1399	SM, ER		8.0	21.90	160.28	300	Q

OBJECT: 5104		ISIS 2		PASS SUMMARY FOR KWAJALEIN		FOR 14 AUGUST 1978		DAY 226				
DAY	TIME (Z)	HR	MN	SC	SATELLITE LOCATION	DESCRIPTION	IONOGRAM SUMMARY	F-MAX MHz	PENETRATION LOCATION	SCINTILLATION SUMMARY		
					LAT	LONG	ALT KM		LAT	LONG	ALT KM	
226	17 35	0			40.56	175.83	1429	SM, ME	23.22	170.87	300	Q
226	17 36	0			37.42	175.74	1428	SM, ME	20.61	170.62	300	Q
226	17 37	0			34.27	175.64	1428	SM, ME	18.36	170.38	300	Q
226	17 38	0			31.12	175.53	1428	SP, STV, ME, ER	16.46	170.17	300	Q
226	17 39	0			27.97	175.41	1427	SP, STV, ME, ER	14.87	169.99	300	Q
226	17 40	0			24.81	175.29	1427	SP, STV, ME, ER	13.53	169.84	300	Q
226	17 41	0			21.65	175.16	1426	SP, ME, STV, ER	12.38	169.72	300	Q
226	17 42	0			18.50	175.02	1426	WVSP, STV, ME, ER	11.37	169.63	300	Q
226	17 43	0			15.33	174.88	1425	WVSP, STV, ME, ER	10.46	169.55	300	Q
226	17 44	0			12.17	174.73	1424	WVSP, STV, ME, ER	9.61	169.50	300	Q
226	17 45	0			9.01	174.59	1423	VSP, STV, ME, CE(1.4), ER	8.80	169.46	300	Q
226	17 46	0			5.84	174.44	1422	SP, STV, ME, ER	7.99	169.44	300	Q
226	17 47	0			2.67	174.29	1421	SP, STV, ME, ER	7.15	169.44	300	Q
226	17 48	0			-0.50	174.14	1420	SP, STV, ME, CE(1.5), ER	6.26	169.45	300	Q
226	17 49	0			-3.66	173.99	1419	SP, STV, ME, ER	5.27	169.48	300	Q
226	17 50	0			-6.83	173.84	1417	SP, STV, ME, ER	4.15	169.52	300	Q
226	17 51	0			-10.01	173.69	1416	VSP, STV, ME, ER	2.85	169.59	300	Q
226	17 52	0			-13.18	173.55	1414	VSP, STV, ME, CE(1.4), ER	1.30	169.68	300	Q
226	17 53	0			-16.35	173.40	1413	SM, ME, CE(1.5), ER	-0.56	169.79	300	Q
226	17 54	0			-19.52	173.26	1411	SM, ME, ER	-2.77	169.91	300	Q
226	17 55	0			-22.59	173.13	1410	SM, ME, CE(1.6), ER	-5.37	170.05	300	Q
226	17 56	0			-25.86	173.00	1408	SM, ME, CE(1.6), ER	-8.34	170.19	300	Q

OBJECT: 5104		ISIS 2		PASS SUMMARY FOR KWAJALEIN		FOR 14 AUGUST 1978		DAY 226		SCINTILLATION SUMMARY		
DAY	TIME (Z)	HR	NN	SC	SATELLITE LOCATION	DESCRIPTION	IONOGRAM SUMMARY	F-MAX MHZ	PENETRATION LOCATION	ALT KM		
					LAT	LONG			LAT	LONG		
226	19 30	0			36.37	147.20	SM, ME, CE(1.5), ER	5.5	21.87	159.28	300	Q
226	19 31	0			33.22	147.10	SP, STV, ME, ER	5.0	19.60	159.69	300	Q
226	19 32	0			30.07	146.99	SP, STV, ME, ER	4.8	17.61	160.05	300	Q
226	19 33	0			26.92	146.87	SM, ME, ER	4.8	15.87	160.34	300	Q
226	19 34	0			23.76	146.74	SM, ME, ER	4.8	14.36	160.57	300	Q
226	19 35	0			20.60	146.60	VSP, ME, CE(1.5), ER	4.7	13.03	160.73	300	Q
226	19 36	0			17.44	146.47	VSP, ME, CE(1.4), ER	4.7	11.82	160.82	300	Q
226	19 37	0			14.28	146.32	VSP, ME, CE(1.6), ER	4.3	10.71	160.84	300	Q
226	19 38	0			11.12	146.18	SP(<2.5), ME, ER	4.5	9.65	160.79	300	Q
226	19 39	0			7.95	146.03	VSP(<2.5), ER	4.3	8.60	160.67	300	Q
226	19 40	0			4.79	145.88	VSP(<2.5), ER	3.6	7.52	160.48	300	Q
226	19 41	0			1.62	145.73	VSP(<2.5), ME, CE(1.6), ER	3.3	6.39	160.21	300	Q
226	19 42	0			-1.55	145.58	VSP(<2.5), ME, CE(1.5), ER	3.2	5.15	159.86	300	Q
226	19 43	0			-4.72	145.43	SP, STV, ME, ER	3.0	3.76	159.43	300	Q
226	19 44	0			-7.89	145.28	SP, STV, ME, ER	2.7	2.18	158.90	300	Q
226	19 45	0			-11.06	145.14	SP, STV, ME, ER	2.7	0.37	158.29	300	Q
226	19 46	0			-14.23	144.99	SM, ME, ER	2.8	-1.71	157.61	300	Q
226	19 47	0			-17.40	144.85			-4.08	156.87	300	Q

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