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ECAC

DEPARTMENT OF DEFENSE

ELECTROMAGNETIC COMPATIBILITY ANALYSIS CENTER

AIRBORNE EUROPEAN RF MEASUREMENTS IN THE 100-500 MHZ BAND

Prepared by D. Madison, L. Kuehn, and T. Bode
of the IIT Research Institute

November 1972

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Technical Report

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FOREWORD

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This report was prepared as part of AF Project 649E under Contract F-19628-73-C-0031 by the staff of the IIT Research Institute at the Department of Defense Electromagnetic Compatibility Analysis Center.

To the extent possible, all abbreviations and symbols used in this report are taken from American Standard Y10.19 (1967) "Units Used in Electrical Science and Electrical Engineering" issued by the United States of America Standards Institute.

Users of this report are invited to submit comments which would be useful in revising or adding to this material to the Director, ECAC, North Severn, Annapolis, Maryland 21402, Attention ACZ.

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ABSTRACT

This report contains a description of an airborne RF measurement project. Included is a discussion of the hardware used to obtain the measurements, a description of the computer algorithms used to control an automatic spectrum analyzer, a description of the basic raw data and a presentation of the results. The measurements were taken over West Germany and France in the 100 to 500 MHz band. The automatic spectrum analyzer was mounted in a KC-135 aircraft, and a log-periodic antenna was mounted under the nose of the plane. The measurements were taken during April, May, and June 1972, and a complete schedule is contained in this report.

The data reduction was accomplished by ranking, by percent of occupancy, the 28 International Telecommunication Union (ITU) bands for Region 1 contained within the 100 to 500 MHz band. Samples of the measured occupancy and power plots across the 100 to 500 MHz band are included.

KEY WORDS

AIRBORNE MEASUREMENTS
SENSORS
SPECTRUM ANALYZER
UGSS

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SECTION 1

INTRODUCTION

BACKGROUND

During the past two years the Electromagnetic Compatibility Analysis Center (ECAC) has participated in various radio frequency interference (RFI) analyses ~~(References 1 through 3)~~ Ref 3 of the Unattended Ground Sensor System (UGSS). When it was determined that the sensor system would be used on a world-wide basis, ECAC worked with the Defense Special Projects Group (DSPG) and the Electronics System Division (ESD) to estimate the RFI environment that would be seen by the sensor system ([redacted]). This information is needed in order to assist in the selection of the frequency band of the world-wide sensor system. To aid in this analysis, it was determined the Radio Frequency (RF) measurements should be taken in Europe (Reference 6).

Initially, measurements were to be taken in four frequency bands; 138 to 153, 162 to 174, 238 to 250, and 438 to 450 MHz ([redacted]). However, because of the uncertainty of the final choice of the frequency band for the sensors, DSPG decided that the measurements should be made over the entire 100 to 500 MHz band.

Rome Air Development Center (RADC) was requested by DSPG to procure and test the RF measurement equipment, and to conduct the European measurements.

ECAC was requested to: 1) perform the analyses required to support the Air Force procurement of the airborne computer-controlled RF measurement system; 2) perform the necessary analysis and provide the analytical technique and computer control test plans (algorithms) to be used by RADC in making the RF measurements; and 3) analyze the resulting measured data and present the results so that the information can be used to assist in the selection of the sensor frequency band. [redacted] ~~documents number one (above) and describes some of the analytical techniques and algorithms used in taking the measurements. This report contains the complete documen~~

~~tation of the analytical technique and presents the results of the measurements.~~

OBJECTIVES

The objectives of this report are to describe the analysis, hardware, and algorithm used in taking the RF measurements, and to present the results of the measured data.

APPROACH

After consultation with ECAC and RADC, DSPG requested that the Air Force obtain the needed hardware for the RF measurement program. A computer-controlled spectrum analyzer for detecting narrowband (CW) signals was mounted in an Air Force KC-135 aircraft. An inertial navigation system with direct readout to the computer was also obtained. A log-periodic dipole antenna was mounted in a radome on the belly of the KC-135.

ECAC designed the computer algorithm used to control the above equipment to obtain RF measurements in channels 30 kHz wide over the 100 to 500 MHz band for both horizontally and vertically polarized signals. The RF measurements, together with heading and location information, were recorded on magnetic tapes. Data reduction capabilities to read these magnetic tapes were developed at ECAC and used to reduce and display the measurements. Also, on-site analysis routines were developed by ECAC for obtaining a quick look at the data using the on-board computer.

After preliminary on-the-ground testing, the aircraft flew over the East Central area of the United States and recorded RF measurements for about 12 hours. The data collected from the U.S. flights were analyzed at ECAC to insure that the measurements were meaningful (see page 4-4).

During the time the narrowband RF measurement equipment was being programmed and tested, DSPG directed that a pulse monitoring capability also be obtained. The United Technical Laboratory (UTL) designed and built the hardware and software

for the pulse recording system. This system was also mounted in the KC-135 aircraft and connected to the same antenna. The pulsed data were recorded on magnetic tape and ECAC was responsible for reducing the measured data.

After the testing in the U.S., the measurement team, with representatives from the Air Force, DSPG, RADC, UTL, and ECAC, deployed to Europe to begin the data collection. The European data were collected over a period of approximately 160 flight hours during April, May, and June 1972, for a geographic area including Belgium, the Netherlands, West Germany and a limited area of France. The spectrum was monitored during all portions of the day except the 2300 to 0800 period, and for all days of the week including weekends.

The magnetic tapes containing the measured data were shipped back to ECAC for reduction. Occupancy and power level statistics were generated using the ITU Region I bands contained in the 100 to 500 MHz band. Plots of the data were also generated and representative samples are contained in this report. The statistics were used to rank the ITU bands so that the data may be used in selecting the final frequency band for the sensor system.

SECTION 2

CONCLUSIONS

CONCLUSIONS

Based on an analysis of the data collected in Europe in the 100 to 500 MHz frequency range, the following conclusions can be made:

1. The narrowband data taken with the spectrum analyzer is of good quality. The 29 bands considered are ranked from the standpoint of congestion in TABLE 2-1.

2. Significant variations exist in the usage of portions of the spectrum between 100 and 500 MHz (TABLE 5-4).

3. In some bands there are marked variations which are functions of time of day and day of week. These variations do not appear in all portions of the 100 to 500 MHz range (see Appendix III).

4. The bands which are optimal from an occupancy viewpoint may not be optimal from an allocation viewpoint. The top ranked band, 136-138 MHz, for example, is devoted to space and radio astronomy uses.

5. The pulse data obtained was not useful, since pulse-like emissions were detected in all bands and radars are used only in a few of the bands of interest. Also, the narrowband equipment did not differentiate between signals that emanated from pulsed equipments, per se, and other signals (e.g., TV sync pulses) that were also in the environment. (See page 5-22 for a discussion.)

TABLE 2-1

FREQUENCY BAND RANKS

OCCUPANCY RANK	FREQUENCY BAND (MHz)	
1	136-138	
2	365-375	
3	400-406	
4	375-385	
5	350-365	
6	276-286	Low Congestion
7	286-300	Bands
8	235-250	(129 MHz)
9	440-450	
10	335-350	
11	223-235	
12	430-440	
13	300-329	
14	250-276	
15	138-144	Medium Congestion
16	385-400	Bands
17	450-470	(126 MHz)
18	329-335	
19	406-430	
20	216-223	
21	470-500	
22	118-136	
23	100-108	High Congestion
24	200-216	Bands
25	174-200	(145 MHz)
26	108-118	
27	144-146	
28	150-174	
29	146-150	

SECTION 3

HARDWARE DESCRIPTION

This section describes briefly the hardware used to obtain the RF measurements. Included in this section are discussions of the KC-135 aircraft, the receiving antenna, the front end bandpass filters, the Hewlett-Packard (HP) Automatic Spectrum Analyzer H16-8580A (for narrowband measurements) and the United Technology Laboratory (UTL) pulse receiver.

THE KC-135 AIRCRAFT

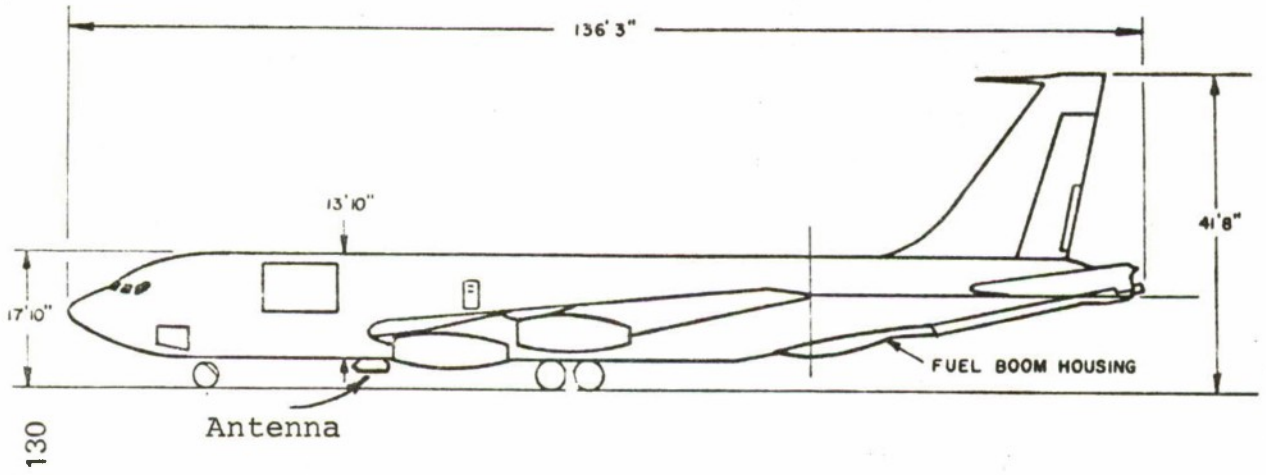
A modified KC-135 aircraft, assigned to RADC, was used as the airborne platform for the RF measurements. The two major modifications were the installation of an antenna in a radome under the belly of the aircraft, and an inertial guidance system allowing automatic recording of location, aircraft speed, and heading.

Figure 3-1 illustrates the side view and front view of the KC-135 aircraft with the antenna attached. Figure 3-1 shows that the KC-135 is a low-wing aircraft with low-hanging engines, a major factor affecting the selection of the airborne RF antenna.

AIRBORNE RF ANTENNA

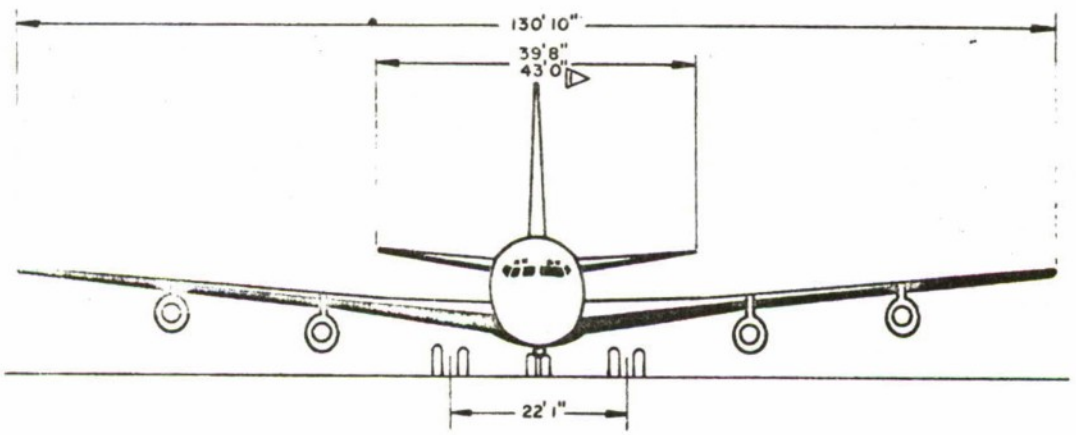
The airborne RF antenna selected was specifically designed for the measurement project by Antenna Research Associates, Incorporated. [redacted] The antenna array consists of two orthogonal log-periodic antennas. The antenna is installed on the aircraft so that its elements are inclined at an angle of 45 degrees with respect to the airframe surface. Figure 3-2 illustrates the side view, end view and mounting of the antenna on the KC-135.

Two separate coaxial output terminals are available from the antenna. The outputs from these terminals represent the signals sampled by each of the orthogonal log-periodic antennas. The planes of polarization of these antennas are +45 degrees and -45 degrees, respectively. The output sig-



Stations 130 375 430 630 710

SIDE VIEW



FRONT VIEW

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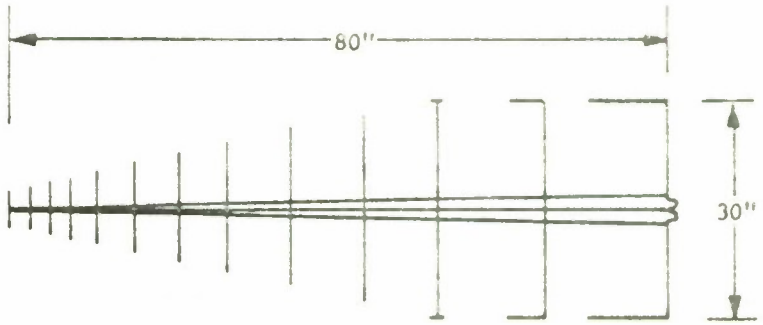
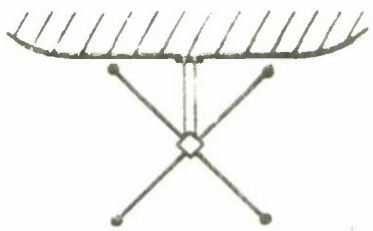
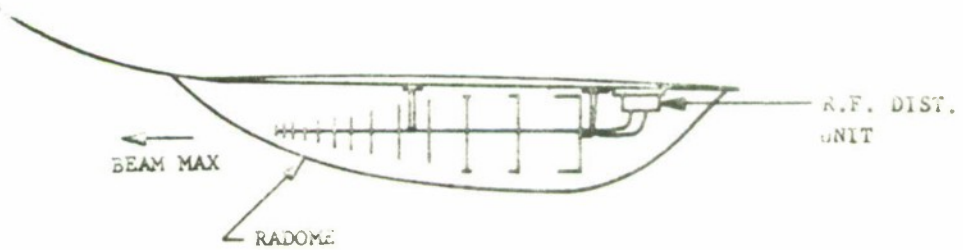
Figure 3-1. KC-135 Aircraft



(A) SIDE VIEW OF ANTENNA



(B) END VIEW OF ANTENNA



(C) SIDE VIEW OF ANTENNA SHOWING MOUNTING

Figure 3-2. Side View, End View and Mounting of Antenna

nals are applied through a distribution system to a four-port hybrid containing both sum and difference output ports. The output of the sum port is proportional to the vertically polarized signal and the output of the difference port is proportional to the horizontally polarized signal.

Antenna pattern measurements were made over the 100 to 500 MHz band, and the vertical plane and horizontal plane antenna patterns for 318 MHz are shown in Figures 3-3 and 3-4, respectively. The main beam power gain at the antenna is 8 to 10 dBi in the 100 to 500 MHz band. The area covered by the antenna for the aircraft flying at 30,000 feet is about a 250 mile circle projected in front of the aircraft as shown in Figures 3-5 and 3-6.

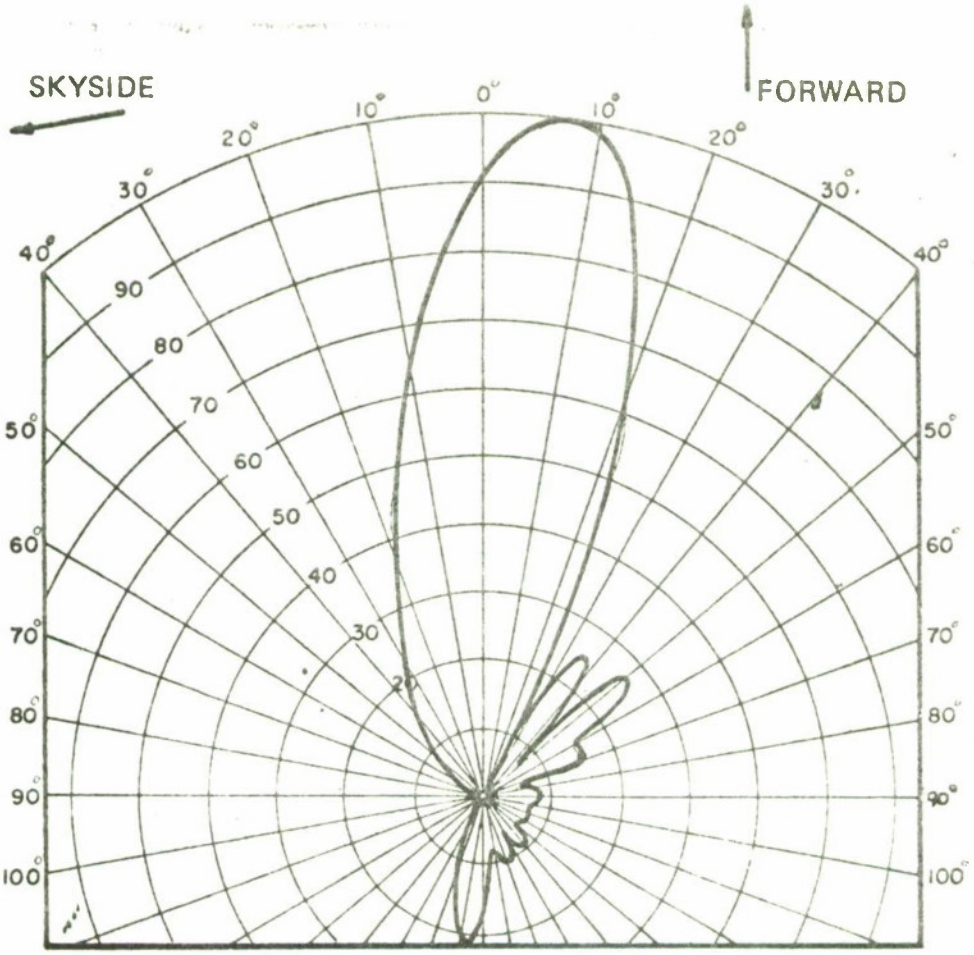
HEWLETT-PACKARD AUTOMATIC SPECTRUM ANALYZER H16-8550A

The Hewlett-Packard Automatic Spectrum Analyzer H16-8580A is essentially an H15-8580A system configured with a Hewlett-Packard Programmable Synthesizer HP-5105A/5110B1/2759B. The specifications for the receiver, as supplied by Hewlett-Packard Company, are listed in TABLE 3-1.

This system is composed of a tuned calibrated receiver of variable bandwidth which can be controlled by a dedicated digital computer. The configuration used in this project included 24,000 16-bit words of core storage, magnetic and cassette tapes for off-line mass storage, three cathode ray tubes for visual display, and a teletype for hard copy output and operator intervention. The system also included an HP5103A frequency synthesizer, used to generate signals at known power and frequency. These signals were used to calibrate the spectrum analyzer, and the calibration corrections were recorded on magnetic tape for use during the data reduction. Figure 3-7 illustrates the total HP system.

FRONT-END FILTERS AND MIXER

When it was determined that the RF measurements were to be made over the entire 100-500 MHz band, front-end band pass filters were obtained for use on various portions of the spectrum. The characteristics of the filters used,



Notes:
1. Vertical Polarization
2. Relative Voltage Plot

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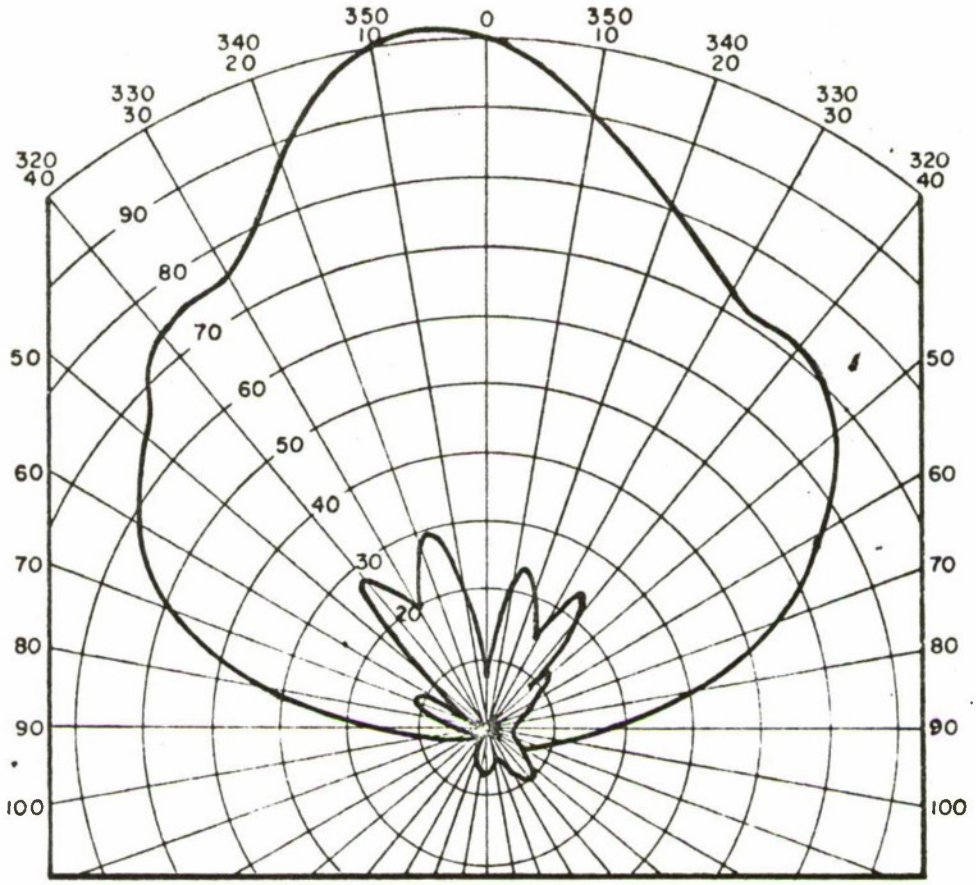
Figure 3-3. Vertical Plane Radiation Pattern For Airborne RF Antenna at 318 MHz



Notes:
1. Vertical Polarization
2. Relative Voltage Plot
3. Inner Pattern Represents Cross-polarized Component

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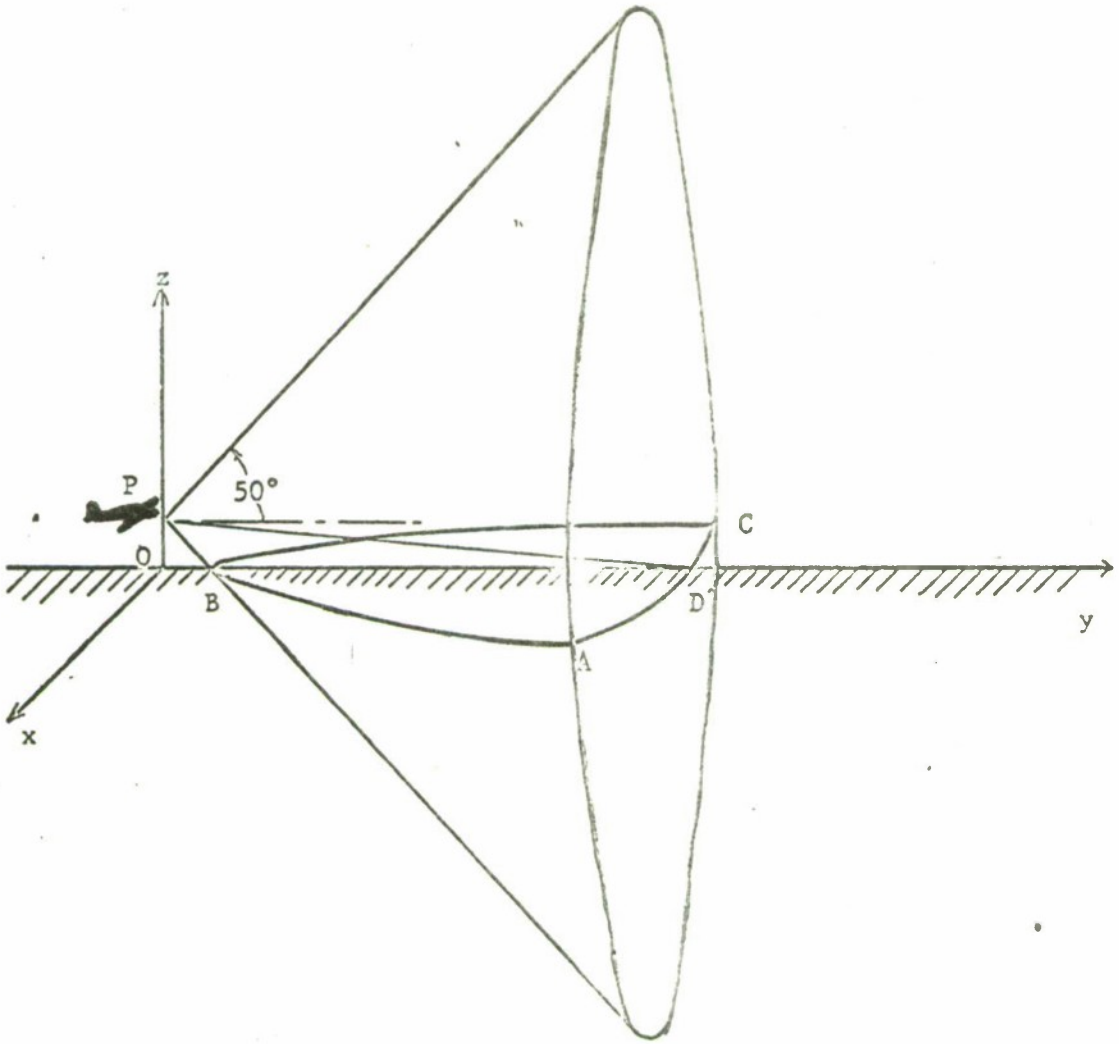
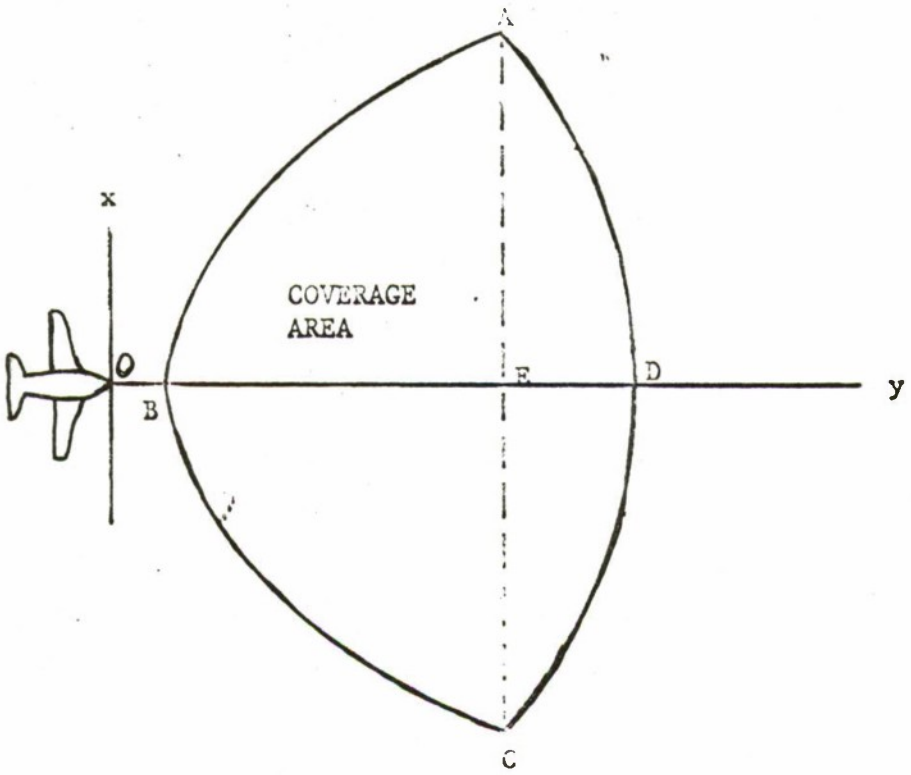
Figure 3-4. Horizontal Plane Radiation Pattern For Airborne RF Antenna at 318 MHz



OP = 30,000 ft.

PD = PA = PC ≈ OD ≈ OA ≈ OC = 240 mi

Figure 3-5. Approximate Coverage by KC-135 Mounted Antenna, View 1



AC = 367 mi

BE = 149 mi

OB = 4.7 mi

Figure 3-6. Approximate Coverage by KC-135 Mounted Antenna, View 2

TABLE 3-1

SPECIFICATIONS OF AUTOMATIC SPECTRUM ANALYZER H16-8580A

Frequency Range:	100 MHz-500 MHz
Tuning Error	Less than ± 500 Hz
Tuning Resolution:	100 Hz
Tuning Speed:	Less than 500 μsec
IF Bandwidths:	.01 KHz, .03 KHz, .1 KHz, .3 KHz, 10 KHz, 30 KHz, 100 KHz, 300 KHz
Adjacent Channel Rejection (10 KHz BW):	Greater than 45 dB @ 40 KHz Greater than 50 dB @ 75 KHz
Amplitude Accuracy: (10 KHz BW)	Depends upon the number of samples; estimated at ± 3 dB for 16 samples (See Section 4)
Minimum Discernible Signal (10 KHz BW):	– 122 dBm (at SNR = 0 dB) *
Noise Figure:	12 dB (based on average noise)
Dynamic Range:	65 dB (70 dB based on average noise)
Total Measurement Speed:	300 channels/second (includes timing time, IF filter response time, detector and A/D conversion time)
Spurious Responses:	Spurious Responses will occur when the input power level at the mixer exceeds – 40 dBm

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*Subject to system configuration

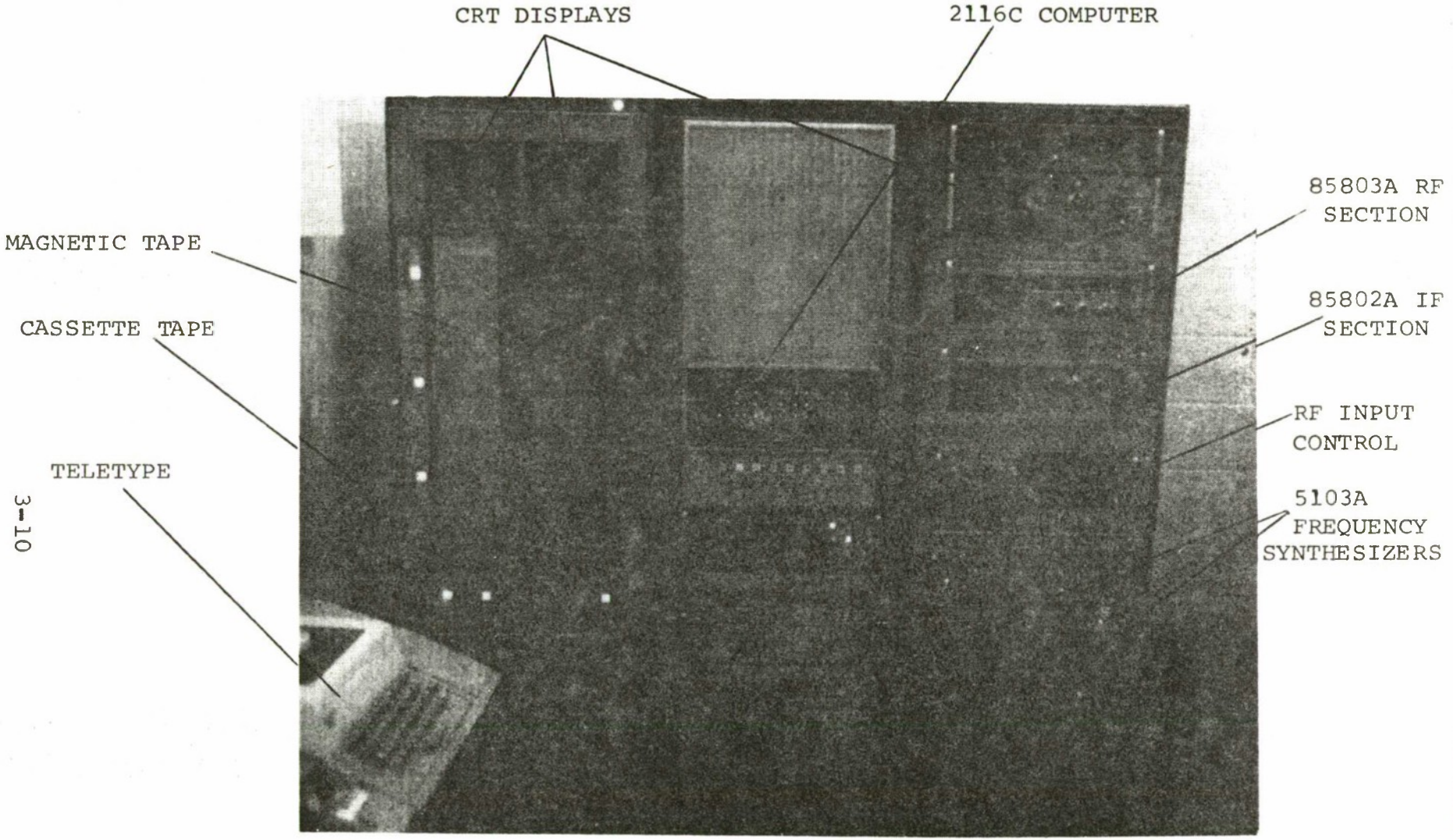


Figure 3-7. Hewlett-Packard H16-8580A Automatic Spectrum Analyzer

and the bands in which each filter was used, are given in TABLE 3-2. The primary purpose of the filters was to eliminate strong out-of-band signals to reduce possible intermodulation products in the receiver.

Also, because the frequency limits of the H16-8580A are 10 MHz to 110 MHz, a Hewlett-Packard frequency synthesizer and mixer were used to translate the frequency to the receiver capabilities. The specifications for the mixer are given in TABLE 3-3.

SIGNAL ENVIRONMENT MONITOR SYSTEM

The Signal Environment Monitor System (SEMOS) was used to take wide band signal (pulse) measurements and was developed by United Technical Laboratories, Incorporated (UTL). SEMOS is a computer-controlled receiver designed to monitor the frequency range 100-650 MHz. The parameters measured and recorded were frequency, pulse amplitude, pulse width, and the pulse recurrence interval (PRI). These parameters, along with the data from the inertial guidance system, constitute the output of the system.

The digital processor consists of an 8,000 word minicomputer, interface circuits to the receiver, the navigation system, a teletype, and a 7-track magnetic tape recorder. The intercept software was supplied by UTL.

TABLE 3-2

LIST OF FILTER CHARACTERISTICS

MANUFACTURER	CENTER FREQUENCY (MHz)	NOMINAL BANDWIDTH (MHz)	USED FOR FOLLOWING FREQUENCIES
T.E.	115	30	100-130
I.T.	145.5	30	130-150
I.T.	168	33	150-185
T.E.	200	30	185-200
T.E.	215	30	200-230
I.T.	244	38	230-250
I.T.	264	38	250-280
T.E.	290	30	280-300
I.T.	319	35	300-330
T.E.	351	30	330-365
T.E.	381	30	365-395
T.E.	410	30	395-425
I.T.	444	40	425-460
T.E.	480	30	460-499

Notes

1. T.E. = Telonic Engineering
2. I.T. = I-Tel Incorporated
3. Nominal bandwidth indicates frequency range for which extremes are one dB down (I.T. filters) or 3 dB down (T.E. filters) from the center frequency.

TABLE 3-3

CHARACTERISTICS OF HP10514A BALANCED MIXER

Frequency Range:	0.2 → 500 MHz
Output Impedance:	50 Ω
Maximum Input:	40 mA
Conversion Loss:	7 dB Maximum 500 kHz → 500 MHz
	9 dB Maximum 200 kHz → 500 kHz
Noise Figure:	7 dB Maximum 500 kHz → 500 MHz
	9 dB Maximum 200 kHz → 500 kHz
Intermodulation Products:	All Orders Down 30 dBm or More
Temperature Range:	0° - 50° C

SECTION 4

DATA COLLECTION

DATA COLLECTION ALGORITHM

~~The logic used to design the HF Spectrum Analyzer data collection algorithm is given in detail in Reference 7. For purposes of this report, the basic concepts of the algorithm are repeated.~~

A logic flow-chart of the basic algorithm is shown in Figure 4-1. The algorithm is designed to record measurements on 1,700 30 kHz channels (covering 51 MHz) during one flight path of the KC-135. In each channel, the peak and average values of 16 measurements, taken over a period of less than 5 milliseconds, were recorded. The 16 measurements were necessary to average out the internally generated noise of the system (discussion in Reference 7). The measurements on all 1,700 30 kHz channels were taken and recorded on tape in less than 6 seconds. Measurements in a particular channel were, therefore, taken approximately every 6 seconds during a given flight. In addition to measurements on each channel, the measurement record also contained a recording of the antenna polarization used during that set of measurements.

Other types of records recorded during the flight path were calibration, navigation and header records. The calibration record contained both frequency (taken for all 1,700 channels) and amplitude (taken at only one channel) corrections. The algorithm allows for calibration as often as the operator desires; however, usually only one calibration at the beginning of the flight path was recorded. The navigation record contained the time, location, speed, track, and heading of the aircraft. Navigation records were recorded once per minute. The header record contained the date, the navigation data, and the measurement parameters controlled by the operator; e.g., IF gain, bandwidth, number of channels. Usually, one header record is recorded at the beginning of each tape. The complete format of each record type is given in Appendix IV.

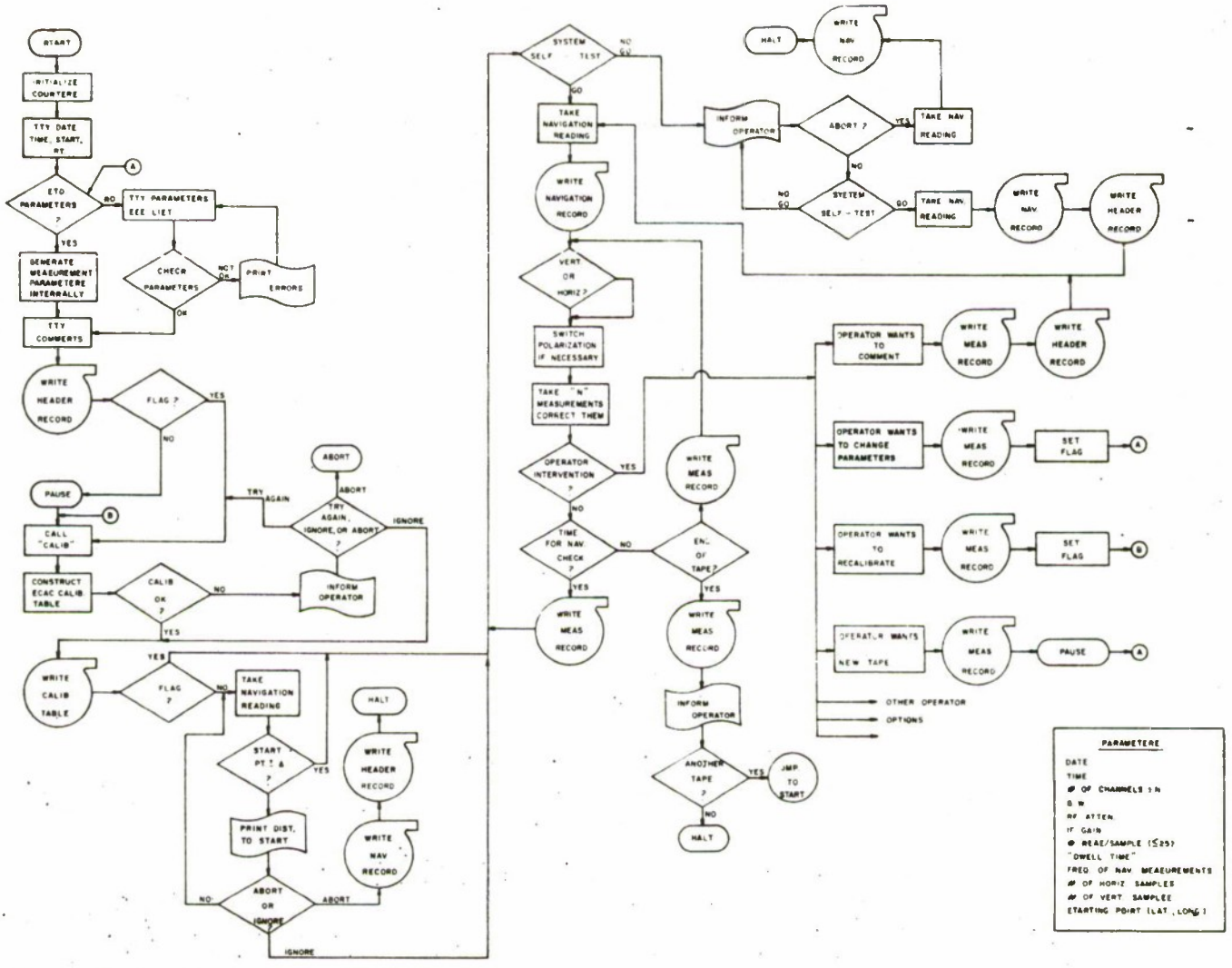


Figure 4-1. Data Collection Algorithm

The algorithm also allows the operator to enter the ratio of the number of vertically polarized to horizontally polarized measurements recorded. Usually the ratio was five vertically polarized to one horizontally polarized measurement. The operator also could enter the number of measurements in which an additional 20 dB of attenuation was added to the circuit. This 20 dB of attenuation was used to examine the data for possible intermodulation problems. (No intermodulation problems were detected.)

FLIGHT PATHS AND CALENDAR

After the data collection algorithm was written and tested on the ground, six flight paths were flown over the Eastern United States. A typical U.S. flight path is shown in Figure 4-2. During these flights data were collected only in the frequency bands of initial interest, i.e., 138-153, 164-176, 238-250, and 438-450 MHz. Due to a problem with one of the switches on an antenna port, signals were recorded using only the horizontally polarized antenna.

During the U.S. flights, measurements were made on the channel 7 TV signal (175.25 MHz). These measurements were used to evaluate the system performance and were found to be within 3 to 4 dB of the expected values. After the system was checked out, the KC-135 was deployed to Europe on April 19, 1972.

The European data were collected during approximately 160 flight hours in April, May, and June 1972, over a geographical area including Belgium, the Netherlands, West Germany, and a limited area of France. Figure 4-3 shows a sample flight path and TABLE 4-1 gives the schedule of flights. On any given collection day, the flight path was usually flown twice. During each loop, a 50 MHz portion of the spectrum was covered, or 100 MHz per day. By the end of the program, the 100 to 500 MHz spectrum had been monitored during all portions of the day except the 2300 to 0800 period, and during all days of the week including weekends. The date, time, day of the week, and frequency band covered are indicated in TABLE 4-1.

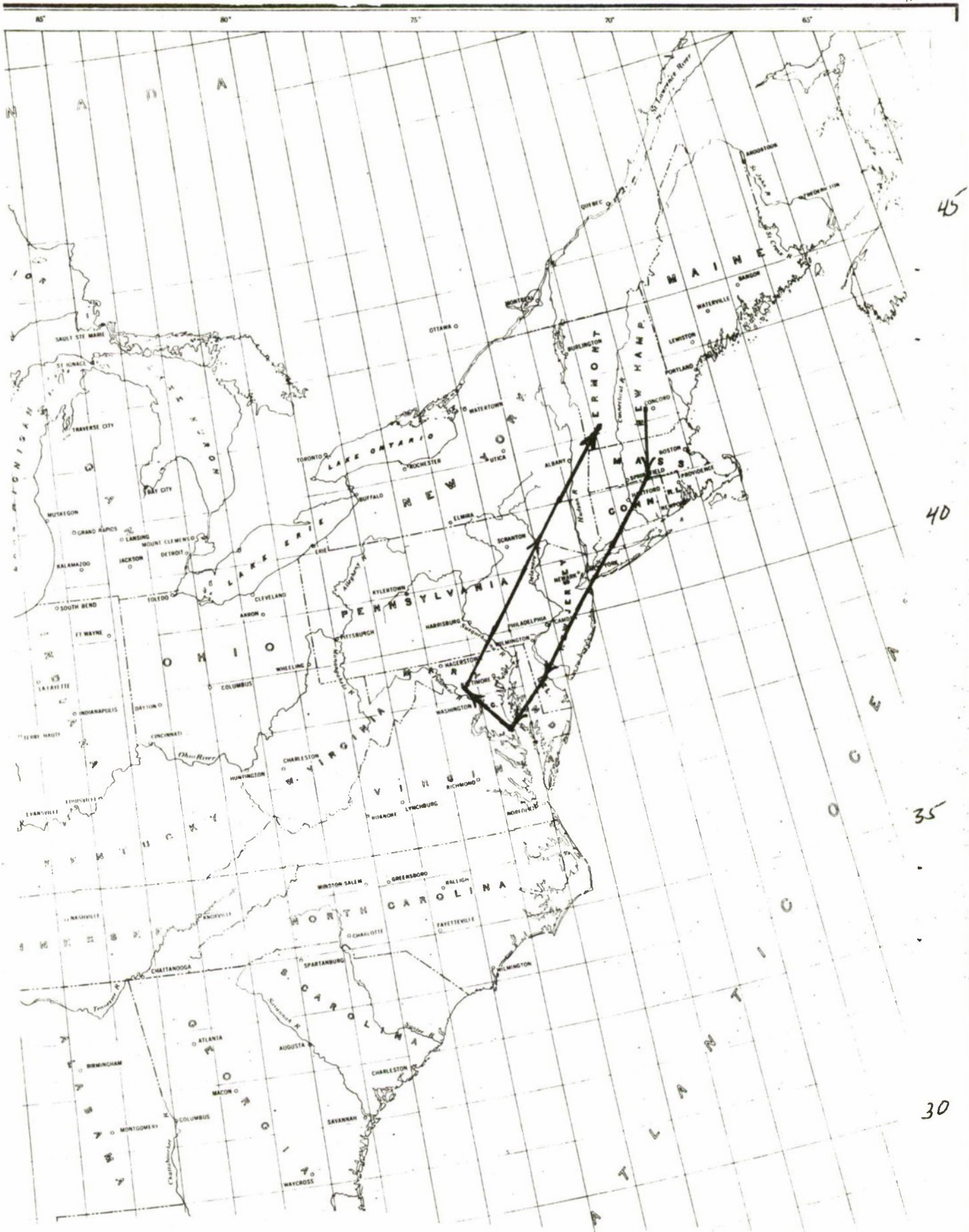
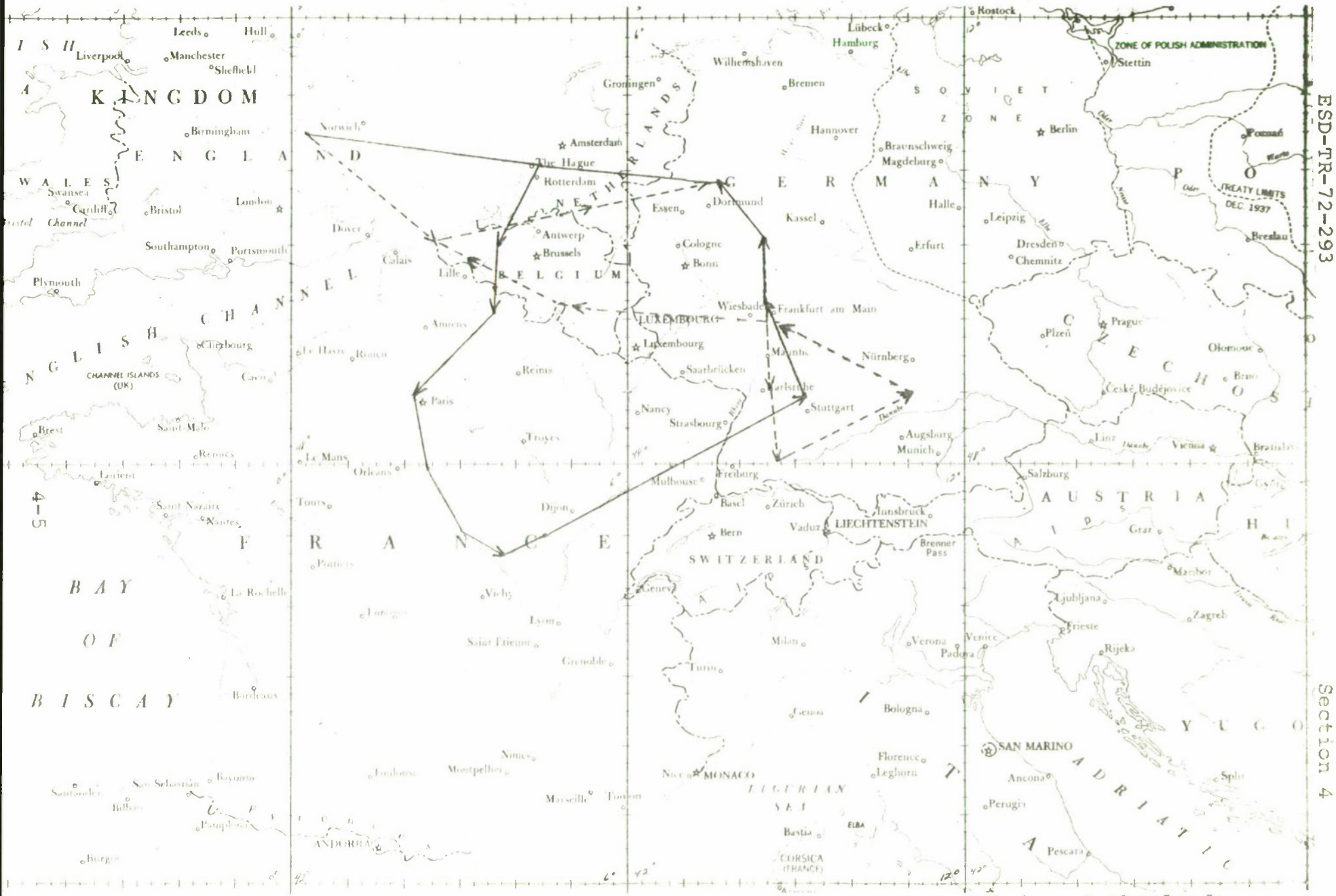


Figure 4-2. Sample U.S. Flight Path



4-5

Section 4

Figure 4-3. Sample Germany and France Flights

----- Germany, Belgium, Netherlands

_____ France + above

TABLE 4-1

SCHEDULE OF MISSIONS AND BANDS COVERED BY HP SYSTEM

TAPE	FREQUENCY (MHz)	DAY	DATE	GMT	REMARKS
UNITED STATES TAPES					
2289*		SAT	3/18	1016-1109***	
2290*	**	SAT	3/18	1418-1605***	*U.S. Tapes Recorded Horizontal Polarization Only. **The Following Frequency Bands Were Common to all U.S. Tapes: 138-153, 164-176, 238-250, 438-450. ***Eastern Standard Time.
2294*	**	SUN	3/19	1020-1214***	
2293*	**	SUN	3/19	1223-1417***	
2298*	**	TUES	3/21	0955-1149***	
2297*		TUES	3/21	1351-1538***	
GERMANY, BELGIUM AND NETHERLANDS					
2313	150-200	TUES	4/11	1249-1515	
2306	150-200	THURS	4/13	1210-1436	
2307	200-250	MON	4/17	1305-1518	1st 72 Measurement Records on Tape 2307 had Wrong Filter in the 216-229 MHz Band.
2308	400-450	MON	4/17	1532-1734	
2309	250-300	TUES	4/18	1211-1518	
2310	100-150	TUES	4/18	1524-1725	
2311	300-350	THURS	4/20	1223-1519	
2312	350-400	THURS	4/20	1249-1515	
2314	150-200	FRI	4/21	1240-1506	
2315	450-500	FRI	4/21	1530-1631	Bad Navigation Data.
2316	100-150	MON	4/24	1726-2013	Times Incorrectly Recorded on This Tape
2317	250-300	MON	4/24	2046-2222	
2318	400-450	TUES	4/25	1801-2006	
2319	200-250	TUES	4/25	2018-2207	
2320	450-500	TUES	5/2	0817-1106	

TABLE 4-1 (CONTINUED)

TAPE	FREQUENCY (MHz)	DAY	DATE	GMT	REMARKS
2321	200-250	TUES	5/2	1114-1223	
2322	200-250	TUES	5/2	1233-1330	Continuation of Tape 2321
2323	100-150	WED	5/3	0858-1126	
2324	150-200	WED	5/3	1153-1334	
2326	400-450	THURS	5/4	0831-1106	
2327	300-350	THURS	5/4	1115-1313	
2325	150-200	THURS	5/4	1655-1859	On-Ground Noise Level Test
2328	350-400	FRI	5/5	0851-1105	
2329	250-300	FRI	5/5	1113-1318	
2330	450-500	MON	5/8	1259-1523	
2331	250-300	MON	5/8	1537-1726	
2332	350-400	TUES	5/9	1301-1502	
2333	300-350	TUES	5/9	1514-1710	
2334	100-150	WED	5/10	1253-1511	
2335	150-200	WED	5/10	1525-1734	
2336	400-450	FRI	5/12	1316-1511	Times Incorrect on Tape
2337	200-250	FRI	5/12	1524-1710	
2338	400-450	SAT	5/13	1303-1507	
2339	200-250	SAT	5/13	1516-1711	
2340	100-150	SUN	5/14	1255-1512	
2341	150-200	SUN	5/14	1525-1718	
2342	150-200	TUES	5/16	1806-2012	
2343	100-150	TUES	5/16	2028-2223	
2344	200-250	WED	5/17	1803-1851	
2345	400-450	WED	5/17	2024-2226	
2346	250-300	THURS	5/18	1757-2005	
2347	450-500	THURS	5/18	2022-2213	
2348	150-200	MON	5/22	1308-1458	
2349	100-150	MON	5/22	1515-1659	
2350	200-250	TUES	5/23	0832-1111	

TABLE 4-1 (CONTINUED)

TAPE	FREQUENCY (MHz)	DAY	DATE	GMT	REMARKS
2351	400-450	TUES	5/23	1123-1310	
2352	250-300	WED	5/24	1221-1455	Wrong Filter Used
2353	450-500	WED	5/24	1521-1656	
2354	300-350	THURS	5/25	0830-1055	
2355	350-400	THURS	5/25	1103-1304	
2363	300-350	FRI	5/26	1757-2007	
2364	450-500	FRI	5/26	2016-2130	
2362	250-300	THURS	6/1	1305-1505	
2358	300-350	SAT	6/3	1241-1506	Wrong Date Recorded on Tape
2359	450-500	SAT	6/3	1513-1708	
2360	250-300	SUN	6/4	1235-1502	
2361	350-400	SUN	6/4	1512-1717	
2304	350-400	MON	6/5	1721-1958	
2305	150-200	MON	6/5	2005-2158	
2356	450-500	TUES	6/6	1725-2000	
2357	300-350	TUES	6/6	2006-2207	
FRANCE					
2365	150-200	MON	5/29	1246-1505	
2366	100-150	MON	5/29	1516-1723	
2367	200-250	TUES	5/30	1305-1503	
2368	400-450	TUES	5/30	1527-1712	
2369	350-400	WED	5/31	1245-1503	
2370	300-350	WED	5/31	1548-1742	Bad Tape-no Calibration Record

Each measurement tape contains data for a period of about two hours (one flight path). A typical tape contains about 1,000 sets of 1,700 measurements for both peak and average power readings for a total of about 3,400,000 measurements per tape. In addition, there are about 120 navigation records on each tape, plus calibration and header information. In all, 72 tapes of CW data were reduced including six over the U.S., 60 over Germany, and six over France.

ON-SITE ANALYSIS ALGORITHMS

Various programs were developed to help analyze the CW data collected by reviewing it with the HP equipment after each flight. In particular, two programs were used extensively. The first was designed to display power as a function of frequency, along with the corresponding inertial navigation data (Figure 4-4) on the CRT's. This is similar to 'replaying' the measurement flight, since these same displays were used during the measurements and they occur at about the same speed as the measurements were taken.

Another useful program was designed to estimate channel occupancy and the power distribution of the signals in each channel (Figures 4-5 and 4-6). This program can sort the channels from best occupancy (lowest) to worst (highest), thus allowing near real-time decision making capability for frequency utilization.

Other programs were developed early in the project which did not play a large role in the on-site data reduction and analysis. See Reference 7 for a description of the algorithms and their possible applications.

PULSE DATA COLLECTION

The method used by the SEMOS system to take the pulse measurements was quite different from that of the HP system. The pulse equipment was programmed to continuously scan the 100 to 650 MHz portion of the spectrum in steps of 1 MHz and record on magnetic tape only when a pulse signal was detected. The frequency, pulse amplitude, pulse width and time between pulses were recorded on tape along with the navigation data.

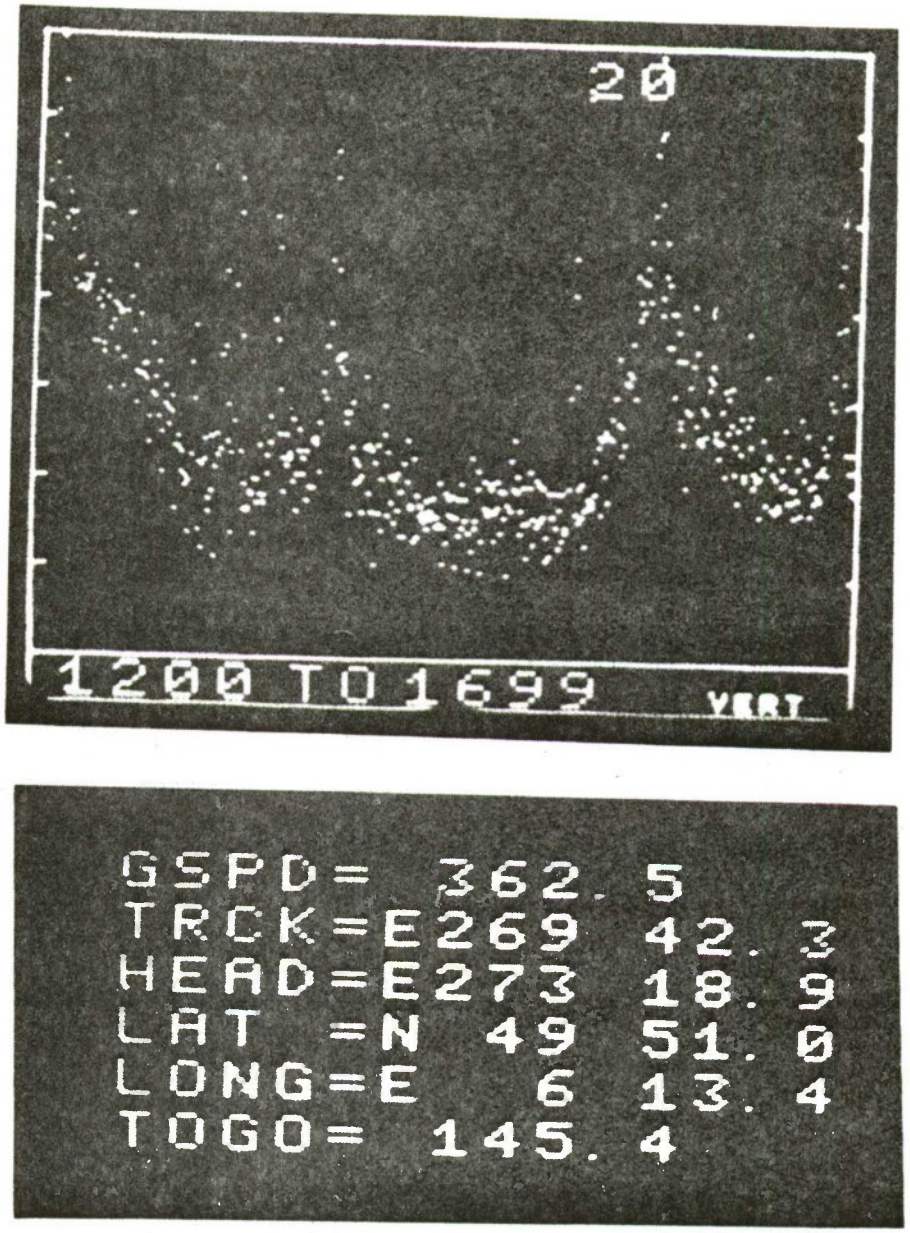


Figure 4-4. On-Site Power and Navigation Data

CH#	-103 dBm OCCUPANCY	-12 dBm	-15 dBm	-20 dBm	-25 dBm	-30 dBm	-35 dBm	-40 dBm	-45 dBm	-50 dBm	-55 dBm	-60 dBm	-65 dBm	-70 dBm	-75 dBm
1	40.607	100	100	88	47	28	14	9	6	2	1				
2	51.233	100	100	94	61	41	22	8	2						
3	80.076	100	100	98	86	74	55	25	5	1					
4	86.338	100	100	97	87	82	74	56	32	13	2				
5	74.004	100	100	94	79	65	44	20	8	1					
6	30.361	100	100	84	39	22	13	8	5	3	1				
7	14.421	100	100	76	18	12	8	5	2	1	1				
8	29.412	100	100	81	40	26	9	3	2	1					
9	56.926	100	100	98	61	51	40	23	12	4	2	1			
10	53.700	100	100	88	59	49	35	20	9	7	4	2	1		
11	45.541	100	100	86	51	39	25	18	13	9	4	2			
12	50.285	100	100	87	55	44	34	18	14	9	4				
13	32.827	100	100	84	38	28	20	12	7	5	1	1			
14	27.514	100	100	78	30	24	18	14	9	5	3	1			
15	32.258	100	100	78	37	24	16	10	6	4	2				
16	29.222	100	100	76	33	26	18	10	6	3	1				
17	29.032	100	100	78	35	25	17	11	9	4	2				
18	30.930	100	100	79	35	26	19	12	7	4	1				
19	27.324	100	100	78	33	21	15	11	8	6	4				
20	24.668	100	100	73	28	20	14	10	6	4	1				
21	25.806	100	100	77	30	21	16	9	5	3	1	1			
22	25.047	100	100	77	27	19	14	9	5	3	2				
23	18.975	100	100	67	23	14	8	4	3	3	1	1			
24	12.903	100	100	63	15	10	7	4	2	1	1				
25	15.560	100	100	65	21	11	6	4	2						
26	14.611	100	100	72	19	10	5	2	1						
27	21.442	100	100	74	26	13	4	2	1						
28	27.135	100	100	76	30	20	6	3	1	1					
29	24.668	100	100	75	28	18	7	5	2	1					
30	16.319	100	100	77	21	13	7	5	2	2	1				
31	21.063	100	100	73	26	18	7	4	2	1					
32	15.939	100	100	72	17	9	3	2	2	1					
33	3.036	100	100	58	4	3	1	1							
CH#	-103 dBm OCCUPANCY	-12 dBm	-15 dBm	-20 dBm	-25 dBm	-30 dBm	-35 dBm	-40 dBm	-45 dBm	-50 dBm	-55 dBm	-60 dBm	-65 dBm	-70 dBm	-75 dBm

POWER LEVEL (DBM) -->

Figure 4-5. On-Site Channel Occupancy

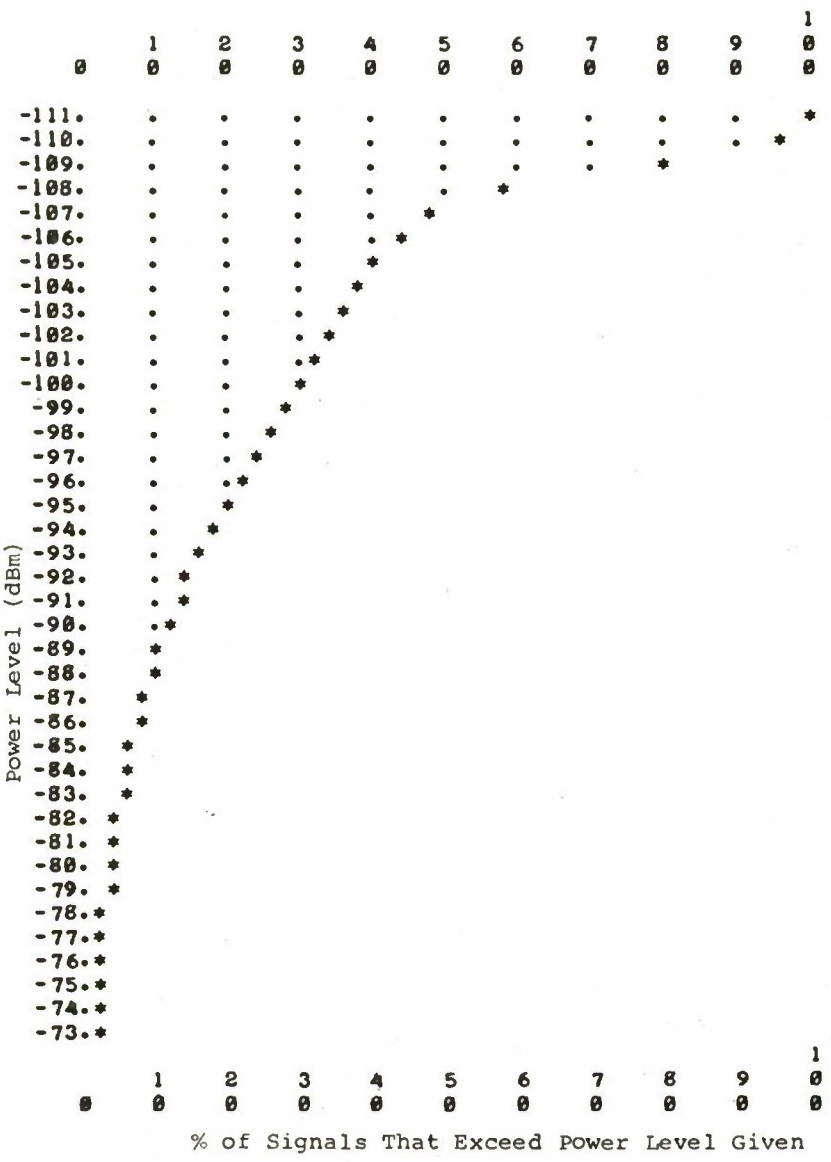


Figure 4-6. On-Site Power Distribution

Pulse data were collected during the check out flight over the Eastern U.S. However, a quick examination of the pulse data at ECAC revealed that problems existed with the intercepted data. The system was returned to the manufacturer and worked on until it was again installed on the aircraft in Europe on 19 April 1972. TABLE 4-2 shows the dates and time the pulse equipment was recording data in Europe.

TABLE 4-2

EUROPEAN PULSE DATA COLLECTION

DATE	DAY	TIME	TAPE NUMBER
20 April	Thur.	1243-1523	2380
		1542-1718	2380
21 April	Fri.	1248-1509	2379
		1520-1630	2379
24 April	Mon.	1745-2010	2378
		2043-2215	2378
25 April	Tue.	1859-2012	2377
		2017-2209	2377
2 May	Tue.	0853-1112	2376
		1132-1315	2375
3 May	Wed.	0911-1129	2374
		1138-1336	2374
4 May	Thur.	0829-1107	2373
		1142-1316	2372
5 May	Fri.	0828-1108	2371
		1114-1321	2371
8 May	Mon.	1622-1724	2382
		1203-1503	2381
9 May	Tue.	1221-1503	2383
		1506-1708	2383
10 May	Wed	1224-1509	2384
		1512-1730	2384
12 May	Fri.	1227-1509	2385
		1512-1713	2385
13 May	Sat.	1215-1506	2386
		1509-1703	2386
14 May	Sun.	1222-1516	2387
		1522-1719	2387
16 May	Tue.	1806-2012	2388
		2015-2225	2388
17 May	Wed.	1733-2021	2389
		2025-2225	2389
18 May	Thur.	1728-2004	2390
		2011-2203	2390
22 May	Mon.	1410-1656	2391
24 May	Wed.	1411-1640	2392
25 May	Thur.	0901-1031	2393
		1034-1234	2393
26 May	Fri.	2001-2222	2396

TABLE 4-2 (Cont.)

EUROPEAN PULSE DATA COLLECTION

DATE	DAY	TIME	TAPE NUMBER
29 May	Mon.	1251-1511	2397
30 May	Tue.	1302-1510	2398
		1513-1716	2398
31 May	Wed.	1304-1511	2399
		1513-1717	2399
1 June	Thur.	1218-1503	2400
		1510-1746	2400
4 June	Sun.	1235-1506	2402
		1508-1716	2402
5 June	Mon.	1739-2007	2403
		2009-2204	2403
6 June	Tue.	1722-2004	2404
		2006-2207	2404

SECTION 5

REDUCTION AND ANALYSIS OF DATA

DATA REDUCTION

Approximately 100 magnetic tapes containing measurements were generated in Europe. These tapes were delivered to ECAC for reduction and analysis.

The initial reduction involved the use of specially written software to read the tapes. The computer word structure for both the HP and UTL machines is vastly different from that used in the UNIVAC 1108, the machine in use at ECAC.

After the translation process, three main computer programs were used to reduce the CW data: a statistics generator, power and occupancy plots, and a program which compares different tapes.

POWER AND OCCUPANCY STATISTICS

The statistics program reads a data tape and bins the measurements by occupancy and by average power. An occupied channel is defined as having a signal level greater than -99 dBm. The value in each bin represents the number of 30 kHz channels in the particular ITU band which have occupancy rates commensurate with the bin limits. Referring to Appendix II, page II-2, tape 2323 has 40 channels which were occupied less than 5% of the time in the 100 to 108 MHz ITU band. The number of channels in each bin is also calculated as a percentage of the total number of channels in the band. This facilitates comparing different ITU bands.

The average power is handled in a similar manner. All of the measurements on each channel are averaged and placed in 25 bins. For example, in the 100-108 MHz band, on tape 2323, there were 59 channels whose average power was less than -100 dBm. Once again, the number of channels is also presented as a percentage of total channels.

The criterion for ranking the 29 bands was the percent of channels occupied less than 5% of the time. A ranking based on the power bins was also computed. The occupancy and power statistics are presented in Appendix II.and the final band ranking is given in TABLE 2-1.

POWER AND OCCUPANCY PLOTS

There are also programs available to plot occupancy and average power as a function of frequency. Sample plots are presented in Appendix I. Once again, occupancy is established at -99 dBm.

TAPE COMPARISON

The final program computes the following:

$$M = \frac{\sum_{i=1}^{N} [A_1(i) - A_2(i)]}{N}$$

$$S = \left[\frac{\sum_{i=1}^{N} [(A_1(i) - A_2(i)]^2}{N} \right]^{\frac{1}{2}}$$

where

M and S - are measures of the data's repeatability
$A_1(i)$ = the average power of the i^{th} channel on tape 1
$A_2(i)$ = the average power of the i^{th} channel on tape 2
and N - is the number of channels in the band.

Only tapes covering the same bands were compared. Discussions using M and S are included in the summary of each band which appears below in this section. The calculations comparing tapes of the same frequency band are given in Appendix III.

USE OF ITU BANDS

TABLE 5-1 is a summary of the measurements taken. As shown, the tapes for CW measurements cover the 100-500 MHz band in 50 MHz segments. It was decided to break these 50 MHz segments into ITU bands. The 100 to 500 MHz band could have been divided in other ways, but ITU bands have world-wide application.

In two instances, ITU bands were further divided. The 250-300 MHz ITU band (allocated to fixed, mobile and space applications) was divided into three portions: 250-276 MHz, 276-286 MHz, 286-300 MHz segments. The motivation for dividing the 250-300 MHz and 350-400 MHz bands was that, in both cases, portions of the bands are relatively congested, and other portions see little use. The divisions were made on the basis of the data; the goal was to obtain the best possible sub-bands of at least 10 MHz width.

The ITU bands and their allocated uses are shown in TABLE 5-2. The same bands were also defined for the pulse data reduction.

ELIMINATION OF ERRONEOUS DATA (CW)

Although most of the data collected in this project appears to be of high quality, certain measurements had to be discarded. Some problems have already been shown in TABLE 4-1. An examination of the system calibration tables (which were automatically recorded by the equipment on the data tapes) reveals another type of problem. The tables show that, in certain portions of the spectrum, the system sensitivity was degraded due to excessive loss in the RF input path. These areas are near the following points: 330 MHz, 365 MHz, 395 MHz, 460 MHz, and 485 to 500 MHz. Except for 485 to 500 MHz they are points where one band pass filter was switched out and another filter was switched into the RF path. The characteristics of each of the filters are described in TABLE 3-2. Whether or not the filters caused the excessive loss of sensitivity is not known at this time, primarily because measurements of the filters did not indicate the loss observed. The instances where data were not used are given in the latter portion of this section.

TABLE 5-1

EUROPEAN CW TAPES

FREQUENCY (MHz)	GERMANY WEEKDAY BY TIME						WEEKEND	FRANCE	TOTAL TAPES
	0800 -1030	1030 -1300	1300 -1530	1530 -1800	1800 -2030	2030 -2300	1300 -1800	1300 -1800	
100 - 150	1	0	2	2	0	1	1	1	8
150 - 200	0	1	5	1	2*	1	1	1	12
200 - 250	1	1	0	1	2	1	1	1	8
250 - 300	0	0	3	1	1	1	1	1	8
300 - 350	1	1	1	1	1	1	1	0	7
350 - 400	1	1	2	0	1	0	1	1	7
400 - 450	1	1	1	1	1	1	1	1	8
450 - 500	1	0	1	2	1	2	1	0	8
TOTALS	6	5	15	9	9	8	8	6	66

* Includes noise test tape

TABLE 5-2

ITU ALLOCATION SUMMARY

BAND No.	ECAC Spectrum Bands (MHz)	ECAC Δ MHz	ITU Spectrum Allocation Bands (MHz)	ITU Δ MHz	ITU SERVICE: FIXED	MOBILE	MOBILE EXCEPT AERONAUTICAL MOBILE	AERONAUTICAL MOBILE	RADIOLOCATION	AERONAUTICAL RADIONAVIGATION	SPACE	SPACE RESEARCH	RADIONAVIGATION-SATELLITE	METEOROLOGICAL AIDS	METEOROLOGICAL-SATELLITE	BROADCAST	AMATEUR
1	100-108	8	100-108	8.000			①									2_3	
2	108-118	8	108-117.975	8.025						$①_{2,3}$							
3	118-136	18	117.975-132	14.025				$①_{2,3}$									
			132-136	4.000	2_3			①									
4	136-138	2	136-137	1.000	$①_3$	$①_3$						$①_{2,3}$					
			137-138	1.000							$①_3$	$①_{2,3}$			$①_{2,3}$		
5	138-144	6	138-143.6	4.440	2_3	2_3	①										
			143.6-143.65	.050	2_3	2_3	①					$①_{2,3}$					
			143.65-144	.350	2_3	2_3	①										
6	144-146	2	144-146	2.000													$①_{2,3}$
7	146-150	4	146-148	2.000	①	①											2_3
			148-149.9	1.900	$①_{2,3}$	2_3	①										
			149.9-150.05	.150									$①_{2,3}$				
8	150-174	24	150.05-151	.950	$①_{2,3}$	2_3	①										
			151-154	3.000	$①_{2,3}$	2_3	①										
			154-156	2.000	$①_{2,3}$	2_3	①										
			156-170	4.000	$①_{2,3}$	2_3	①										
			170-174	4.000	$①_{2,3}$	2_3	①							3			
9	174-200	26	174-216	32.000	2_3	2_3										①	
10	200-216	16															
11	216-223	7	216-220	4.000	2	2			2	$①_3$						①	
			220-223	3.000					2	$①_3$						①	2
12	223-235	12	223-225	2.000					2	$①_3$							2
			225-235	10.000	2_3	2_3				$①_3$							
13	235-250	15	235-267	32.000	$①_{2,3}$	$①_{2,3}$											
14	250-276	26															
15	276-286	10	267-272	5.000	$①_{2,3}$	$①_{2,3}$											
16	286-300	14	272-273	1.000	$①_{2,3}$	$①_{2,3}$					$①_3$						
17	300-329	29	273-328.6	55.600	$①_{2,3}$	$①_{2,3}$											
18	329-335	6	328.6-335.4	6.800						$①_{2,3}$							
19	335-350	15	335.4-399.9	64.500	$①_{2,3}$	$①_{2,3}$											
20	350-365	15															
21	365-375	10															
22	375-385	10	399.9-400.05	.150									$①_{2,3}$				
23	385-400	15															
24	400-406	6	400.05-401	.950								$①_{2,3}$		$①_{2,3}$	$①_{2,3}$		
			401-402	1.000							$①_{2,3}$			$①_{2,3}$			
			402-406	4.000											$①_{2,3}$		
25	406-430	24	406-420	14.000	$①_{2,3}$		$①_{2,3}$										
			420-430	10.000	①		①		2_3								
26	430-440	10	430-440	10.000					$①_{2,3}$								①
27	440-450	10	440-450	10.000	①		①		2_3								
28	450-470	20	450-460	10.000	$①_{2,3}$	$①_{2,3}$											
			460-470	10.000	$①_{2,3}$	$①_{2,3}$											
29	470-500	10	470-500	30.000												$①_{2,3}$	

① 2 3 } ITU Regions

DISCUSSION OF ITU BANDS

The remainder of this section is devoted to an examination of the data on a band-by-band basis, and a ranking of the bands based on occupancy using the CW data.

100-108 MHz Band

ITU Allocation: Mobile
Number of Tapes Collected (CW): 8
Number of Tapes Used: 8
Number of Measurements: 4529*
Rank by Occupancy: 23 out of 29

The data show this band to be heavily used. Furthermore, there are many channels with high power levels (> -65 dBm) present. The occupancy and power levels show little hourly or daily variation. The single Sunday tape shows only a slightly lower average power level than on weekdays.

108-118 MHz Band

ITU Allocation: Aeronautical Radio, Navigation
Number of Tapes Collected (CW): 8
Number of Tapes Used: 8
Number of Measurements: 4529
Rank by Occupancy: 26 out of 29

This band is heavily used. The average power is relatively constant across the band with an absence of high power (> -70 dBm) peaks. The variations due to time of day or day of week are not great. Sunday shows only slightly lower usage than weekdays.

---

* The number of measurements is the total number of measurements made on each 30 kHz channel and the total is the same for all channels in the band. This is the number of measurements used in the ranking of the bands from best (1) to worst (29).

118-136 MHz Band

ITU Allocation: Aeronautical, Mobile
Number of Tapes Collected (CW): 8
Number of Tapes Used: 8
Number of Measurements: 4529
Rank by Occupancy: 22 out of 29

Same comments apply as for the 108-118 band. The entire 100-136 MHz range looks remarkably alike.

136-138 MHz Band

ITU Allocation: Fixed, Mobile, Space, Space Research
Number of Tapes Collected (CW): 8
Number of Tapes Used: 8
Number of Measurements: 4529
Rank by Occupancy: 1 out of 29

This band shows very little use, undoubtedly due to its allocation. The average power is very low except for a strong station at 137.6 MHz. The data have excellent repeatability and show few daily or hourly variations.

138-144 MHz Band

ITU Allocation: Aeronautical, Mobile, Space Research
Number of Tapes Collected (CW): 8
Number of Tapes Used: 8
Number of Measurements: 4529
Rank by Occupancy: 15 out of 29

Measurements indicate light usage of this band and moderate average power levels. The data do not have excellent repeatability, but this is probably because there are relatively few equipments and duty cycles are low. Much lower average power levels and occupancies are indicated on the Sunday tape.

146-150 MHz Band

ITU Allocation: Fixed, Mobile
Number of Tapes Collected (CW): 8
Number of Tapes Used: 8
Number of Measurements: 4529
Rank by Occupancy: 29 out of 29

This band shows extremely high use. The average power levels are typically moderate. The average power level on Sunday is consistently lower than on weekdays.

150-174 MHz Band

ITU Allocation: Fixed, Mobile
Number of Tapes Collected (CW): 12
Number of Tapes Used: 11
Number of Measurements: 5566
Rank by Occupancy: 28 out of 29

Very high occupancy rates and power levels characterize this band. On one of the data tapes (2313) taken during a weekday afternoon, not a single channel was occupied less than 30% of the time. The data show remarkable repeatability considering the allocation. Sunday has a considerably lower indicated usage.

174-200 MHz Band

ITU Allocation: Broadcast
Number of Tapes Collected (CW): 12
Number of Tapes Used: 11
Number of Measurements: 5566
Rank by Occupancy: 25 out of 29

This band ranks very poorly with few unoccupied channels and high power levels. This is due to TV channels 5 through 8 (only the video carrier of channel 8). The measurements near the carriers indicate 100% occupancy. The measurements are highly repeatable, especially the average power around the entire flight path.

Also included in the 150-200 MHz measurements is a tape (2325) which was produced with the input port terminated. This established a system noise figure (on the ground, engines off). A histogram of measurements thus obtained is shown in Figure 5-1. It is apparent that the noise level is about -109 dBm. The mean difference between measurements in the 150-200 MHz band and the noise tapes is about 22 dB; i.e., the average measurement is about 22 dB above the system noise.

200-216 MHz Band

ITU Allocation: Broadcast
Number of Tapes Collected (CW): 8
Number of Tapes Used: 8
Number of Measurements: 3472
Rank by Occupancy: 24 out of 29

Same comments apply as for the 174-200 band, except TV channels 8 through 10 are in this band.

216-223 MHz Band

ITU Allocation: Aeronautical Radionavigation, Broadcast
Number of Tapes Collected (CW): 8
Number of Tapes Used: 7
Number of Measurements: 2834
Rank by Occupancy: 20 out of 29

The poor ranking of this band is due to TV channel 11. One tape (2307) was not used because system calibration tables indicate excessive losses in the RF path for measurements from 216 MHz to 230 MHz. The reason for this has not been determined. The channels measured in France (tape 2367) show much lower usage than in Germany.

223-235 MHz Band

ITU Allocation: Aeronautical Radionavigation
Number of Tapes Collected (CW): 8
Number of Tapes Used: 7
Number of Measurements: 2834
Rank by Occupancy: 11 out of 29

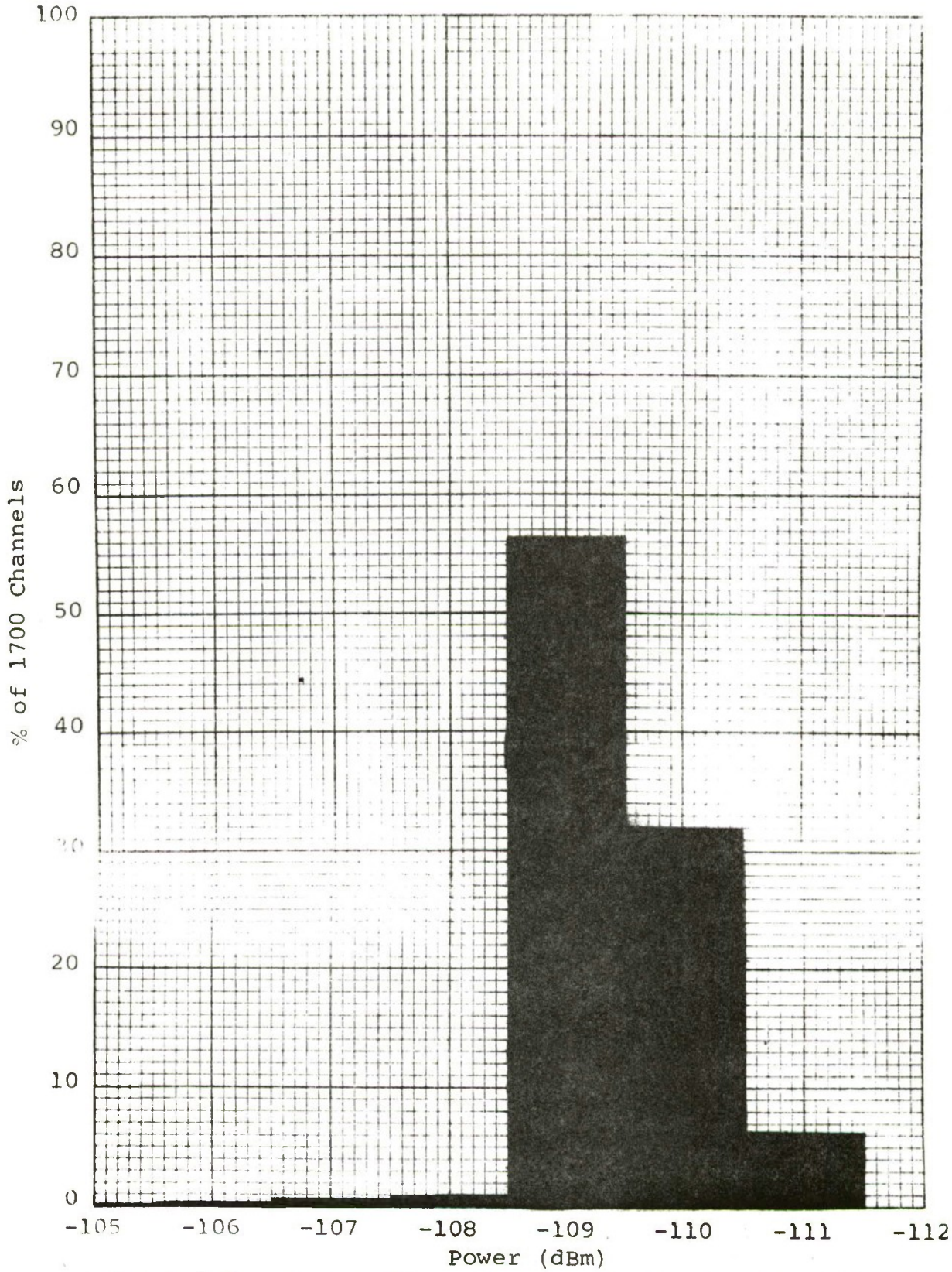


Figure 5-1. Tape #2325: Noise Distribution For 1700 Channels

This band appears to be relatively unoccupied. 82.8% of the channels averaged less than 5% occupancy. The average power levels are also low, although there are a few high, sharp peaks. The data show good repeatability and few discernable hourly/daily variations. Once again, tape number 2307 was not used.

235-250 MHz Band

ITU Allocation: Fixed, Mobile
Number of Tapes Collected (CW): 8
Number of Tapes Used: 8
Number of Measurements: 3472
Rank by Occupancy: 8 out of 29

The number of channels in this band with low occupancy seems to be fairly constant on a daily/hourly basis, but the particular unoccupied channels vary. This would indicate that, although most of the band is not in heavy use, the segments being used vary with time. Consequently, the channel-by-channel comparison of different tapes shows high rms values. The data on tape 2307 were acceptable in this frequency region and therefore were included in the ranking.

250-276 MHz Band

ITU Allocation: Fixed, Mobile
Number of Tapes Collected (CW): 8
Number of Tapes Used: 7
Number of Measurements: 3628
Rank by Occupancy: 14 out of 29

The data in this band follows the same pattern as other fixed and mobile bands: many low power, low duty cycle emissions and fairly poor repeatability. Tape 2352 was not used because the calibration record was unacceptable.

276-286 MHz Band

ITU Allocation: Fixed, Mobile
Number of Tapes Collected (CW): 8
Number of Tapes Used: 7
Number of Measurements: 3628
Rank by Occupancy: 6 out of 29

When it was decided to break the 250 to 300 MHz ITU band into three segments, the 276-286 MHz band was one of the segments chosen since it appears to be largely unoccupied. On the average 92.7% of the channels from 276 to 286 MHz are occupied less than 5% of the time. The band is used slightly less on Sunday. Once again, tape 2352 was not used.

286-300 MHz Band

ITU Allocation: Fixed, Mobile
Number of Tapes Collected (CW): 8
Number of Tapes Used: 7
Number of Measurements: 3628
Rank by Occupancy: 7 out of 29

Same comments apply as for the 276-286 MHz band, except that there is slightly more activity in this band.

300-329 MHz Band

ITU Allocation: Fixed, Mobile
Number of Tapes Collected (CW): 7
Number of Tapes Used: 7
Number of Measurements: 3923
Rank by Occupancy: 13 out of 29

This band has moderate activity with fair repeatability of the data. The single weekend tape (2358, Saturaday, June 3) shows slightly lower usage than the weekday tapes.

329-335 MHz Band

ITU Allocation: Aeronautical Radionavigation
Number of Tapes Collected (CW): 7
Number of Tapes Used: 7
Number of Measurements: 3923
Rank by Occupancy: 18 out of 29

Although this band has average occupancy, the calibration data indicate that the noise floor from about 325 to 334 MHz may have been above -99 dBm. Therefore, defining occupancy at -99 dBm, as was done, may cause the band to appear slightly more occupied than it really was. The measurements show good repeatability and no drastic hourly or daily variations.

335-350 MHz Band

ITU Allocation: Fixed, Mobile
Number of Tapes Collected (CW): 7
Number of Tapes Used: 7
Number of Measurements: 3923
Rank by Occupancy: 10 out of 29

The data indicate rather low band usage and few high power emissions, typical for this type of allocation. In general, the channel occupancy tends to decrease towards the 350 MHz end of the band. The repeatability of the data is only average.

350-365 MHz Band

ITU Allocation: Fixed, Mobile
Number of Tapes Collected (CW): 7
Number of Tapes Used: 7
Number of Measurements: 3724
Rank by Occupancy: 5 out of 29

The trend of decreasing usage with increasing frequency, stated in the 335-350 MHz band, continues here. Above 355 MHz, the occupancy becomes very low. On all tapes except one, more than 90% of the channels are occupied less than 5% of the time.

365-375 MHz Band

ITU Allocation: Fixed, Mobile
Number of Tapes Collected (CW): 7
Number of Tapes Used: 7
Number of Measurements: 3724
Rank by Occupancy: 2 out of 29

The 350-400 MHz ITU band was divided into four sub-bands. The 365-375 portion was isolated since the data show it to be very clear of signals. All of the tapes show that at least 96% of the channels are occupied less than 5% of the time. The overall average of all tapes shows that 97.4% of the channels are occupied less than 5% of the time. The

measurements are consistent throughout the week, with Sunday usage being only slightly less than weekdays.

375-385 MHz Band

ITU Allocation: Fixed, Mobile
Number of Tapes Collected (CW): 7
Number of Tapes Used: 7
Number of Measurements: 3724
Rank by Occupancy: 4 out of 29

This band has only slightly more activity than the 365-375 MHz band. Therefore, the same comments apply.

385-400 MHz Band

ITU Allocation: Fixed, Mobile
Number of Tapes Collected (CW): 7
Number of Tapes Used: 7
Number of Measurements: 3724
Rank by Occupancy: 16 out of 29

The calibration data for these tapes show the noise level to be above -99 dBm from 390 to 395 MHz. A band pass filter covering 365 to 395 MHz, and another filter covering 395 to 400 MHz, were used. There is no apparent problem above 395 MHz. It is possible that the environment from 385 to 400 MHz is almost identical to the 375-385 MHz segment. Despite this possible problem, the band does not appear to be highly occupied.

400-406 MHz Band

ITU Allocation: Space, Meteorological Aids
Number of Tapes Collected (CW): 8
Number of Tapes Used: 5
Number of Measurements: 2955
Rank by Occupancy: 3 out of 29

The high ranking of this band is probably due to the nature of the allocations. Three tapes were not used due to unacceptable calibration data. The tapes which were used show excellent repeatability with few hourly or daily variations.

406-430 MHz Band

ITU Allocation: Fixed, Mobile
Number of Tapes Collected (CW): 8
Number of Tapes Used: 5
Number of Measurements: 2955
Rank by Occupancy: 19 out of 29

This band shows little activity from 406 to 410 MHz, and moderate use from 420 to 430 MHz. Once again three tapes were not used. The data on the remaining five tapes are consistent, with no discernible hourly or daily variations.

430-440 MHz Band

ITU Allocation: Radiolocation
Number of Tapes Collected (CW): 8
Number of Tapes Used: 5
Number of Measurements: 2955
Rank by Occupancy: 12 out of 29

The majority of measurements in this band indicate relatively low signal levels distributed fairly uniformly across the band. The data are only fairly consistent from day to day and show no pronounced variations. Three tapes were not used.

440-450 MHz Band

ITU Allocation: Fixed, Mobile
Number of Tapes Collected (CW): 8
Number of Tapes Used: 5
Number of Measurements: 2955
Rank by Occupancy: 9 out of 29

Similar to the other fixed and mobile bands, the 440 to 450 MHz band has a fairly uniform distribution of low power signals. There are no observable variations, but the repeatability is not excellent, probably due to the type of service.

450-470 MHz Band

ITU Allocation: Fixed, Mobile
Number of Tapes Collected (CW): 8
Number of Tapes Used: 8
Number of Measurements: 4010
Rank by Occupancy: 17 out of 29

The data indicate rather heavy use of this band. The tapes collected in the morning (2320) and evening (2356) show a distinctly lower occupancy. The data are fairly repeatable.

470-500 MHz Band

ITU Allocation: Broadcast
Number of Tapes Collected (CW): 8
Number of Tapes Used: 8
Number of Measurements: 4010
Rank by Occupancy: 21 out of 29

Calibration data show the noise floor of the system to be greater than -99 dBm from 485 to 500 MHz, making the occupancy statistics inaccurate in that region. TV channels 21 through 24 show very high power levels and cause the frequencies near the carriers to appear occupied 100% of the time.

U.S. Data

Several flights in the U.S. resulted in five data tapes in the following bands: 138-153 MHz, 164-176 MHz, 238-250 MHz, and 438-450 MHz. The total number of measurements was 2098. The results are shown in TABLE 5-3.

In TABLE 5-3, "occupied" means a measurement greater than -99 dBm. "Low" occupancy means a channel was occupied 5% of the time or less; "medium" occupancy means a channel was occupied between 5% and 50% of the time, and "high" occupancy means occupied more than 51% of the time. Likewise, a "low" power channel is one whose average power level is less than -95 dBm; a "medium" power channel has an average power level between -95 dBm and -70 dBm, and a "high" power channel has average power greater than -70 dBm.

TABLE 5-3

U.S. DATA SUMMARY

BAND	PERCENT OF CHANNELS WITH						OCCUPANCY RANK	POWER RANK
	LOW OCC	MED OCC	HIGH OCC	LOW PWR	MED PWR	HIGH PWR		
138-153	51.0	29.7	19.3	58.3	38.1	3.6	3	4
164-176	48.2	34.4	17.4	60.9	37.5	1.6	4	3
238-250	72.0	28.0	0	98.3	1.7	0	2	1
438-450	91.4	8.5	.1	86.6	13.4	0	1	2

The 29 evaluated bands between 100 MHz and 500 MHz are indicated in frequency order in TABLE 5-4. The statistics of each band with respect to occupancy and power level, and the associated rankings of each band, are provided.

REDUCTION OF PULSE DATA

The data collected with the pulse equipments is of questionable validity. The conclusion is based on two factors: (1) the measurements show very poor repeatability, and (2) the measurements on bands where the environment is known (e.g., TV broadcast) does not concur with expected values. For example, the 216-223 MHz TV band had 10,050 "hits", but the data fluctuates wildly and does not compare with the PRI's of TV sync pulses.

For these reasons the pulse data have not been included in the band ranking. The number of "hits" recorded in each band is presented in TABLE 5-5.

TABLE 5-4

BAND RANKING CHART (CW)

BAND	PERCENT OF CHANNELS WITH LOW OCC	MED OCC	HIGH OCC	LOW PWR	MED PWR	HIGH PWR	OCCUPANCY RANK	POWER RANK
100-108	19.3	61.7	19.1	41.2	55.7	3.0	23	25
108-118	12.6	74.5	12.9	34.6	65.4	0	26	26
118-136	35.0	63.1	1.9	43.7	55.6	.7	22	24
136-138	98.2	1.8	0	92.6	7.4	0	1	11
138-144	73.6	26.4	0	78.2	21.8	0	15	19
144-146	11.9	56.6	31.5	30.6	68.3	1.1	27	27
146-150	8.6	68.2	23.2	21.1	78.6	.3	29	29
150-174	9.1	57.3	33.6	22.6	72.3	5.1	28	28
174-200	14.8	55.0	30.2	62.5	33.2	4.3	25	22
200-216	15.3	42.6	42.1	55.7	40.0	4.3	24	23
216-223	46.1	42.4	11.6	76.5	21.8	1.7	20	20
223-235	86.2	11.7	2.1	94.8	5.2	.1	11	7
235-250	90.5	9.4	.1	89.8	10.2	.1	8	14
250-276	79.0	20.1	.9	88.4	11.5	.1	14	15
276-286	92.7	7.3	0	94.0	6.0	0	6	9
286-300	90.8	8.8	.4	95.4	4.6	0	7	5
300-329	79.5	20.2	.3	82.6	17.4	0	13	18
329-335	57.2	27.3	15.5	94.3	5.7	0	18	8
335-350	89.2	10.7	.1	95.2	4.8	0	10	6
350-365	93.1	6.8	.1	92.6	7.4	0	5	12
365-375	97.4	2.6	0	99.1	.9	0	2	2
375-385	93.4	6.4	.1	98.7	1.3	0	4	3
385-400	73.3	18.4	8.3	88.4	11.6	0	16	16
400-406	95.7	4.3	0	99.7	.3	0	3	1
406-430	55.9	40.8	3.3	86.7	13.3	0	19	17
430-440	84.7	13.6	1.7	93.1	6.9	.1	12	10
440-450	89.6	10.1	.3	96.3	3.6	.1	9	4
450-470	62.9	35.5	1.5	89.9	10.1	0	17	13
470-500	36.9	22.2	40.9	71.5	23.2	5.2	21	21

TABLE 5-5

PULSE DATA SUMMARY

BAND	# OF SIGNALS RECEIVED (ALL TAPES)
100-108	79
108-118	57
118-136	924
136-138	39
138-144	306
144-146	1038
146-174	33054
174-216	45098
216-223	10050
223-235	5409
235-328	5827
328-335	14
335-400	10000
400-406	2141
406-430	3657
430-440	477
440-470	1460
470-582	63650

APPENDIX I

OCCUPANCY AND POWER PLOTS

This appendix contains plots of eight tapes representing the entire frequency range monitored (110-500 MHz). The tapes used to produce these plots were:

FREQUENCY	TAPE #
100-150	2334
150-200	2306
200-250	2321
250-300	2329
300-350	2311
350-400	2312
400-450	2326
450-500	2330

The plots are divided into ten MHz bands. Figures I-1 through I-40 are occupancy plots, and Figures I-41 through I-80 are plots of power levels. The occupancy plots chart the percent of the time the measurements exceeded -99 dBm as a function of frequency. The power level plots are simply the logarithmic average of the measurements on each channel. The ITU allocated usage for each band is indicated at the bottom of each chart.

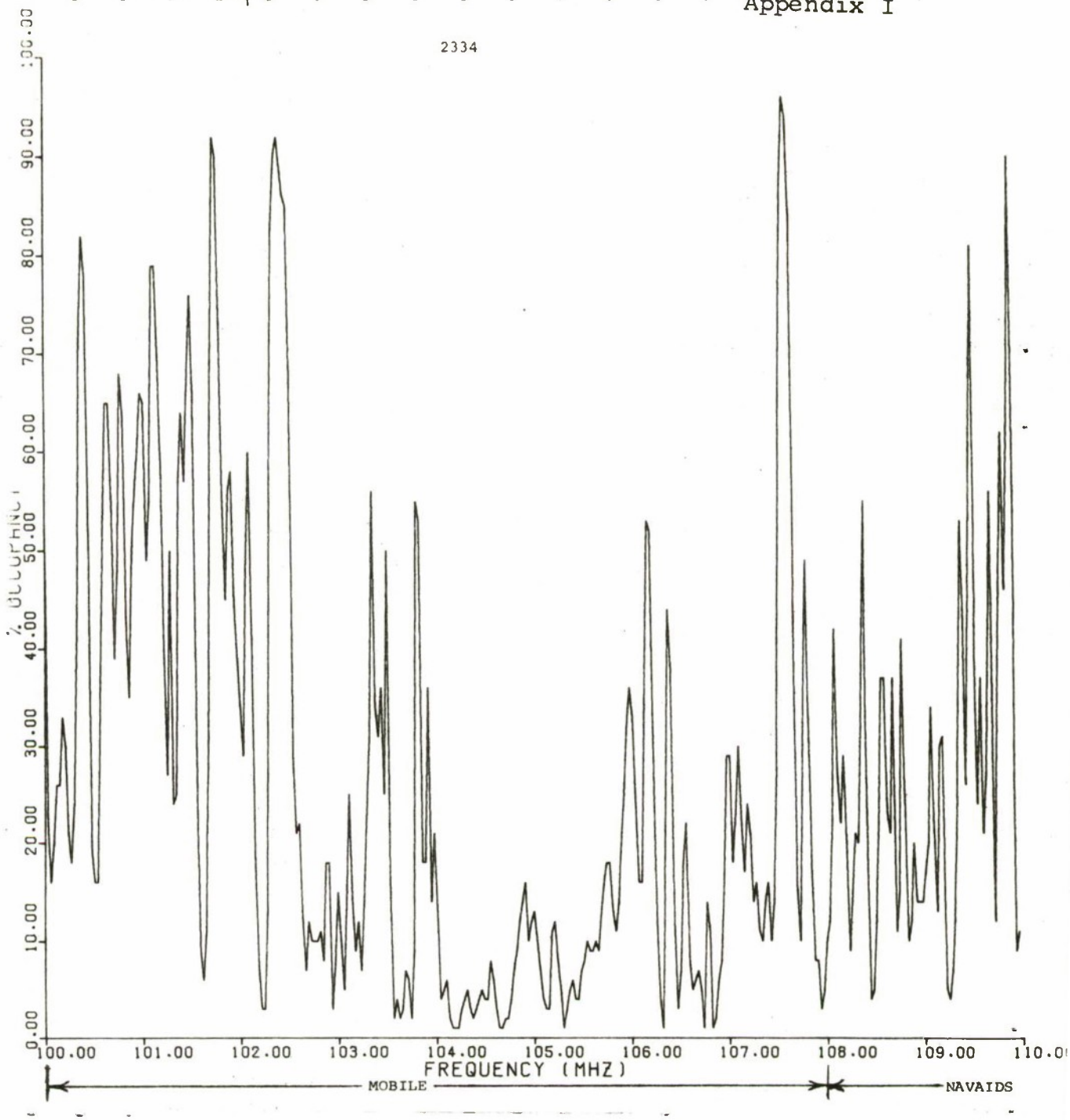


Figure I-1. Occupancy Levels in the 100-110 MHz Band

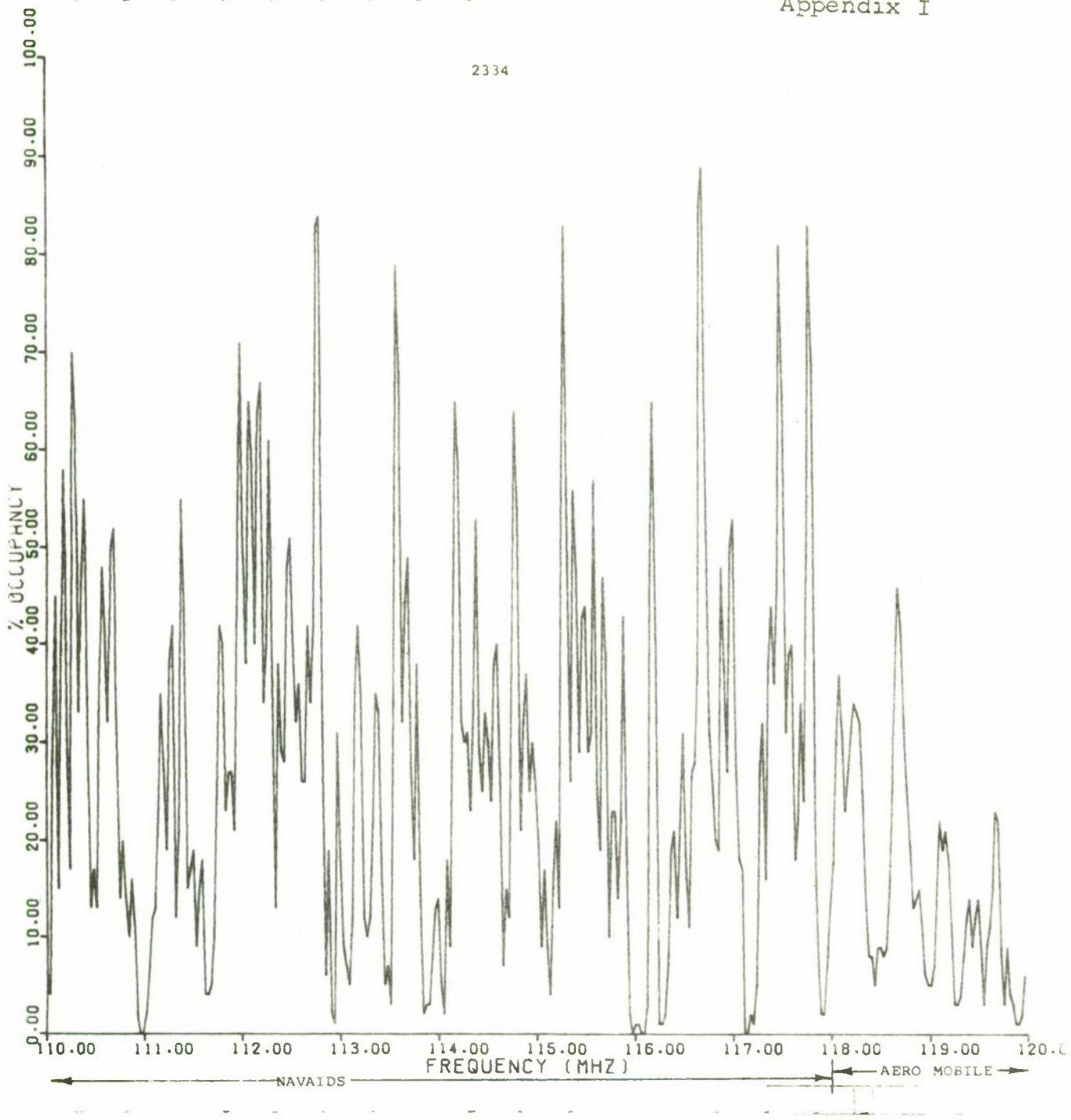


Figure I-2. Occupancy Levels in the 110-120 MHz Band

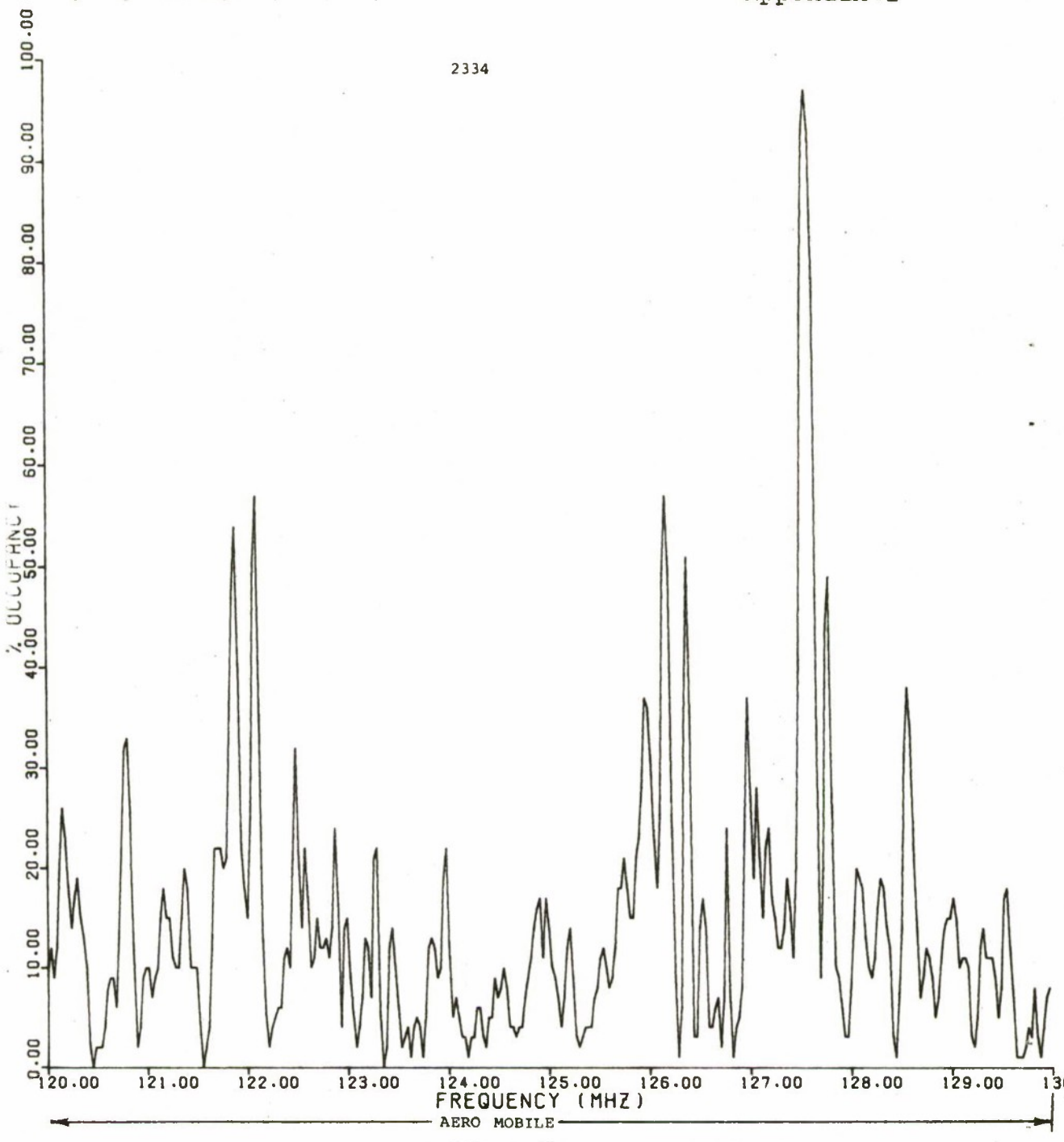


Figure I-3. Occupancy Levels in the 120-130 MHz Band

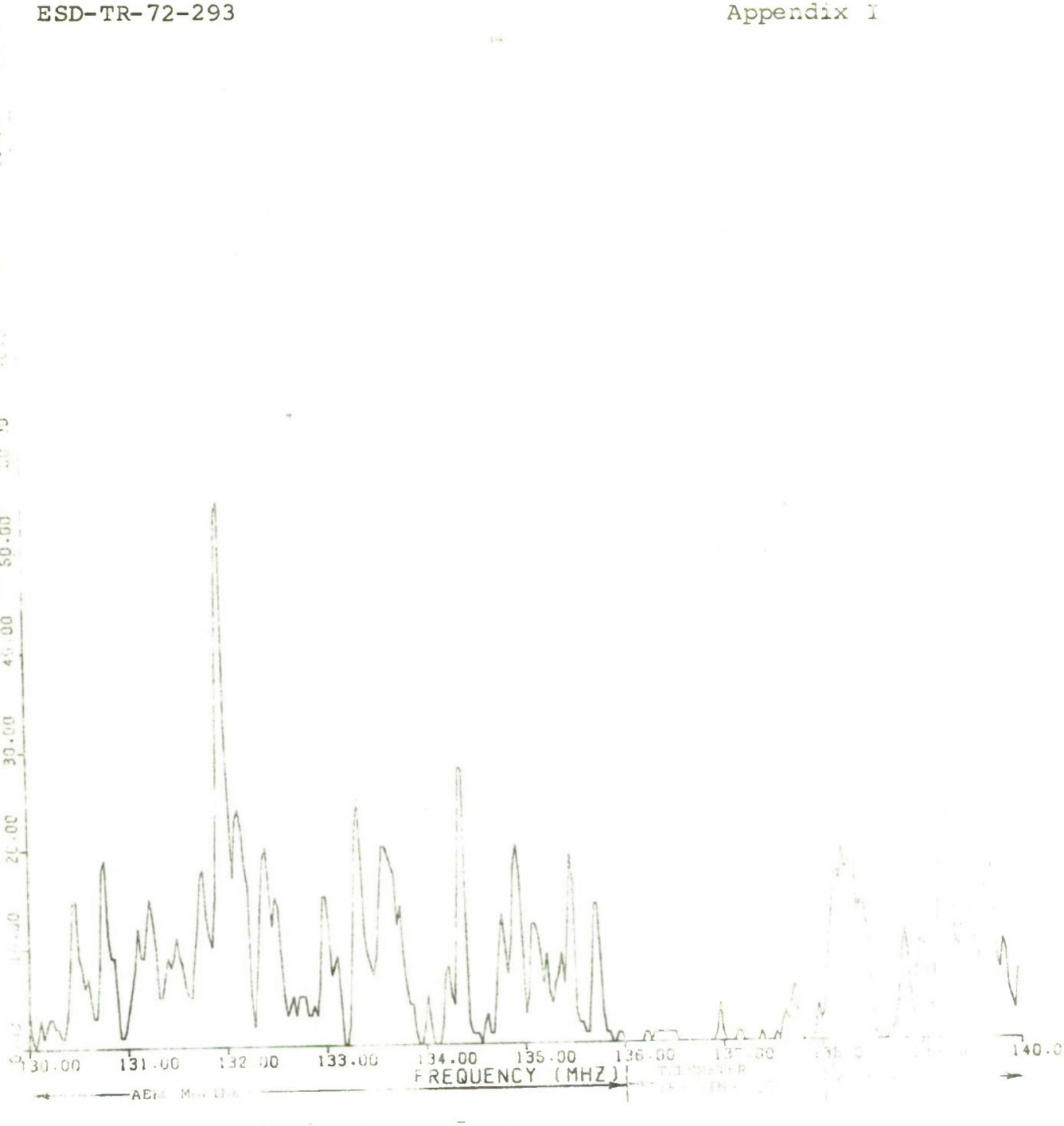


Figure I-4. Occupancy Levels in the 130-140 MHz Band

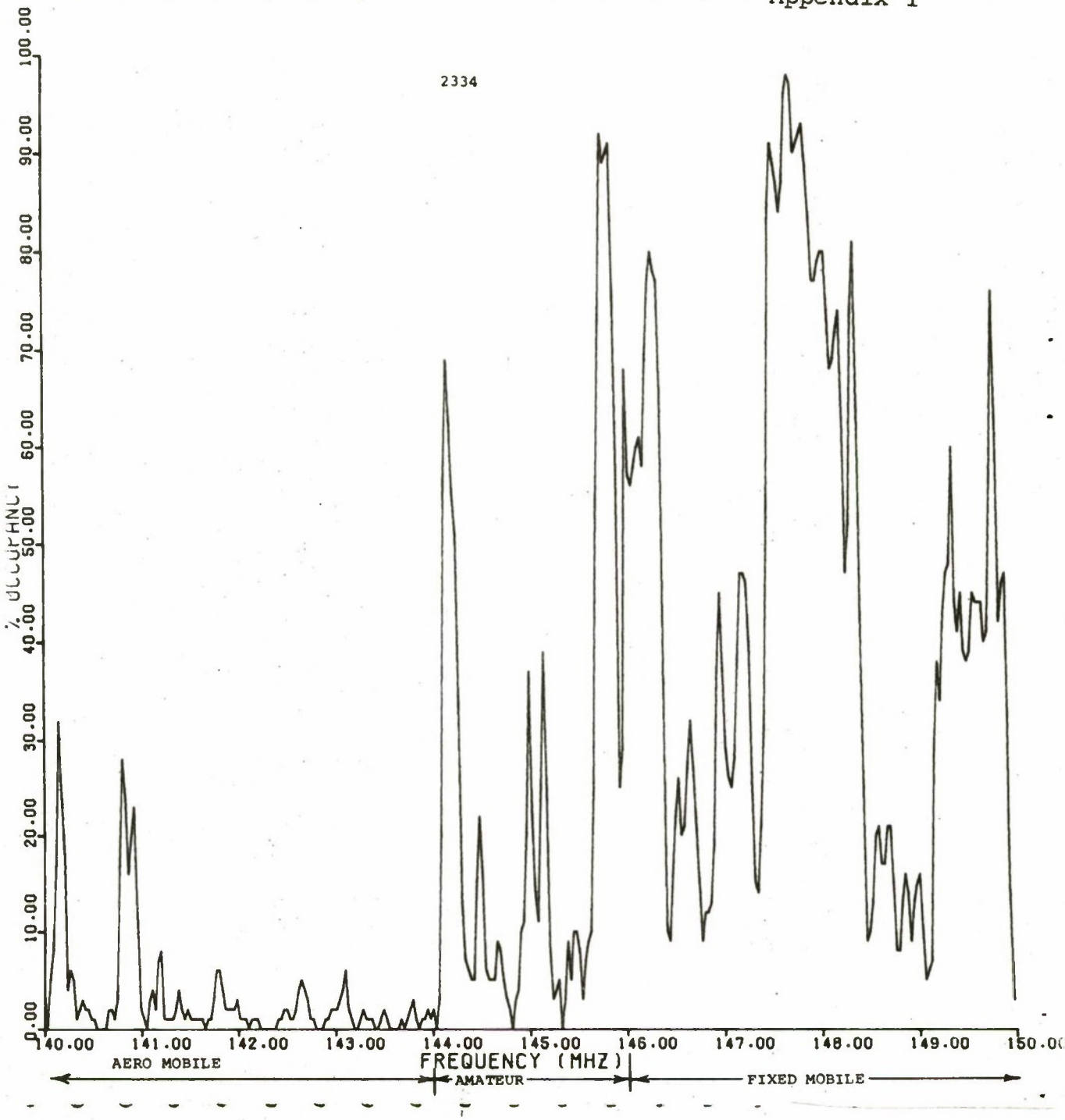


Figure I-5. Occupancy Levels in the 140-150 MHz Band

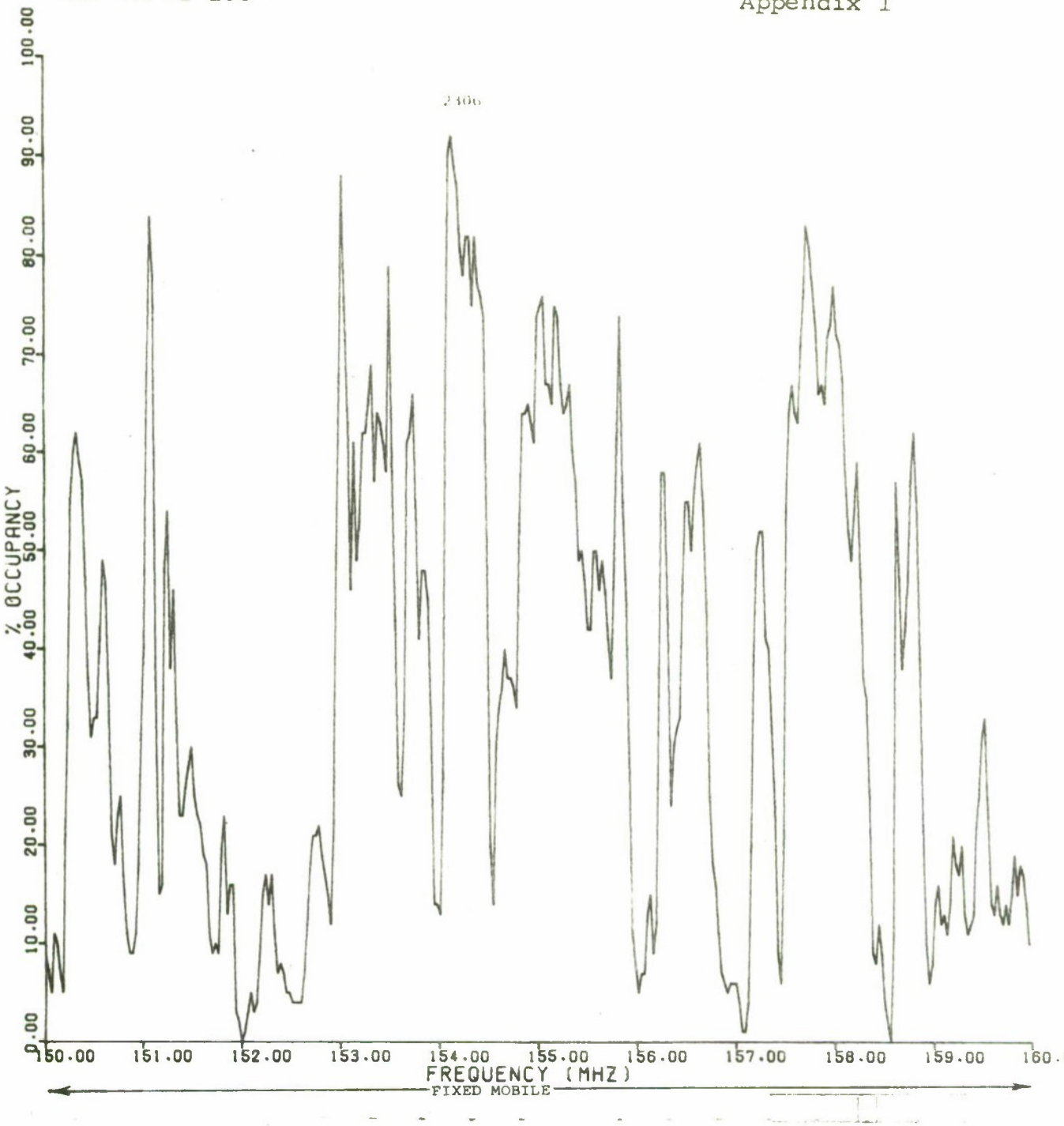


Figure I-6. Occupancy Levels in the 150-160 MHz Band

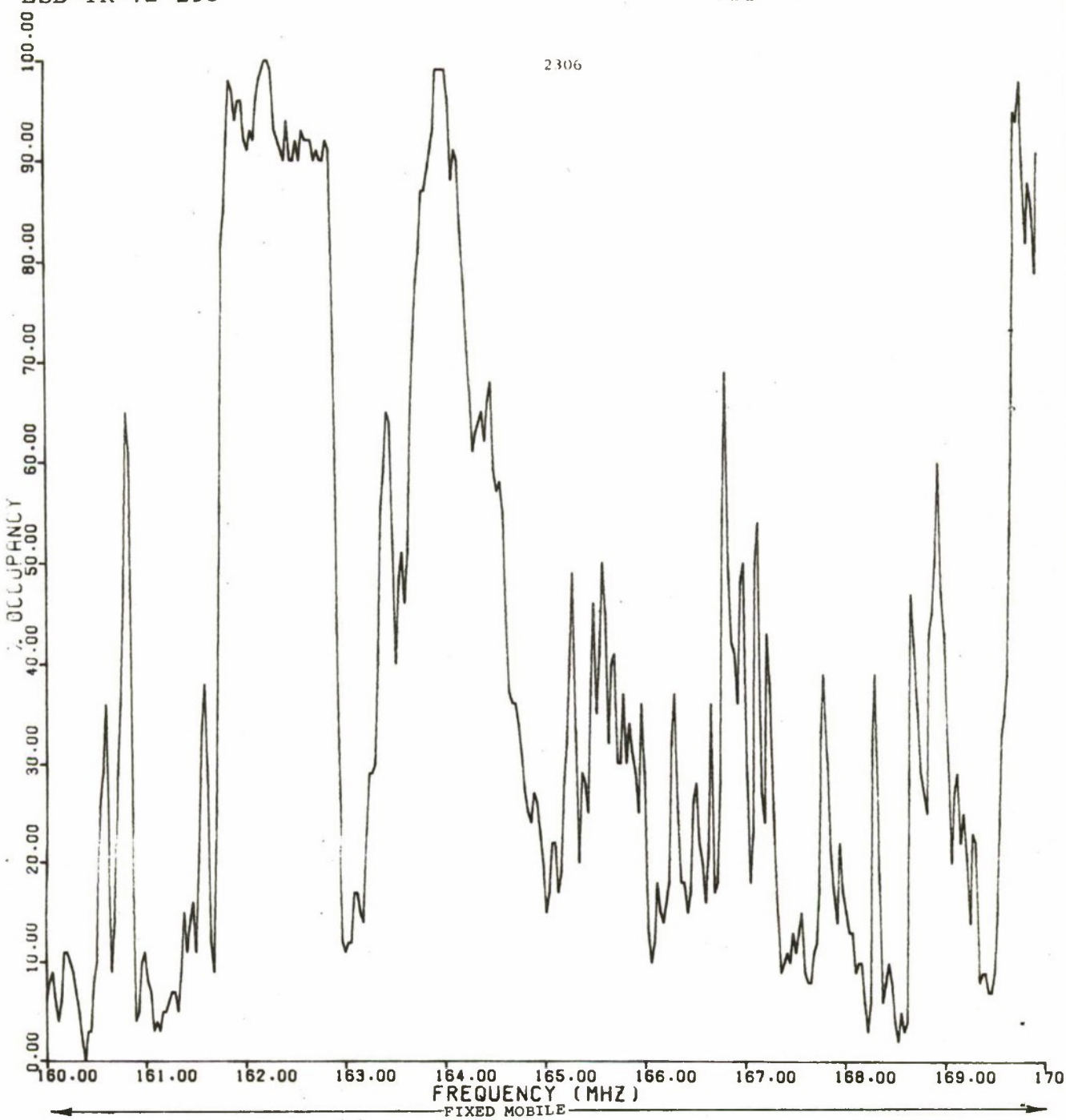


Figure I-7. Occupancy Levels in the 160-170 MHz Band

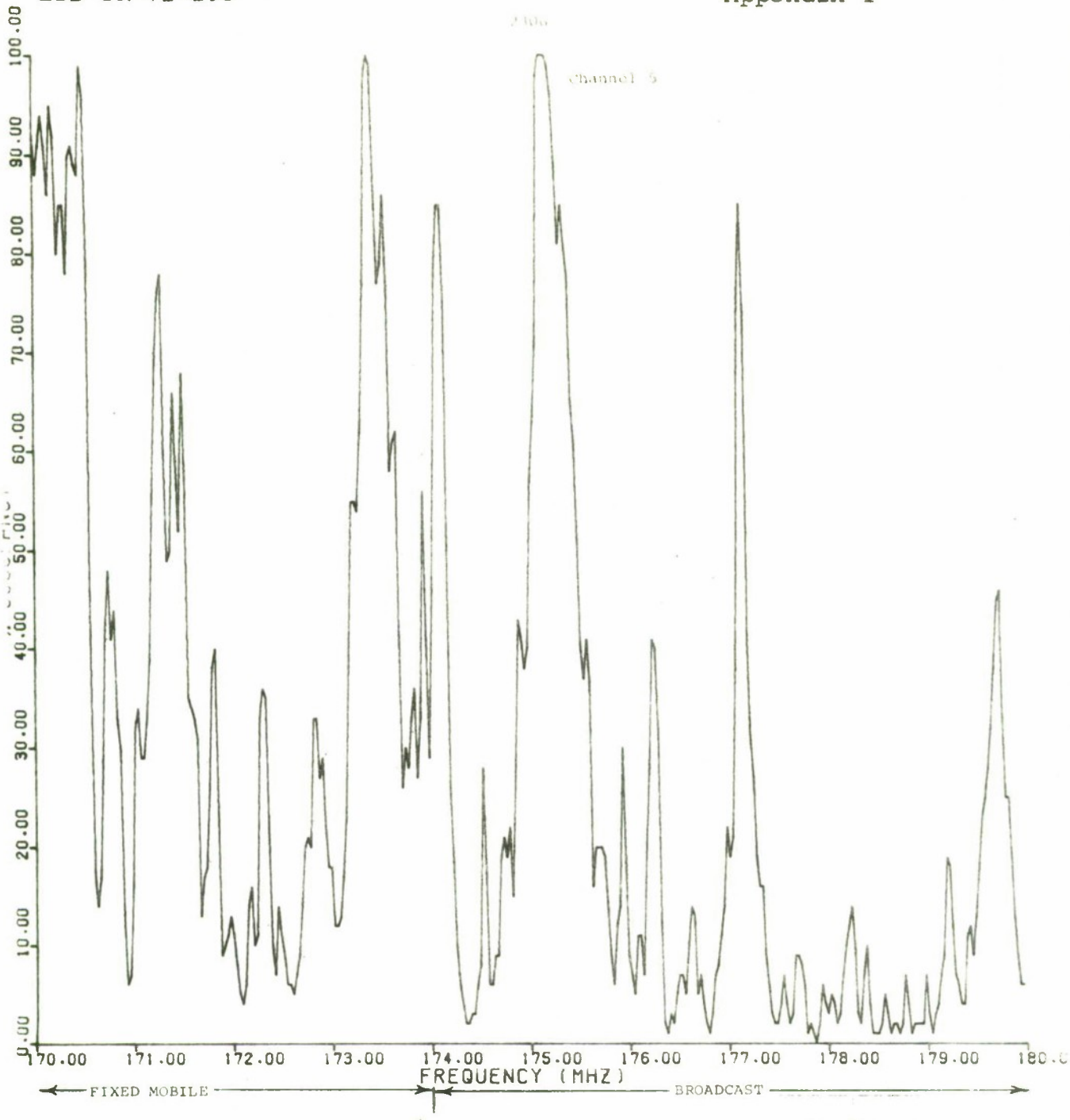


Figure I-8. Occupancy Levels in the 170-180 MHz Band

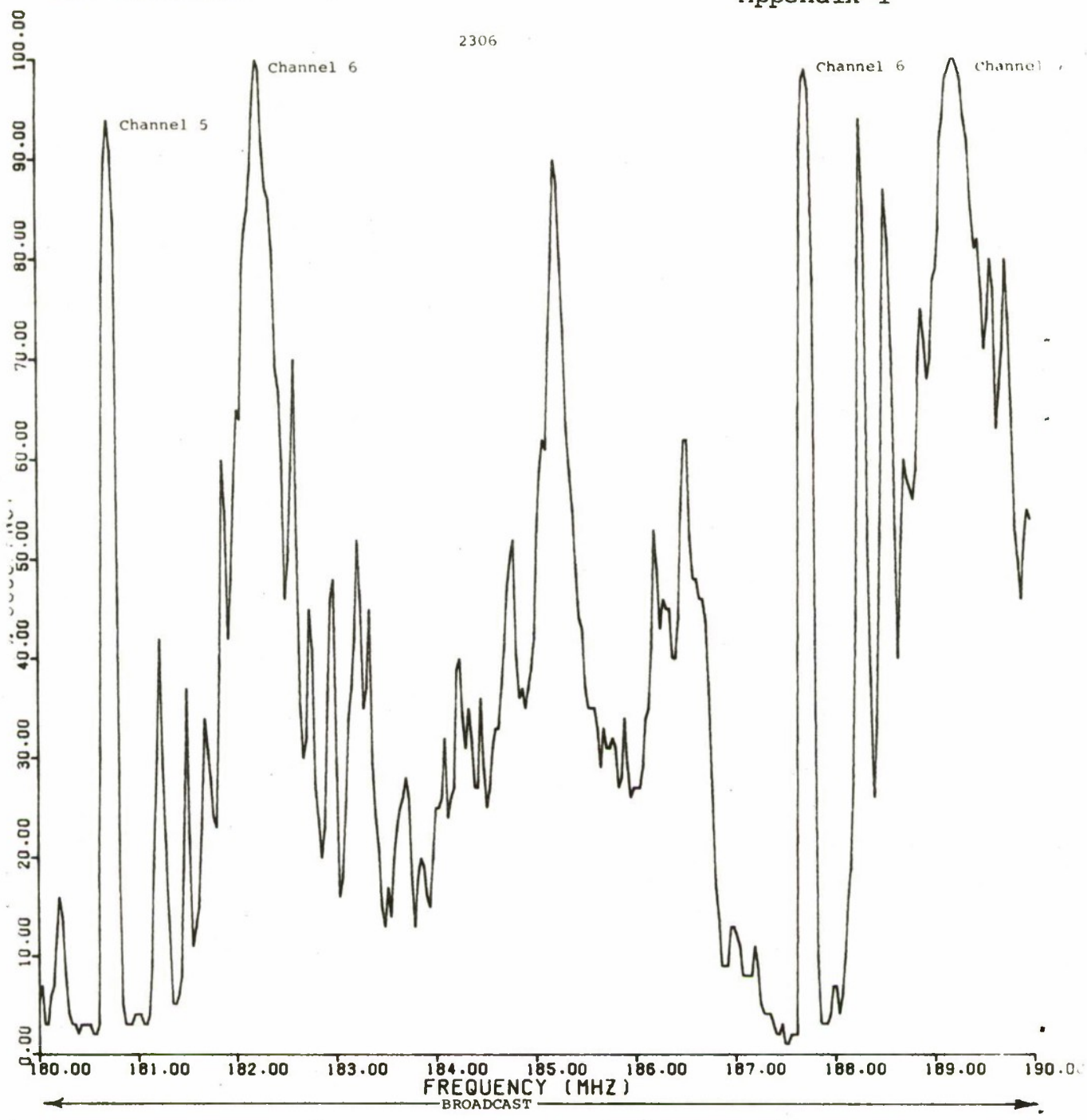


Figure I-9. Occupancy Levels in the 180-190 MHz Band

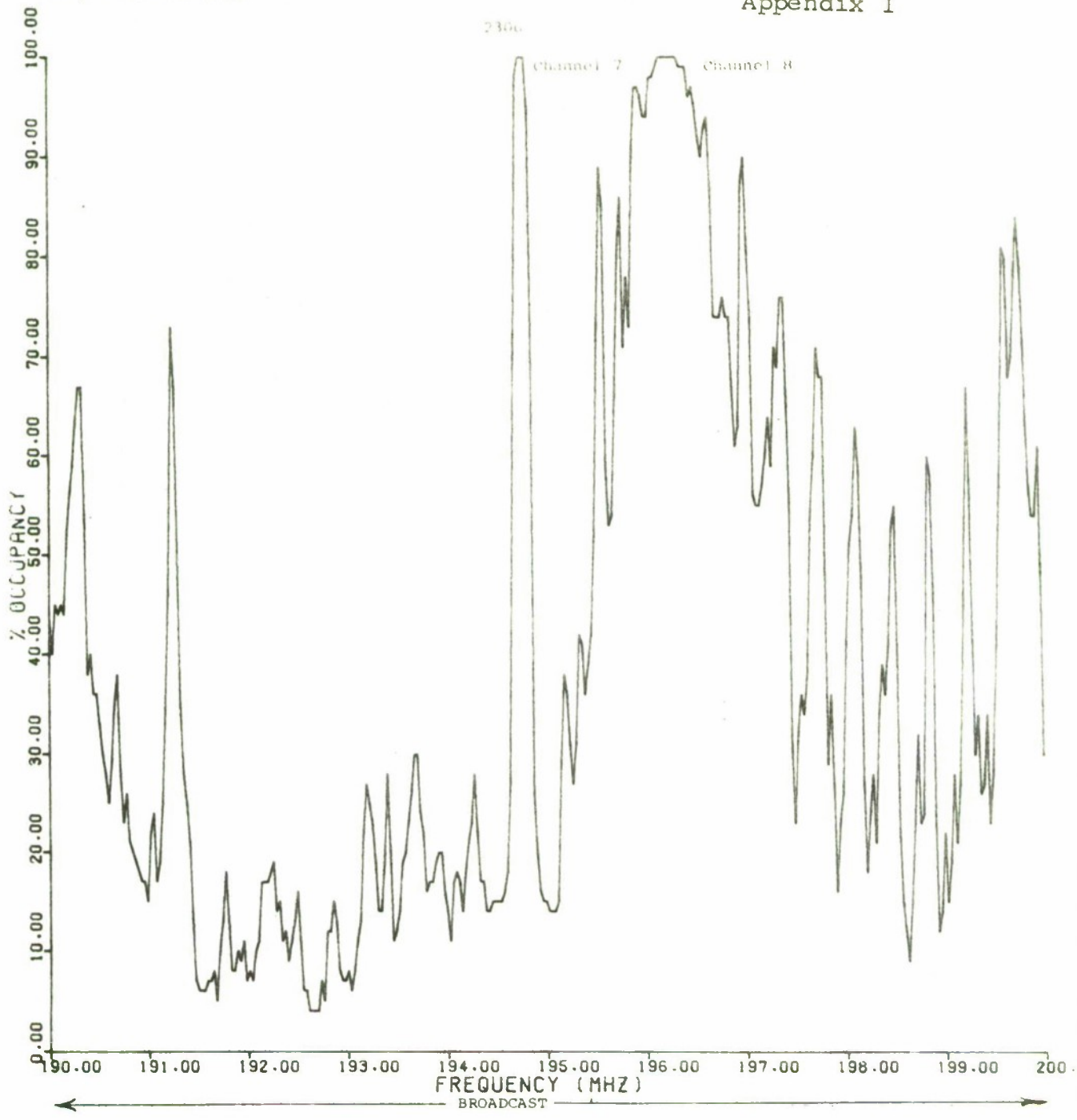


Figure I-10. Occupancy Levels in the 190-200 MHz Band

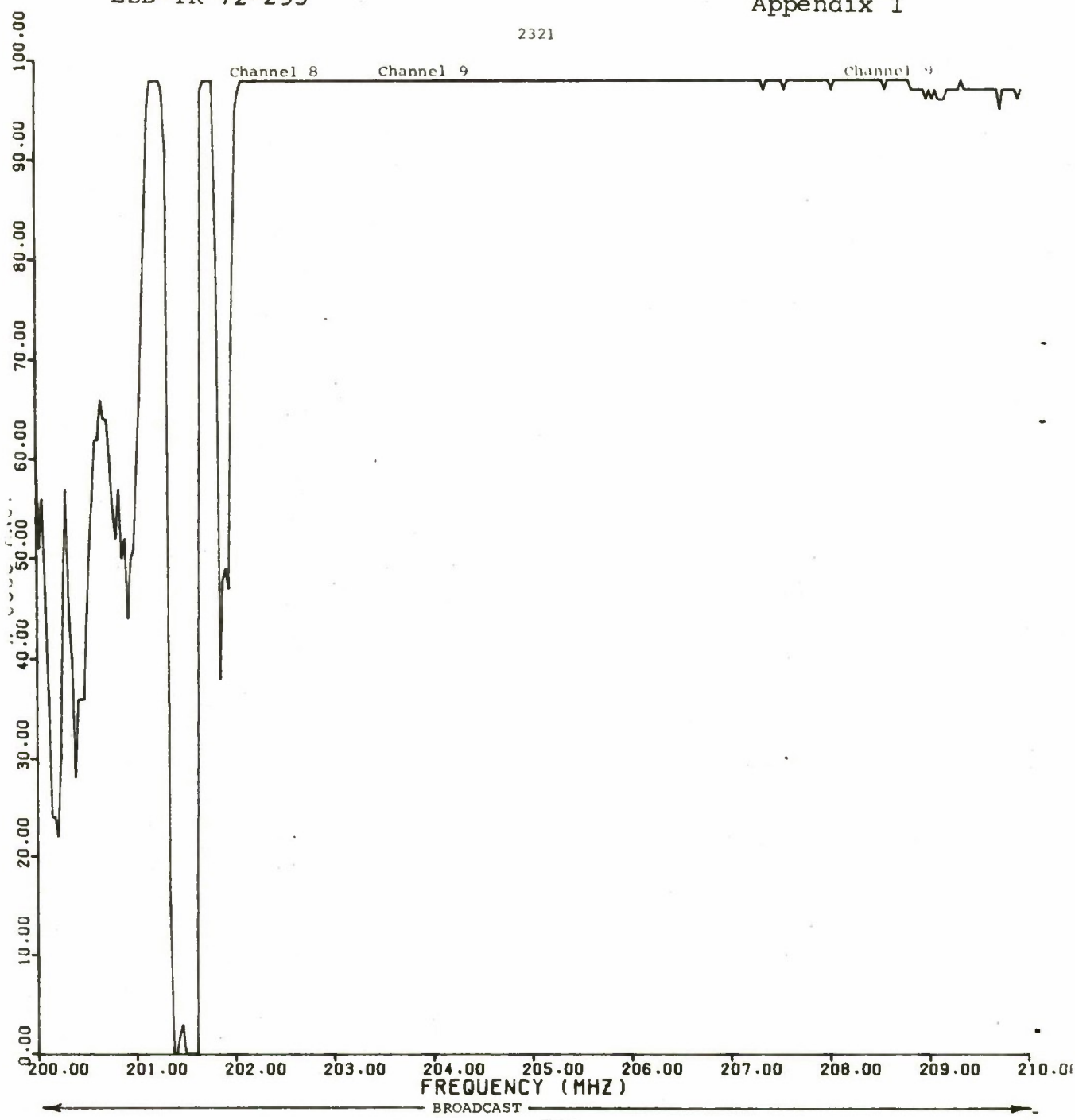


Figure I-11. Occupancy Levels in the 200-210 MHz Band

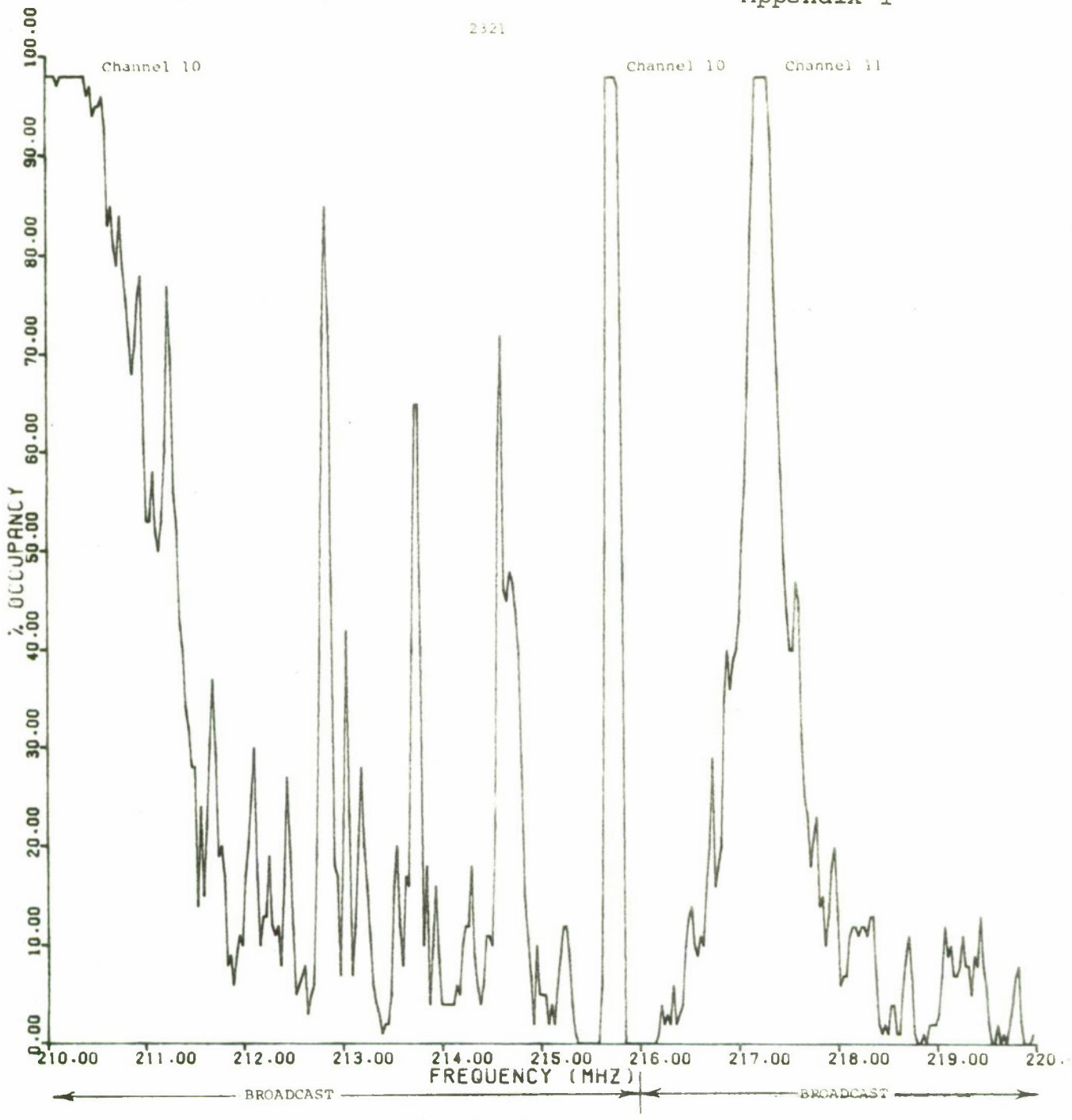


Figure I-12. Occupancy Levels in the 210-220 MHz Band

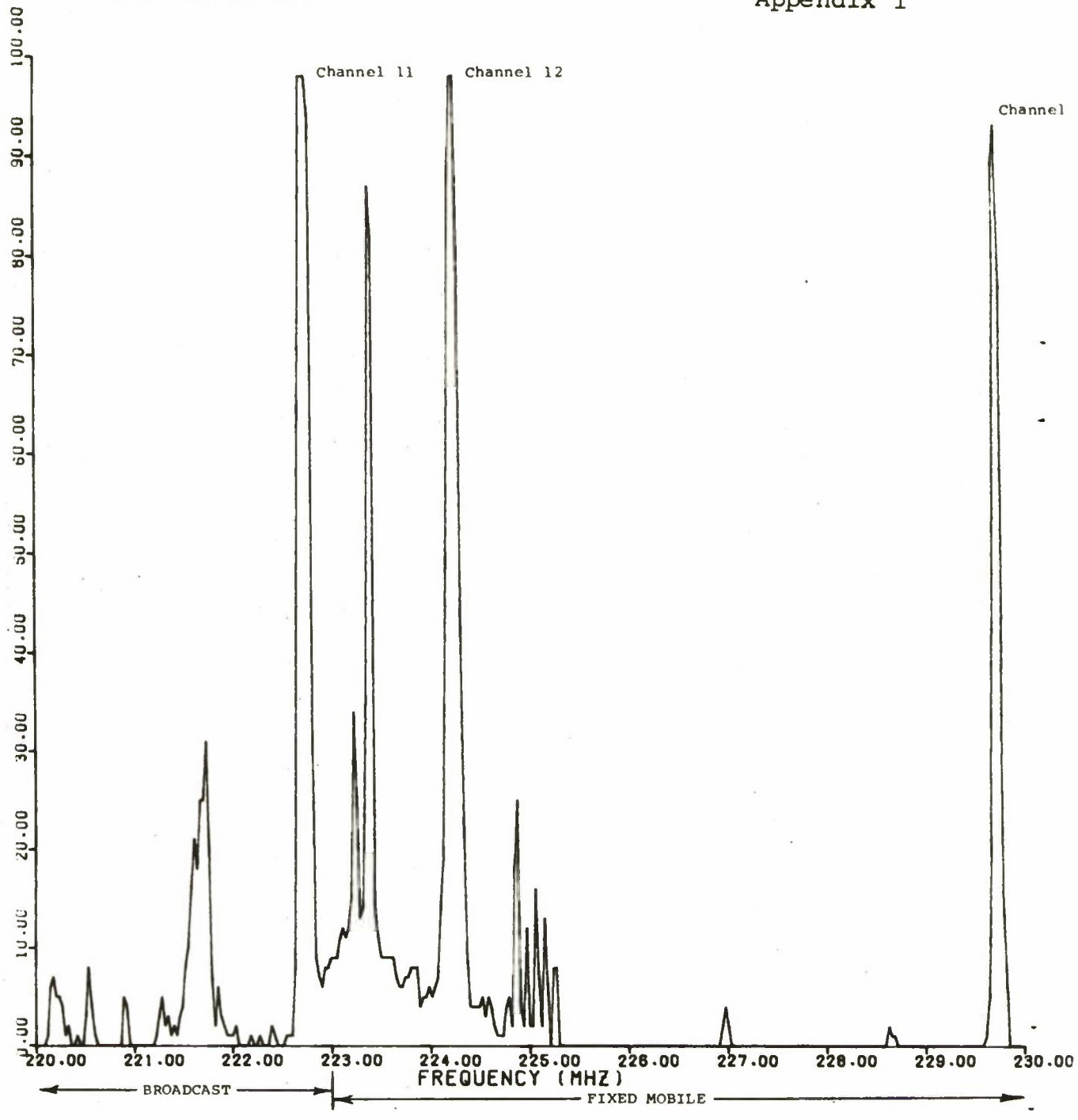


Figure I-13. Occupancy Levels in the 220-230 MHz Band

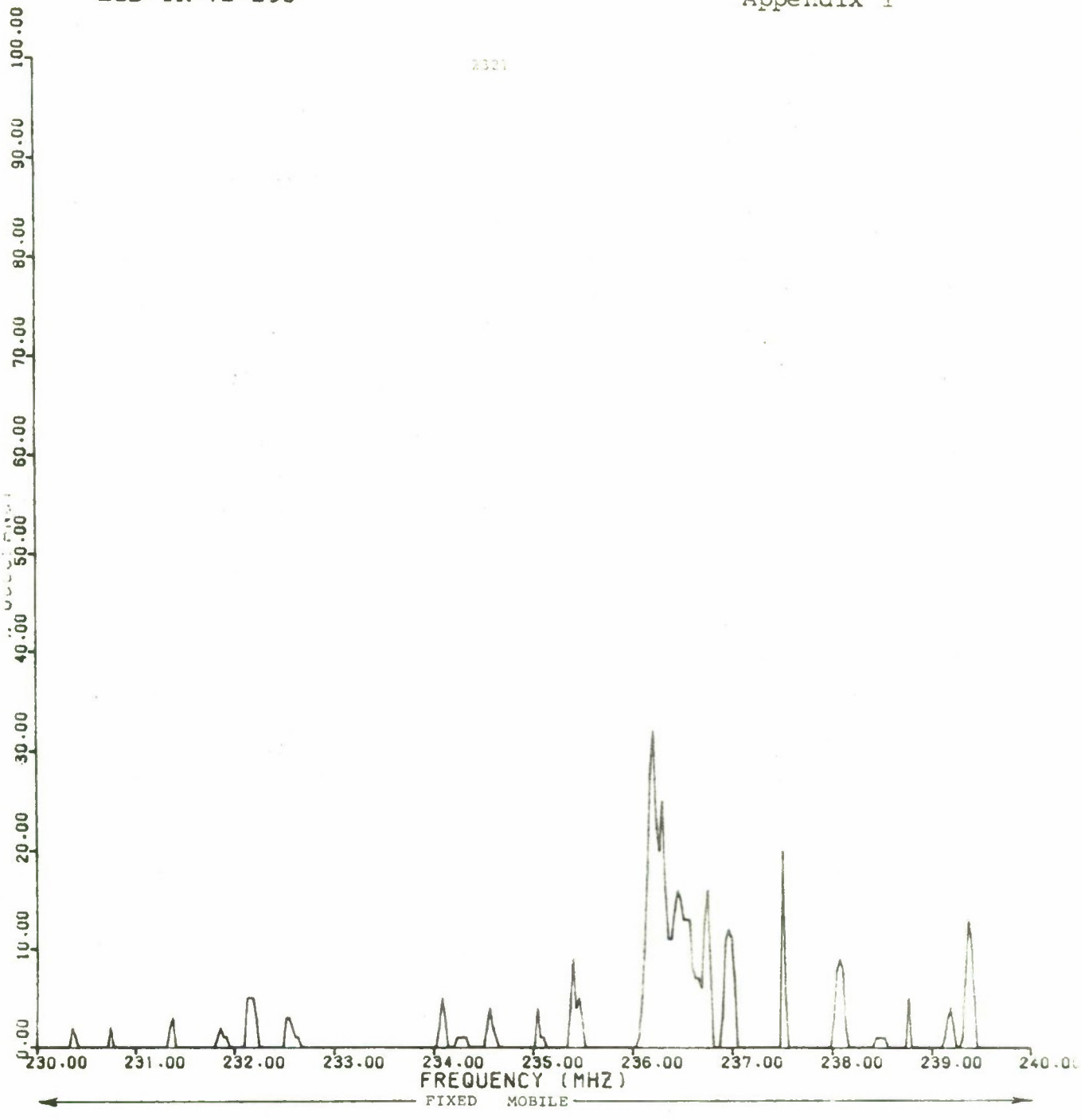


Figure I-14. Occupancy Levels in the 230-240 MHz Band

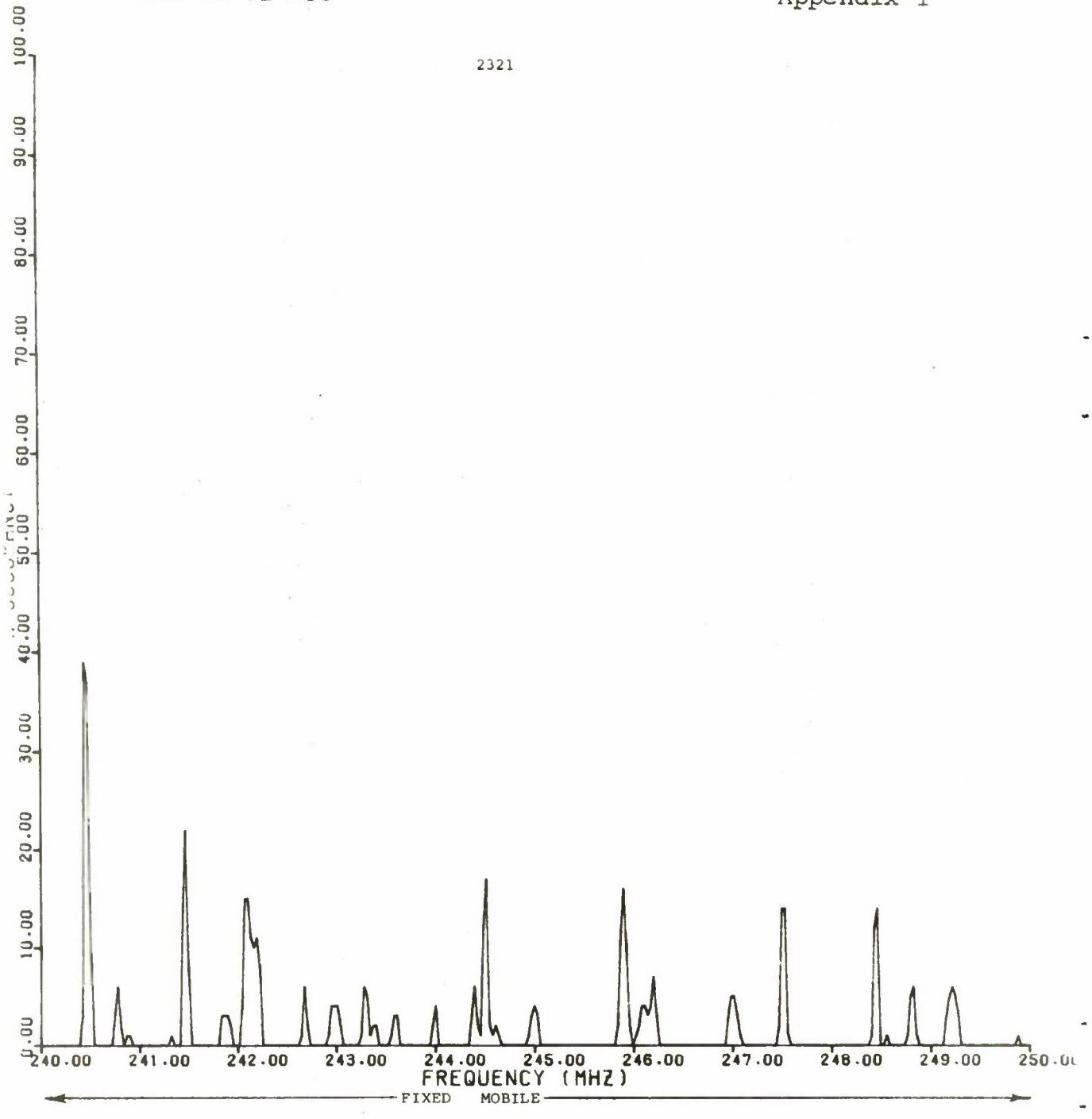


Figure I-15. Occupancy Levels in the 240-250 MHz Band

2329

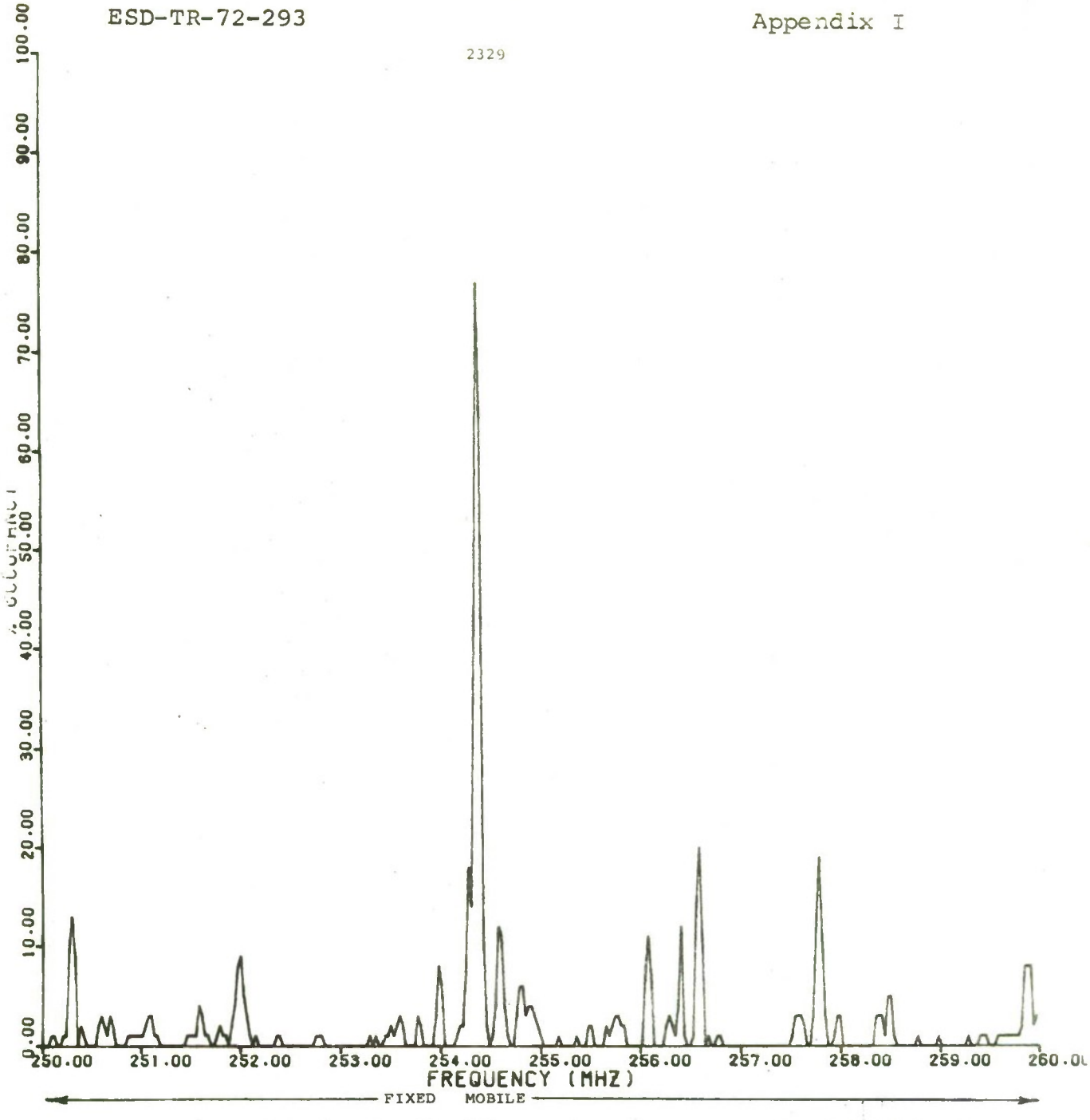


Figure I-16. Occupancy Levels in the 250-260 MHz Band

2329

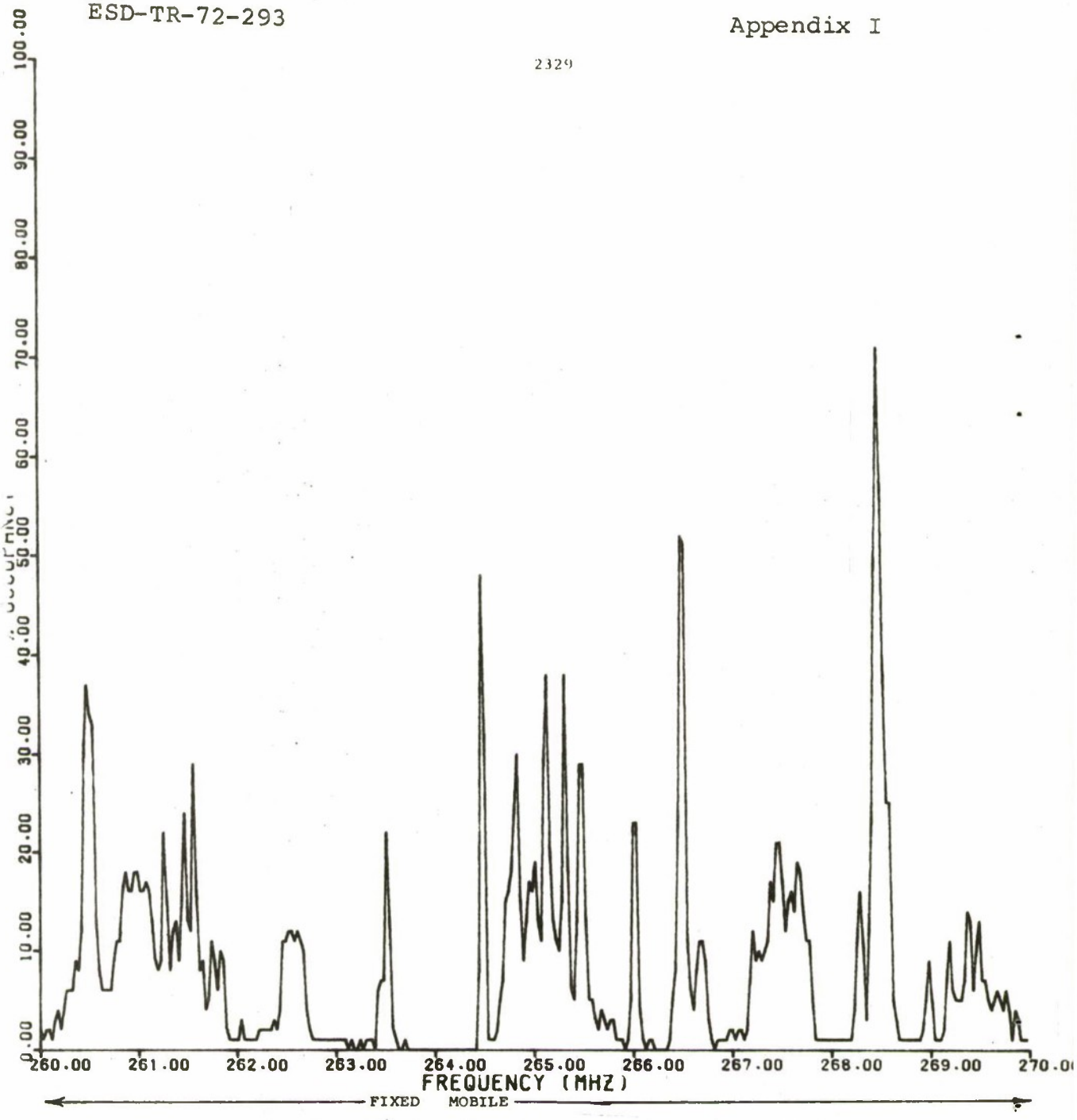


Figure I-17. Occupancy Levels in the 260-270 MHz Band

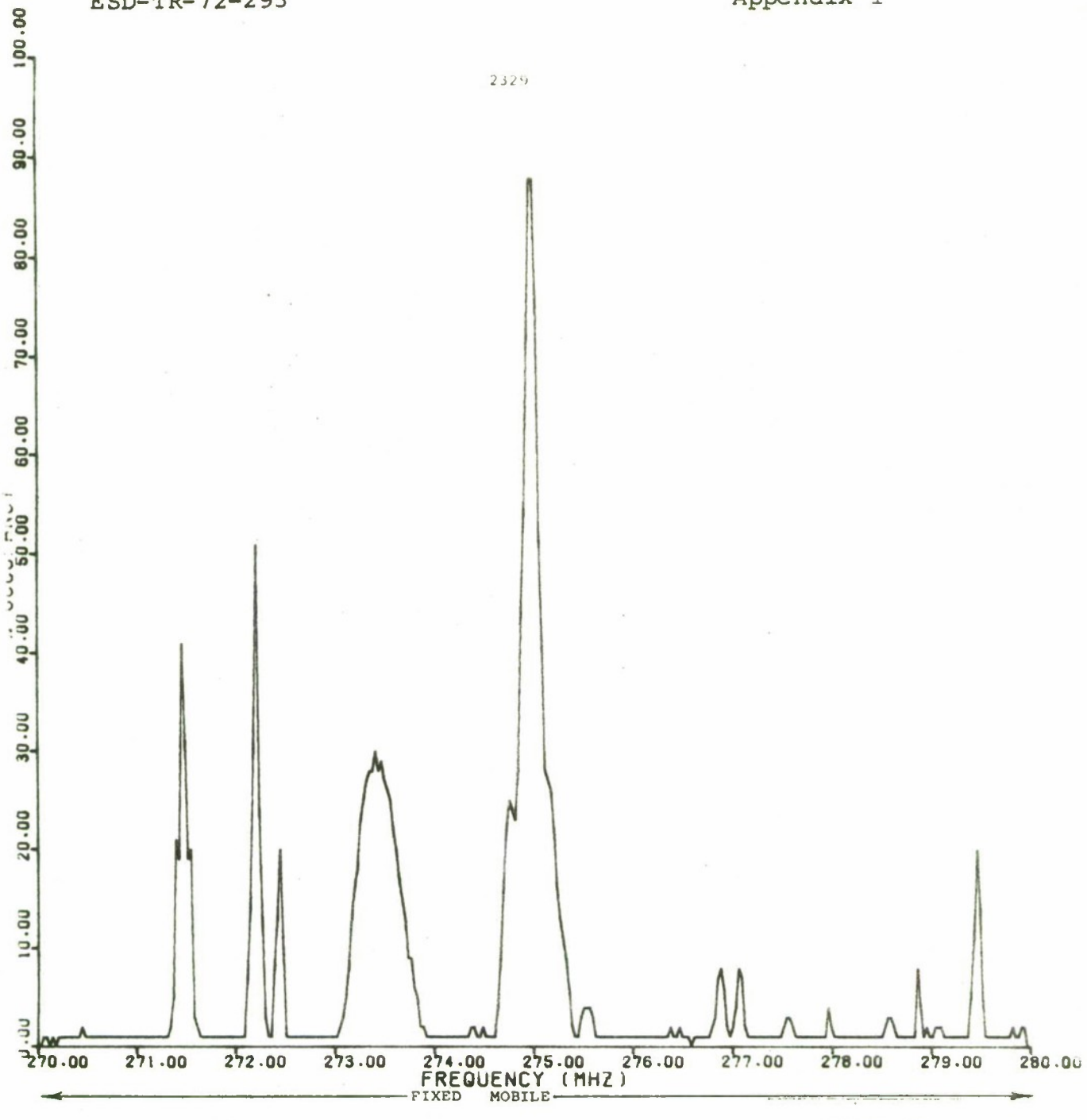


Figure I-18. Occupancy Levels in the 270-280 MHz Band

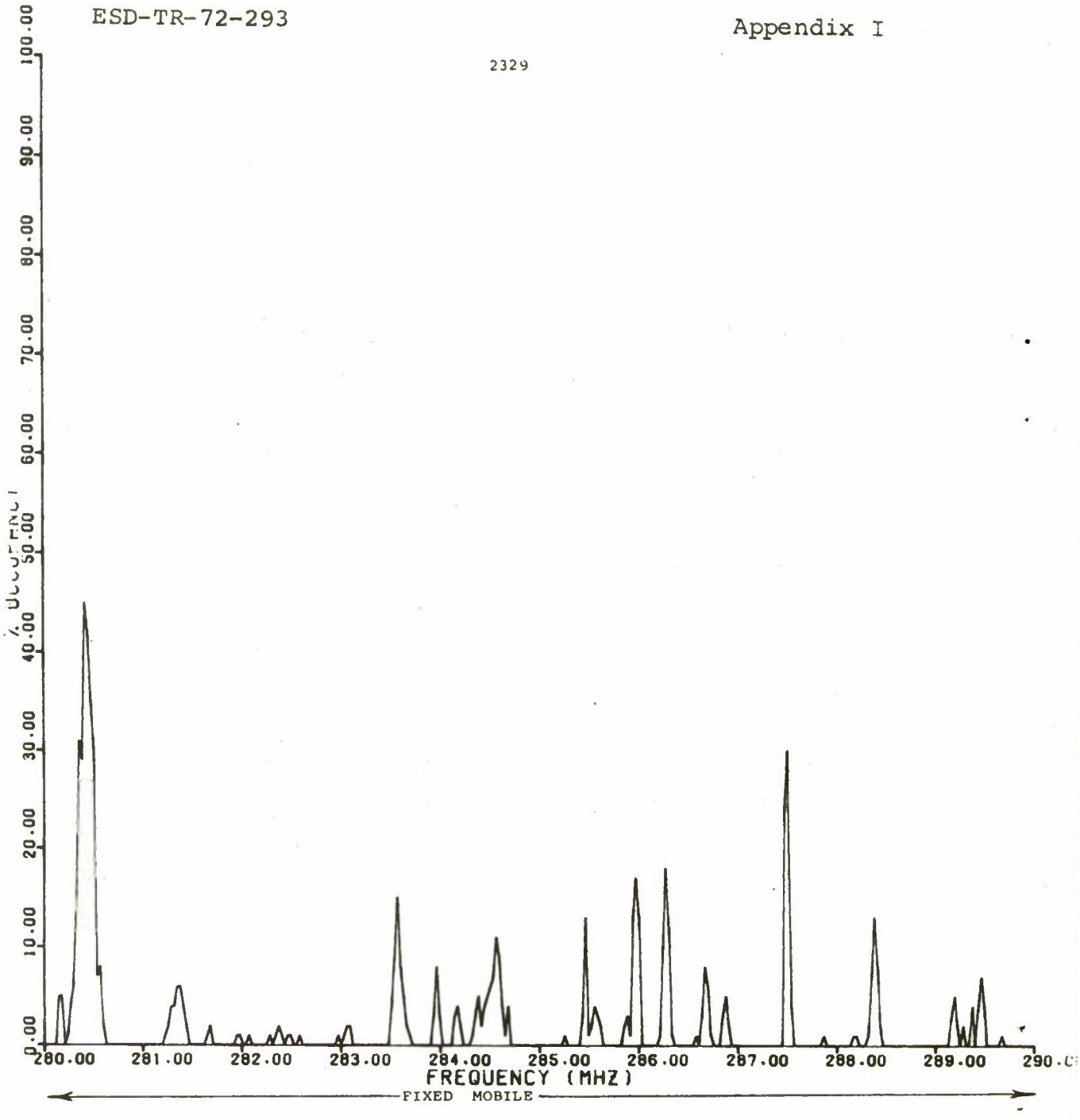


Figure I-19. Occupancy Levels in the 280-290 MHz Band

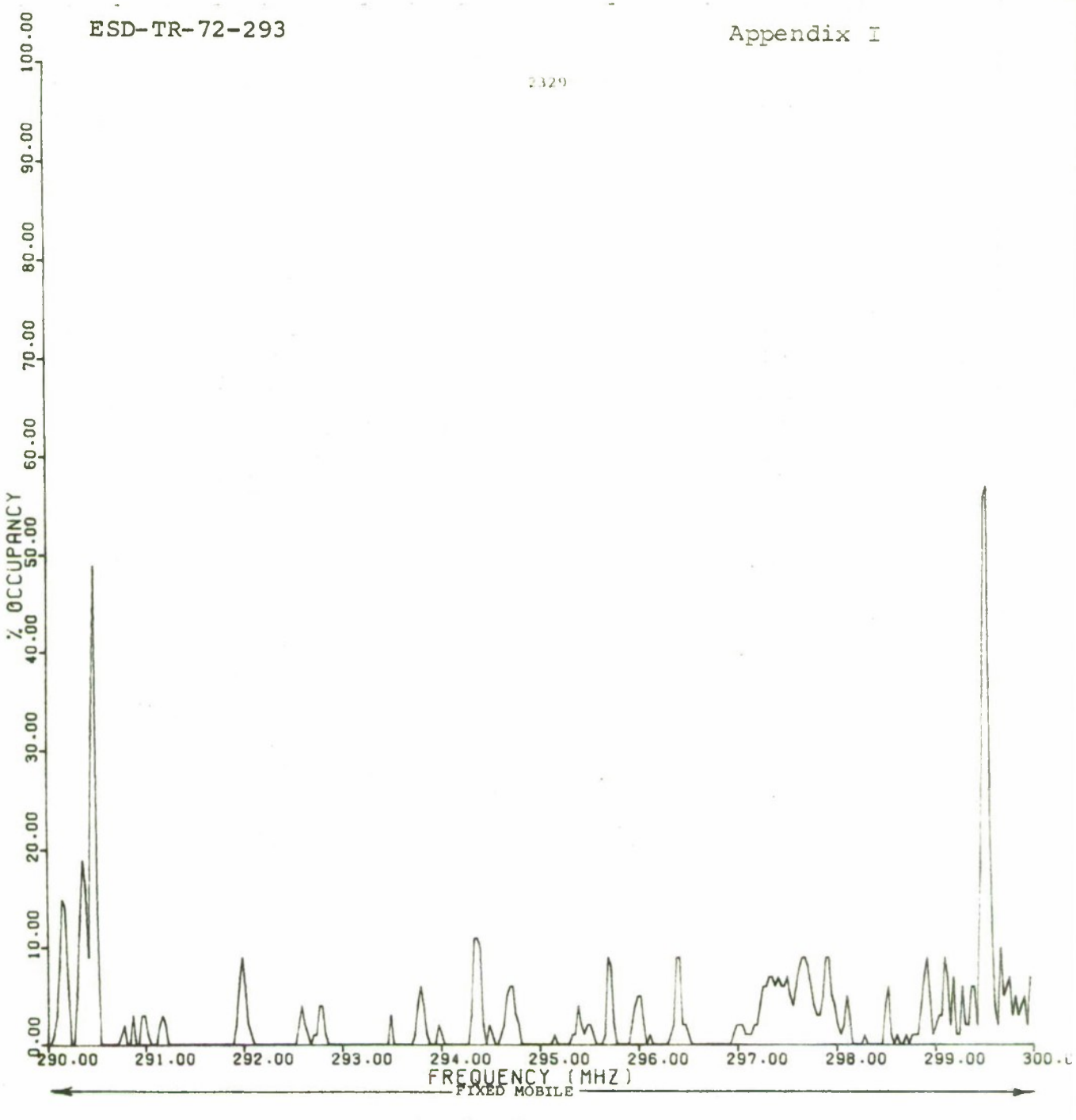


Figure I-20. Occupancy Levels in the 290-300 MHz Band

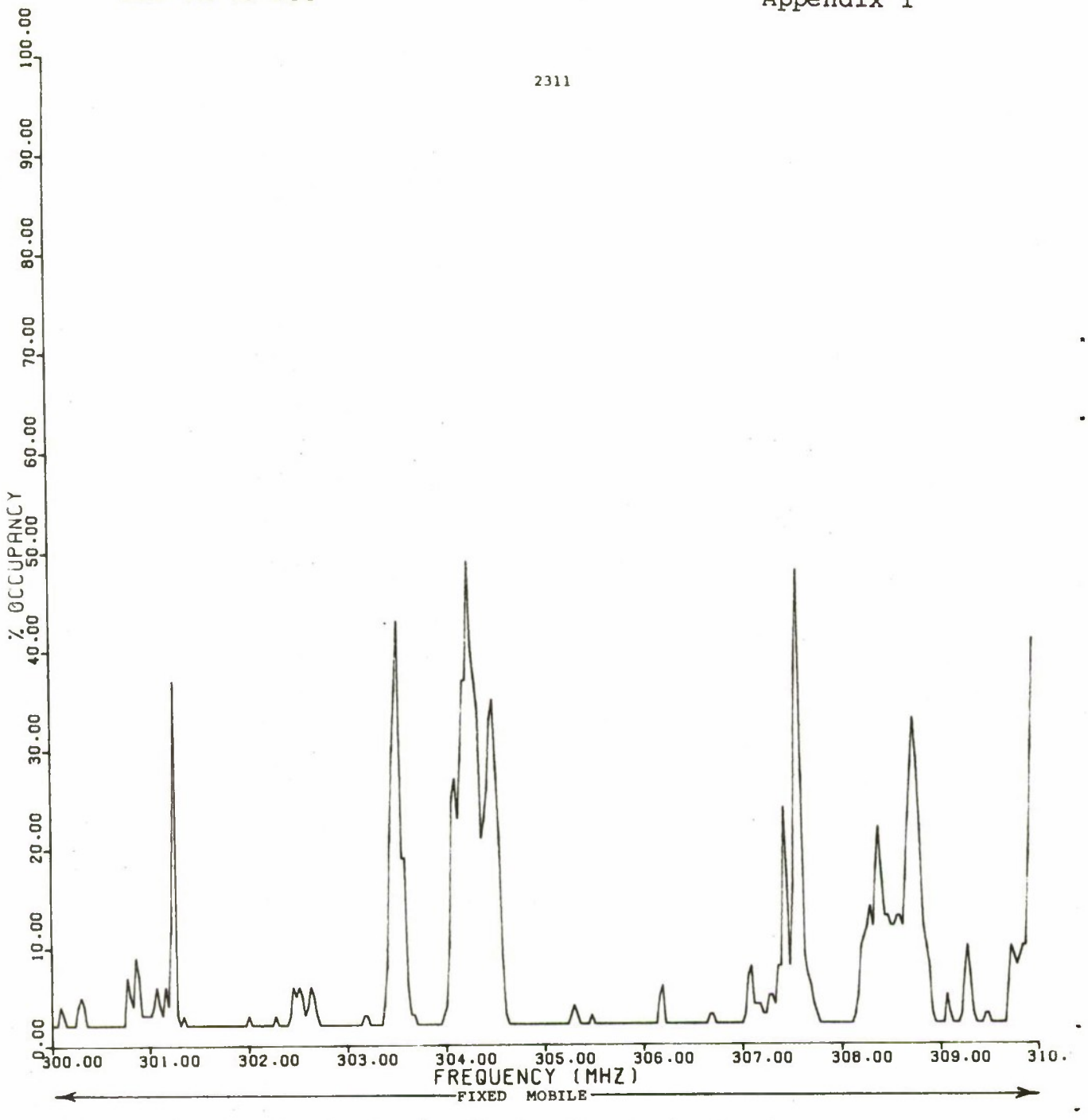


Figure I-21. Occupancy Levels in the 300-310 MHz Band

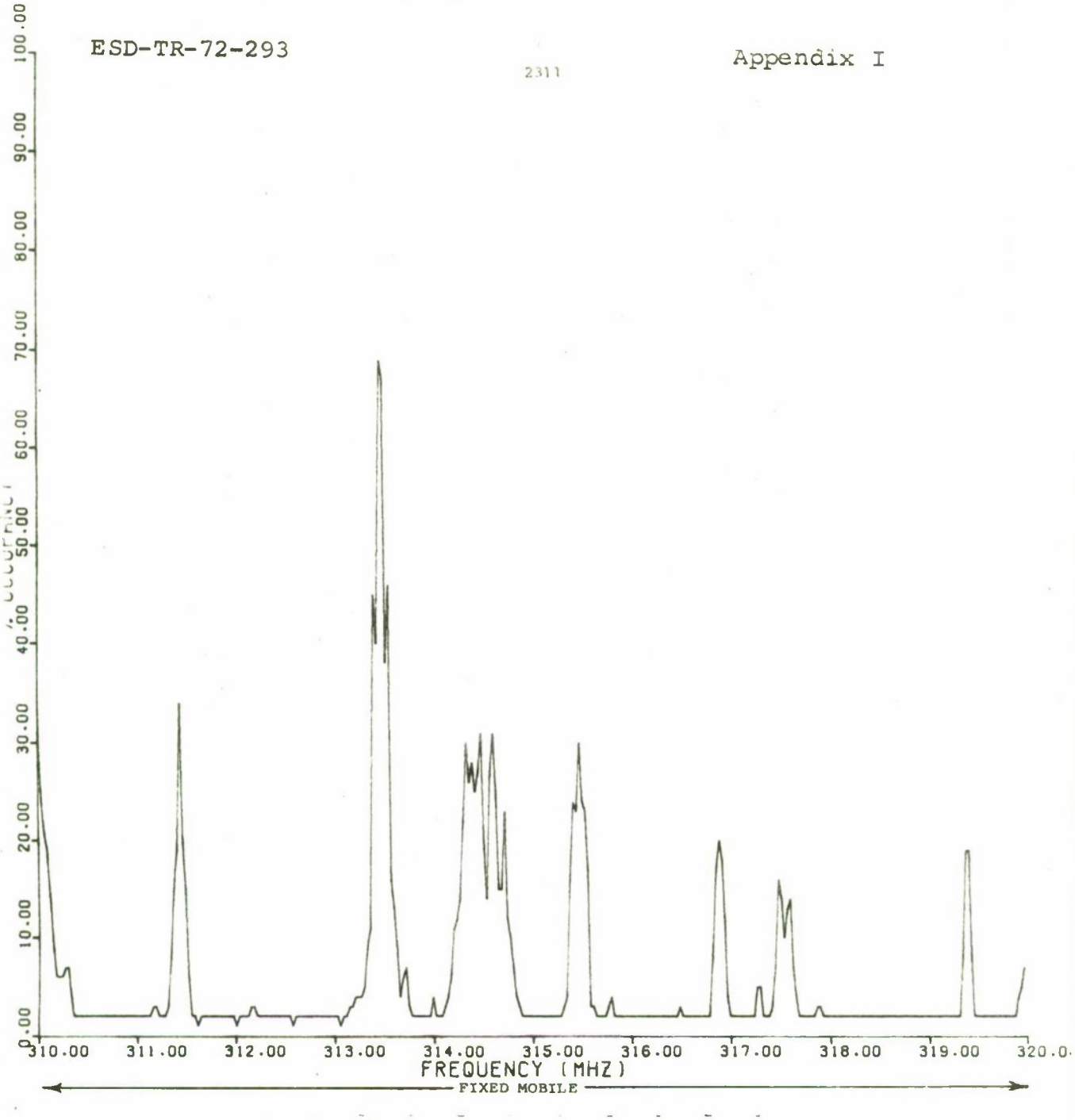


Figure I-22. Occupancy Levels in the 310-320 MHz Band

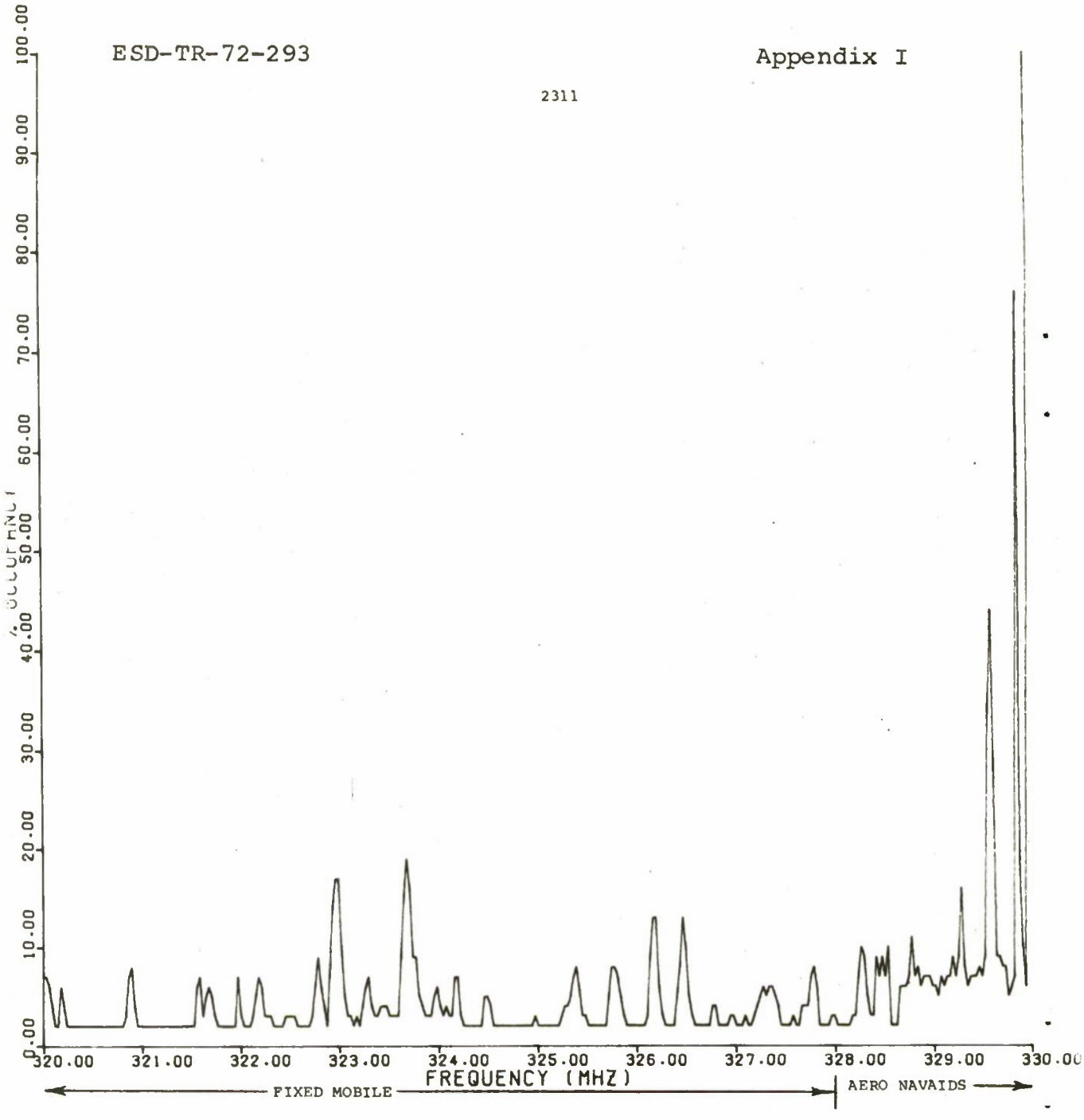


Figure I-23. Occupancy Levels in the 320-330 MHz Band

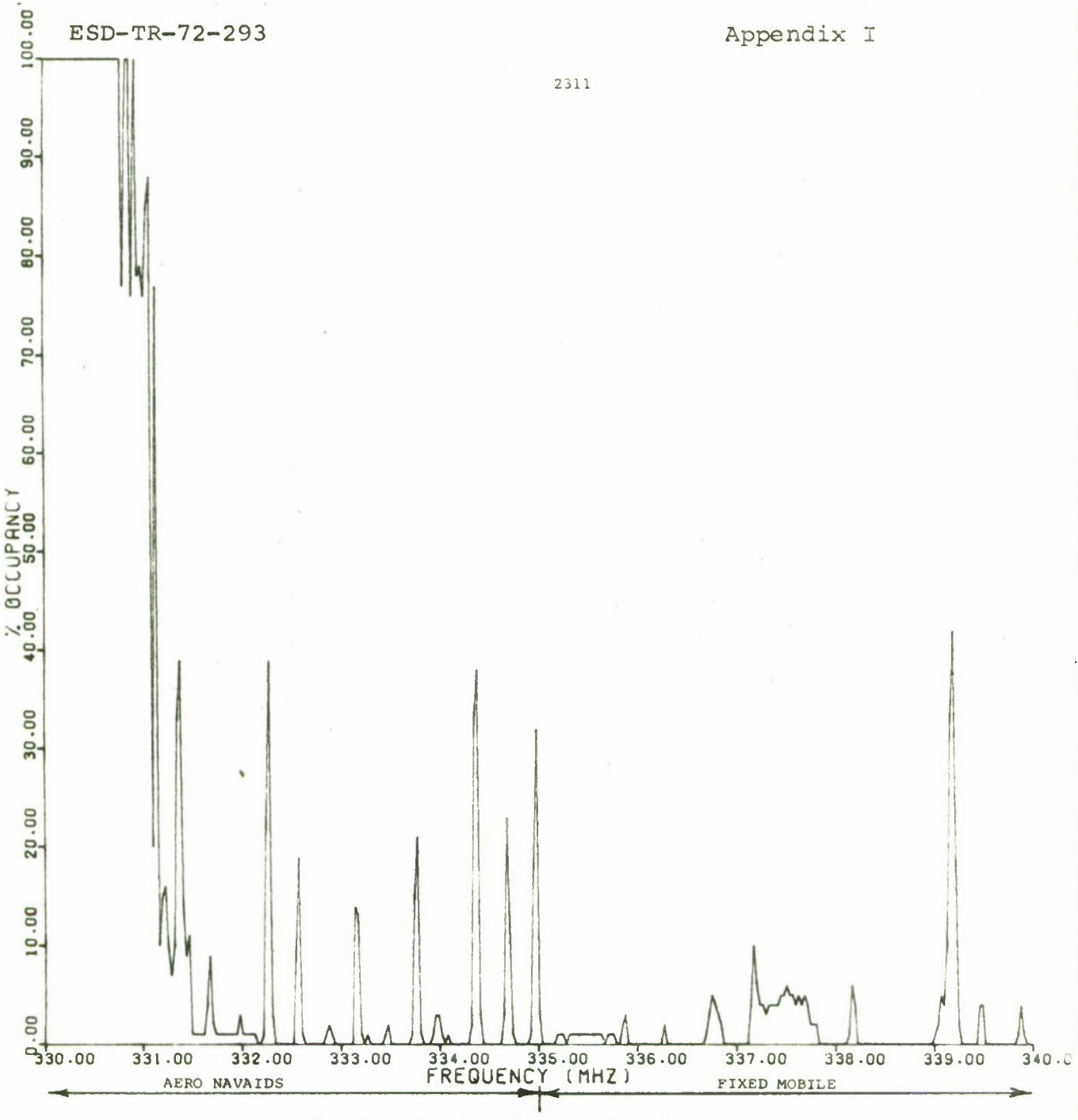


Figure I-24. Occupancy Levels in the 330-340 MHz Band

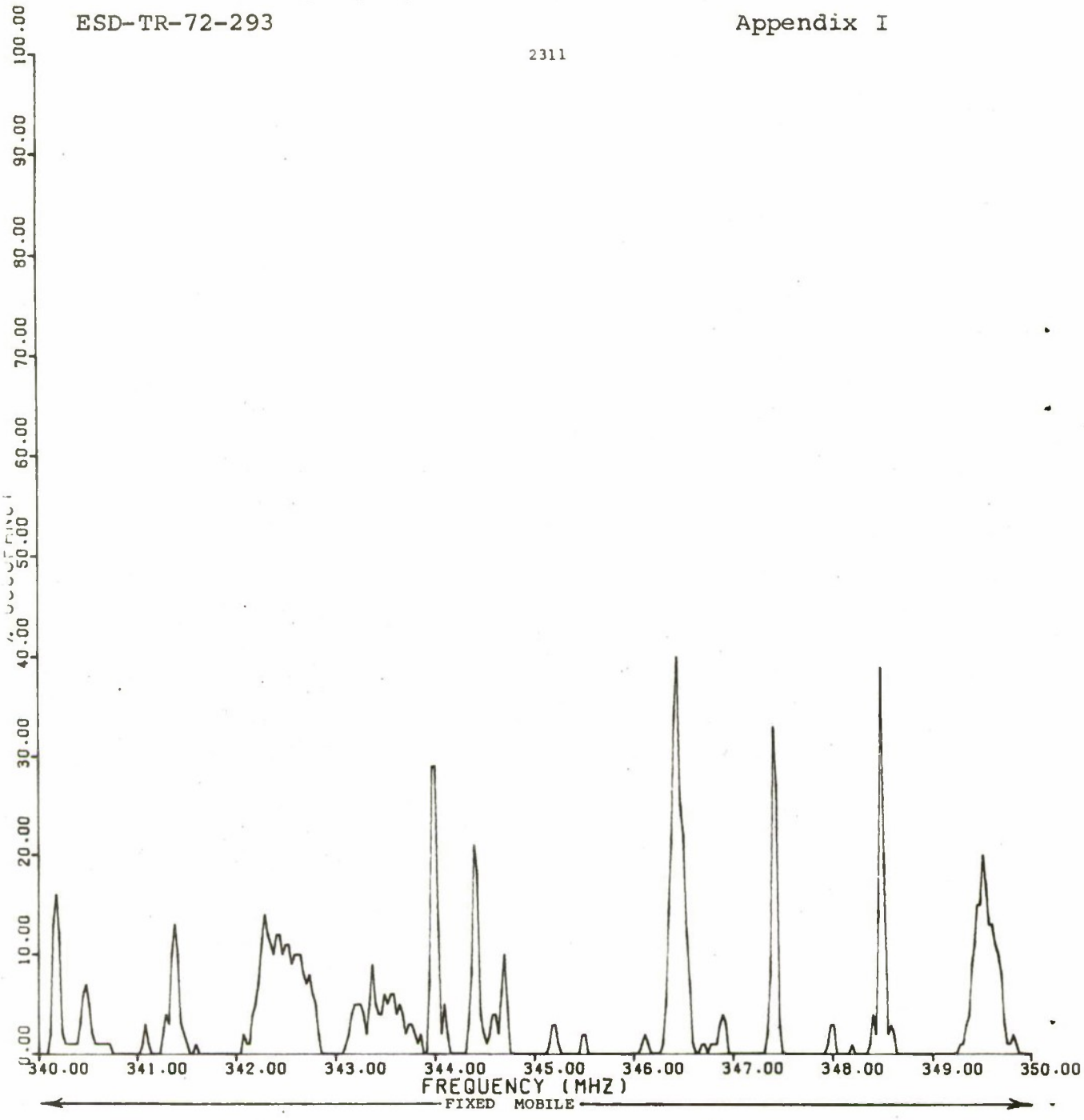


Figure I-25. Occupancy Levels in the 340-350 MHz Band

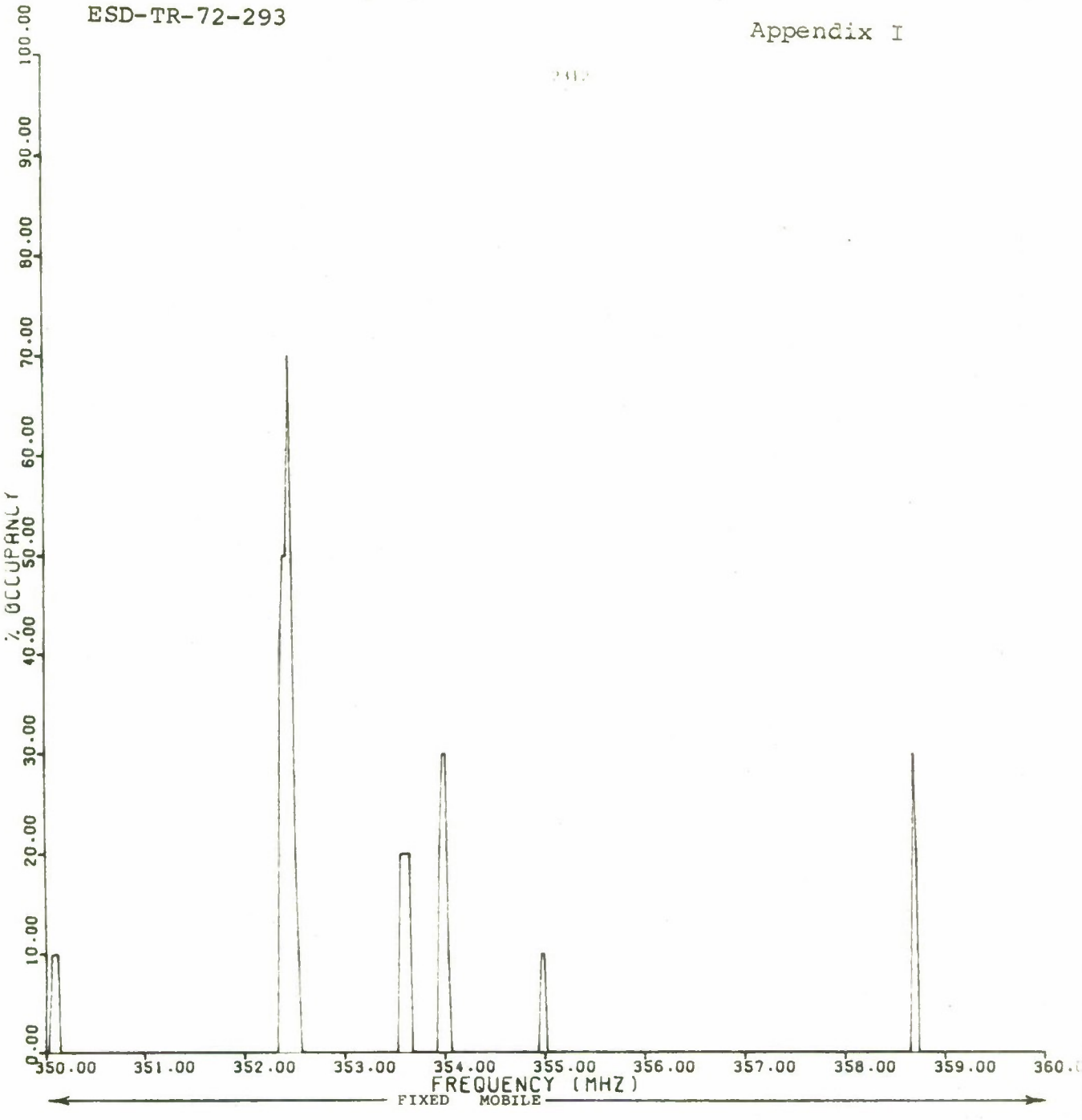


Figure I-26. Occupancy Levels in the 350-360 MHz Band

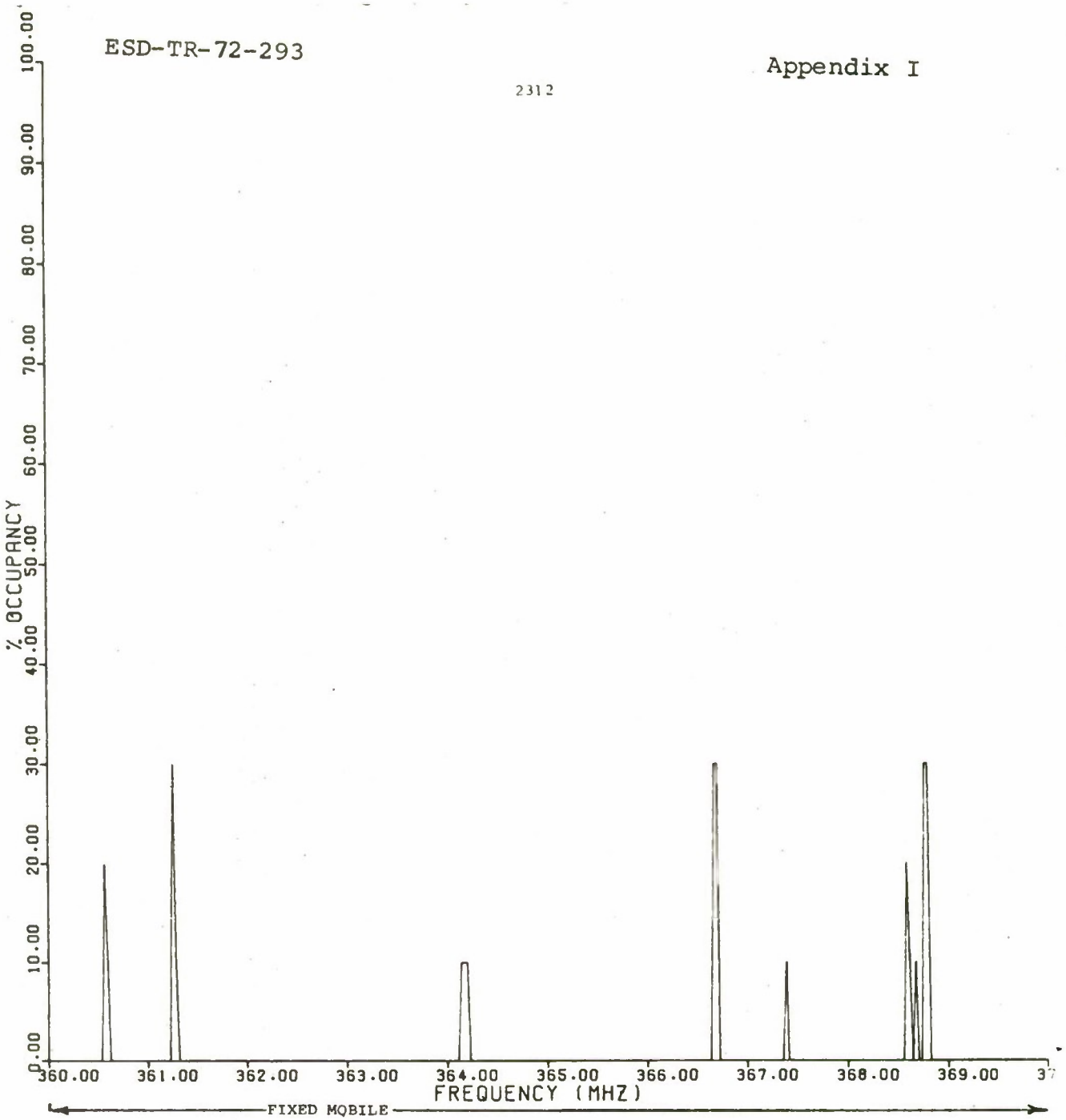


Figure I-27. Occupancy Levels in the 360-370 MHz Band

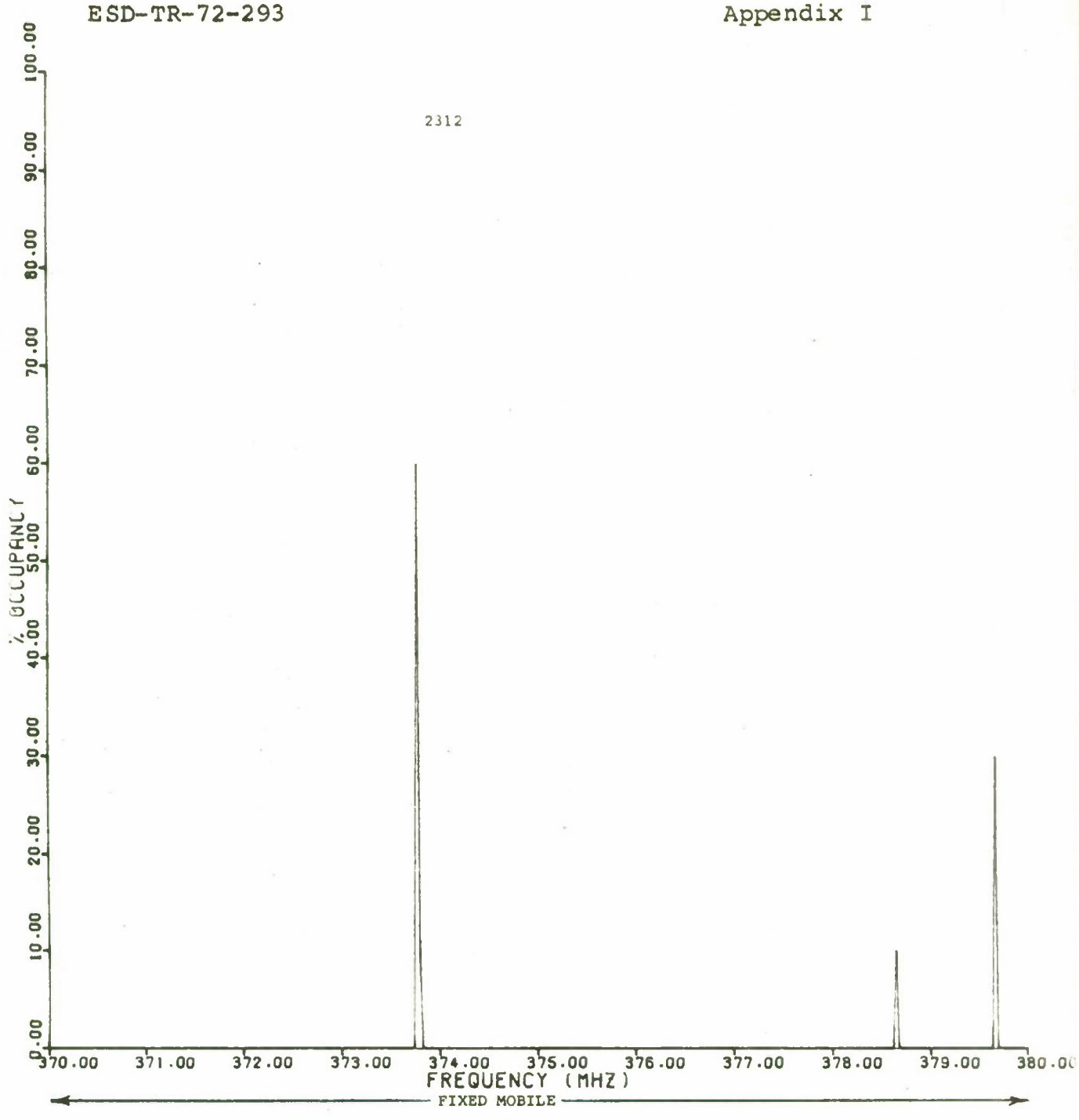


Figure I-28. Occupancy Levels in the 370-380 MHz Band

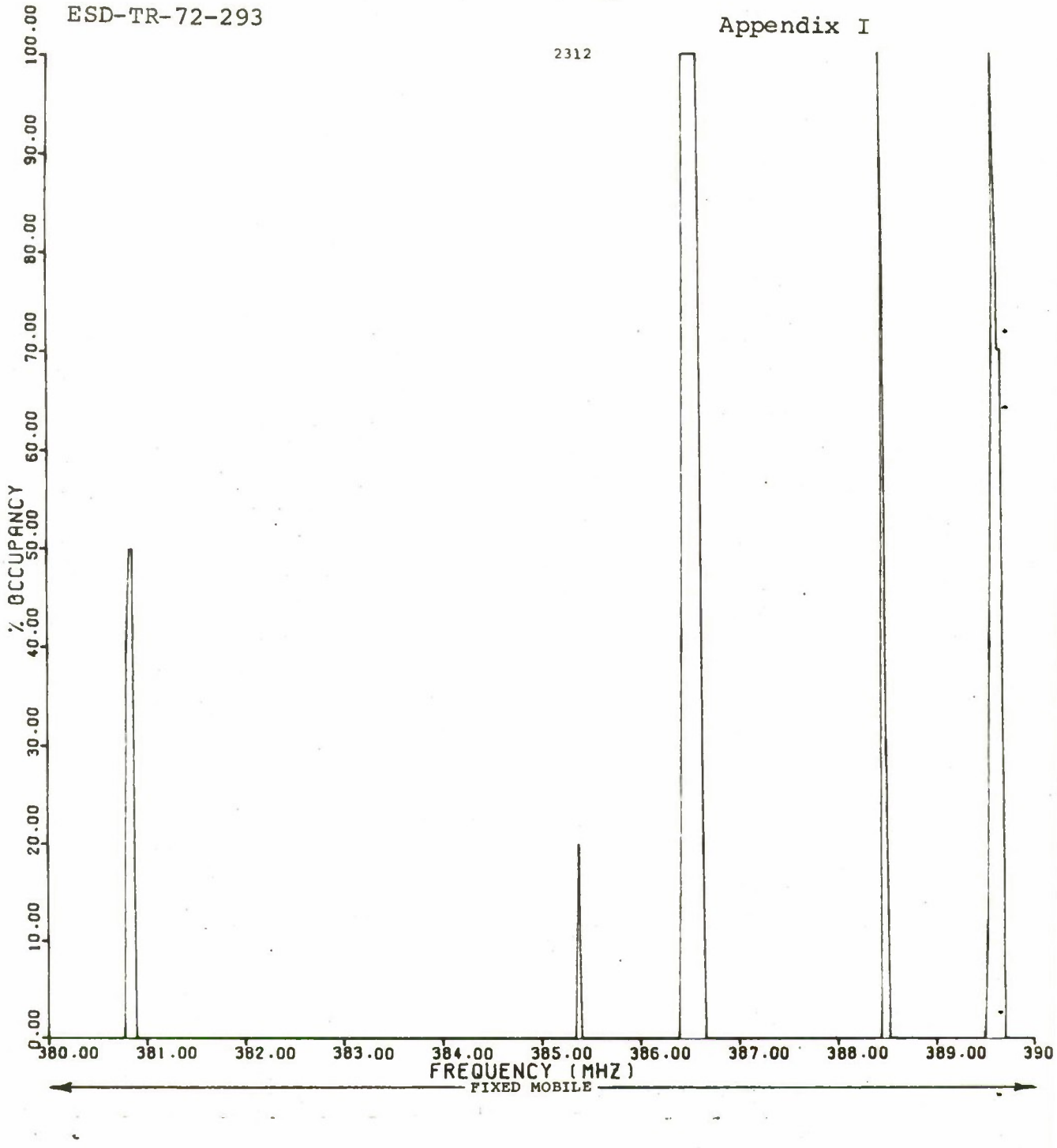


Figure I-29. Occupancy Levels in the 380-390 MHz Band

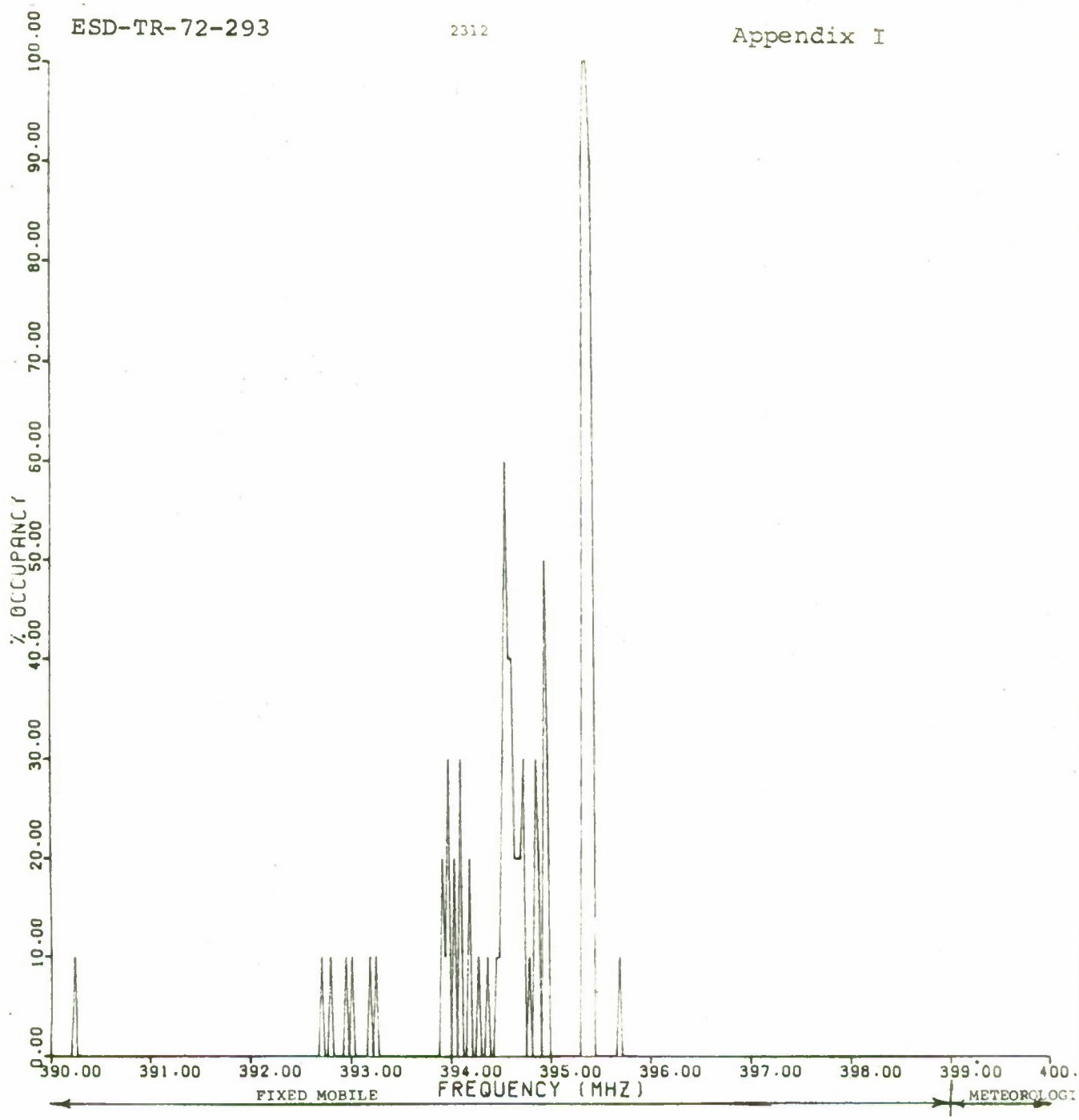


Figure I-30. Occupancy Levels in the 390-400 MHz Band

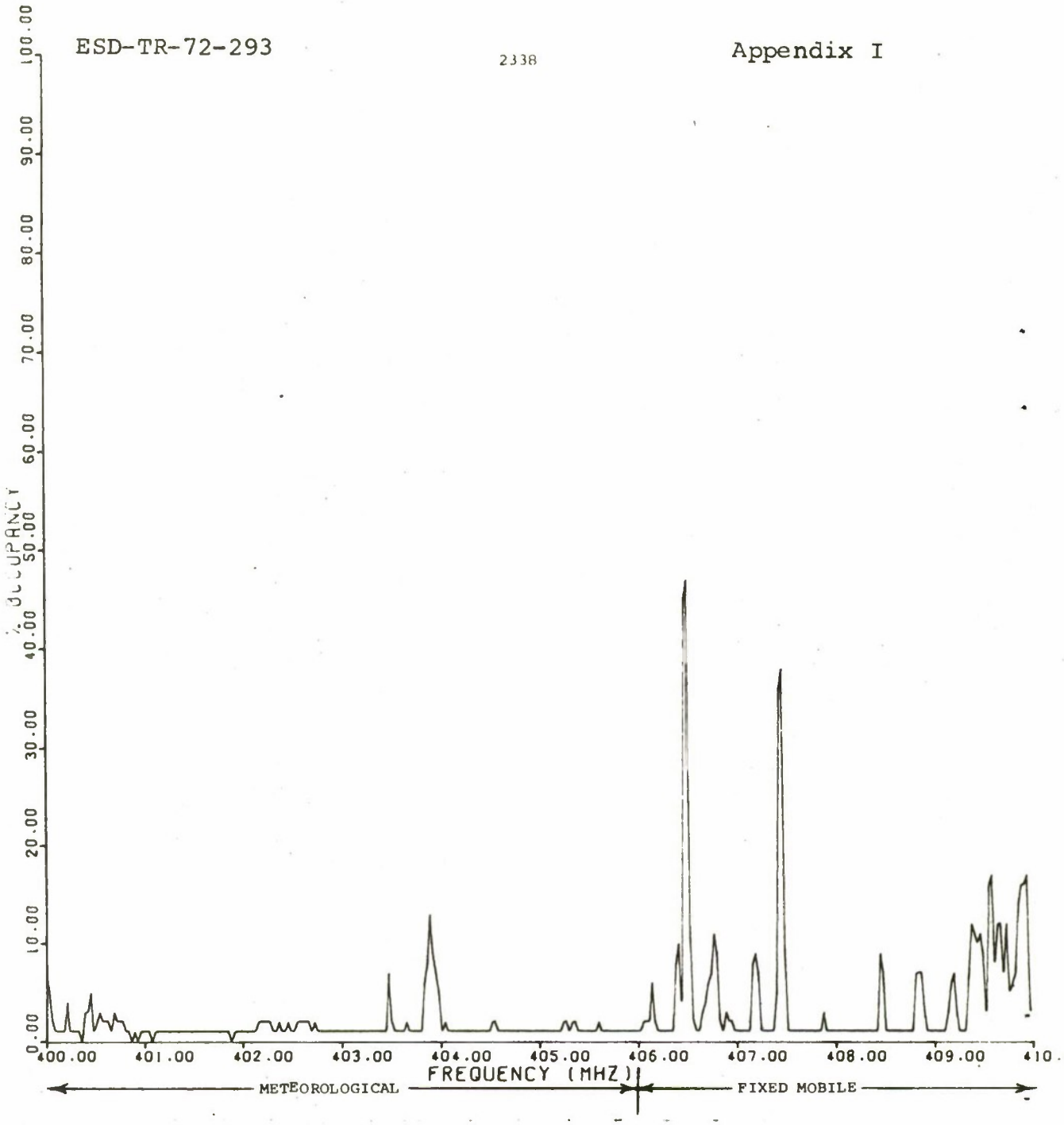


Figure I-31. Occupancy Levels in the 400-410 MHz Band

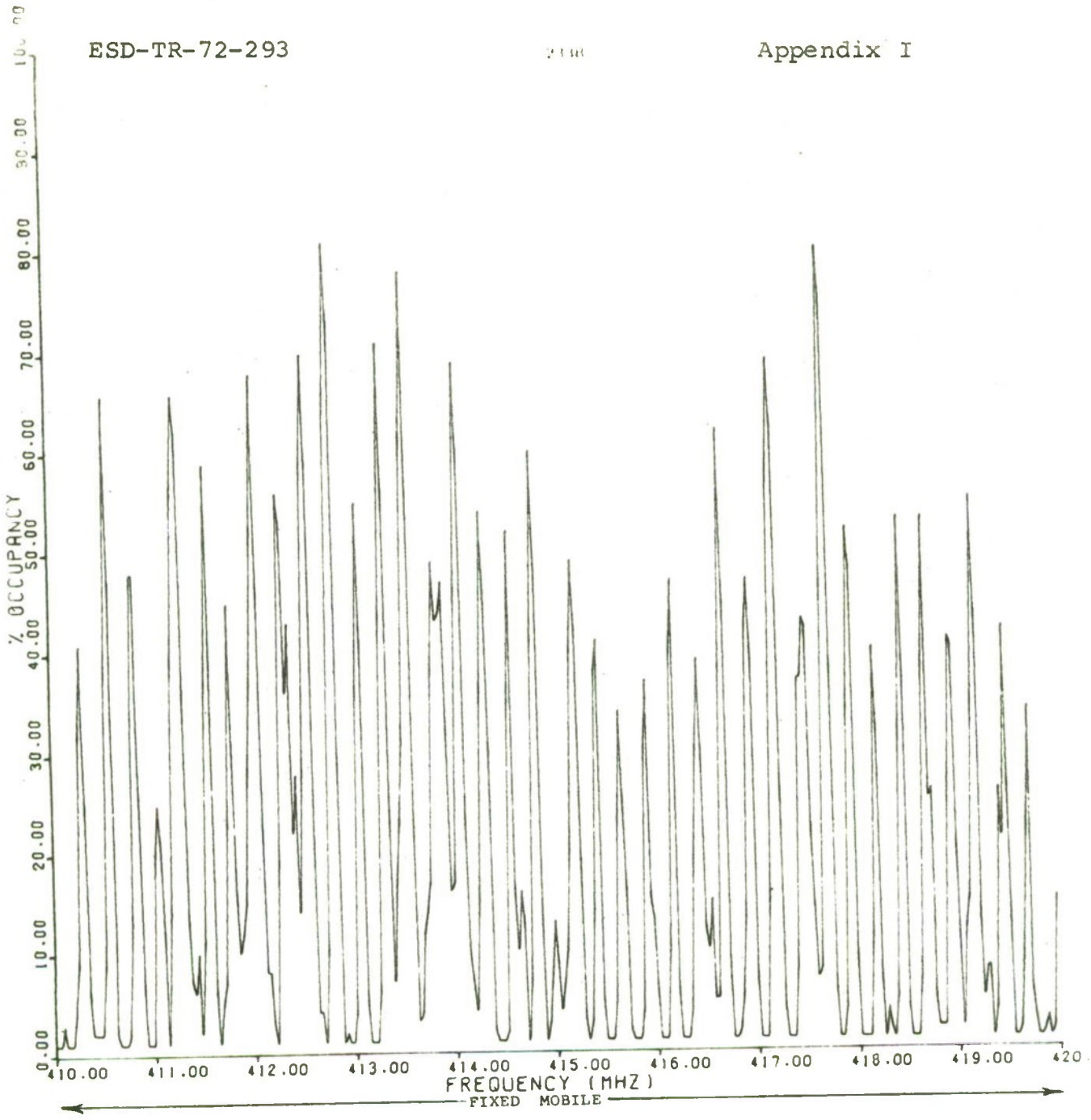


Figure I-32. Occupancy Levels in the 410-420 MHz Band

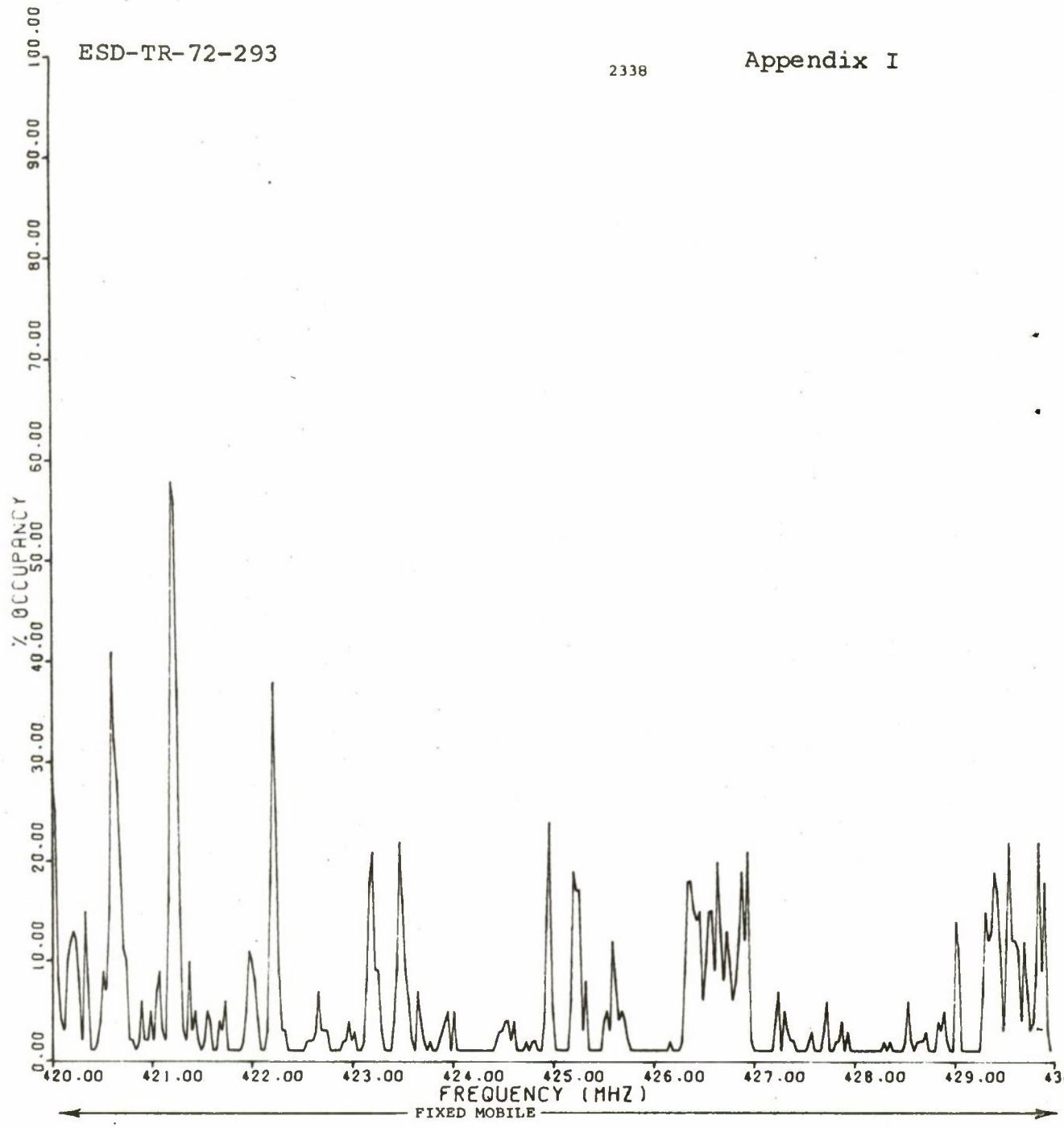


Figure I-33. Occupancy Levels in the 420-430 MHz Band

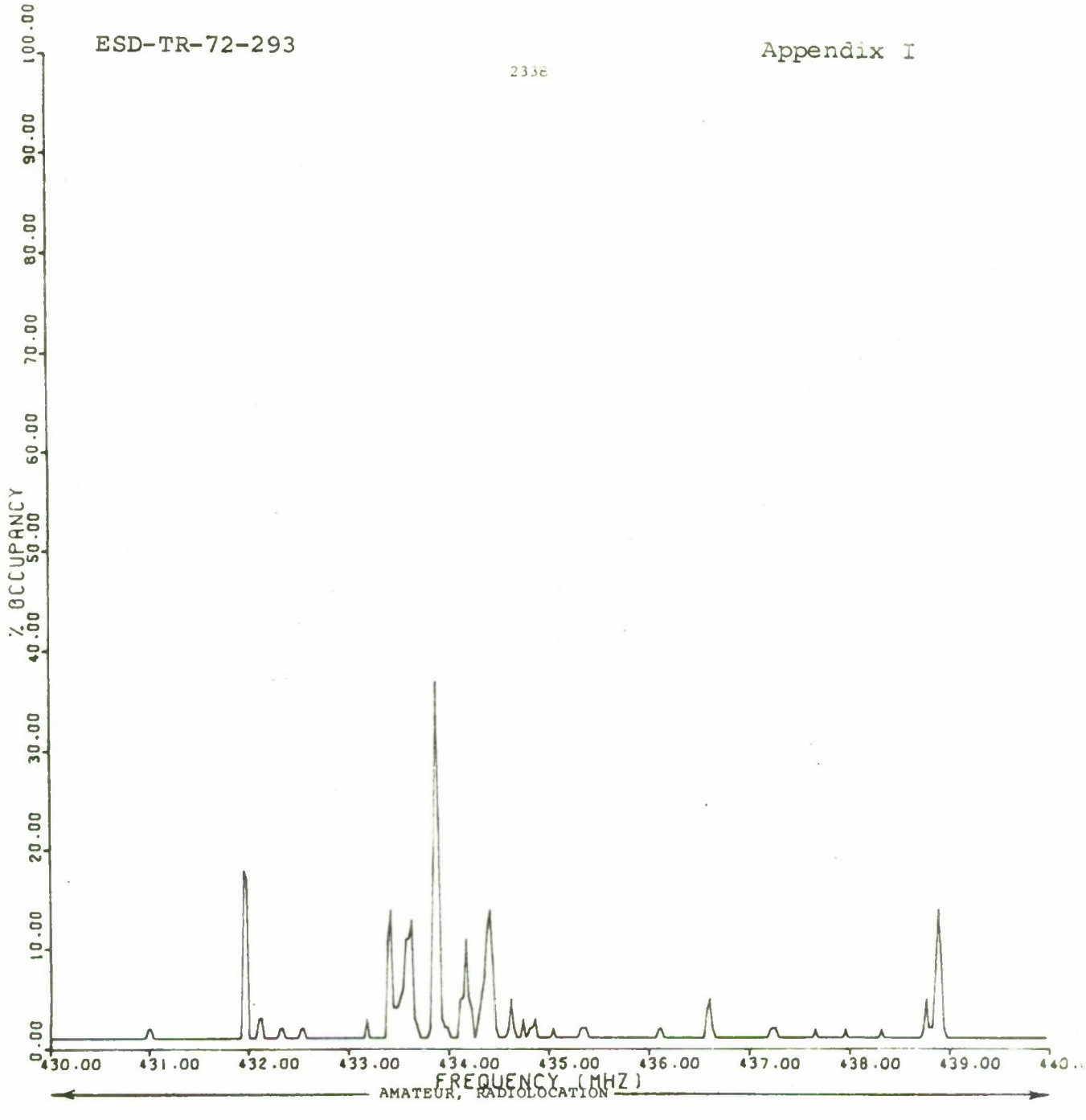


Figure I-34. Occupancy Levels in the 430-440 MHz Band

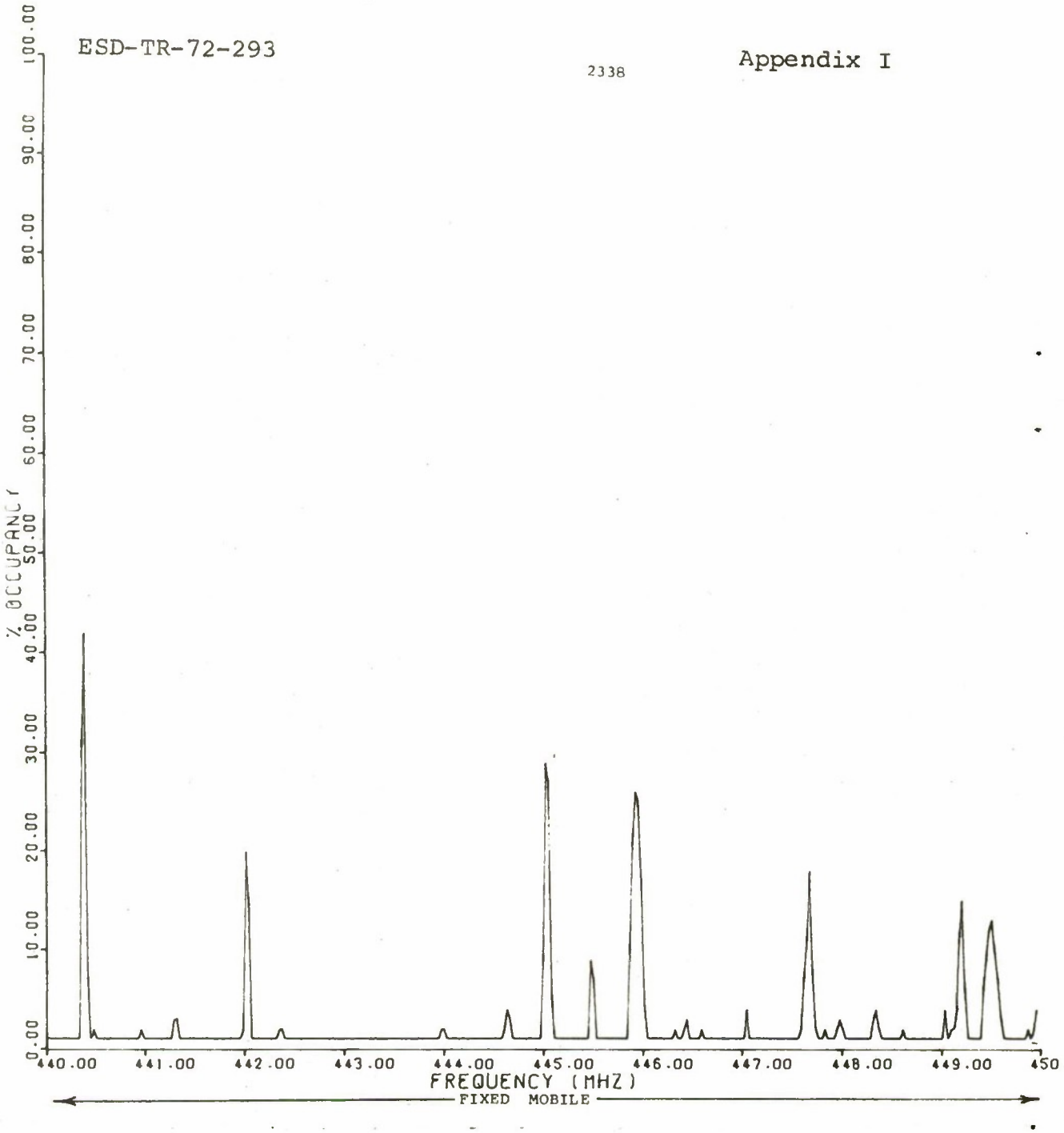


Figure I-35. Occupancy Levels in the 440-450 MHz Band

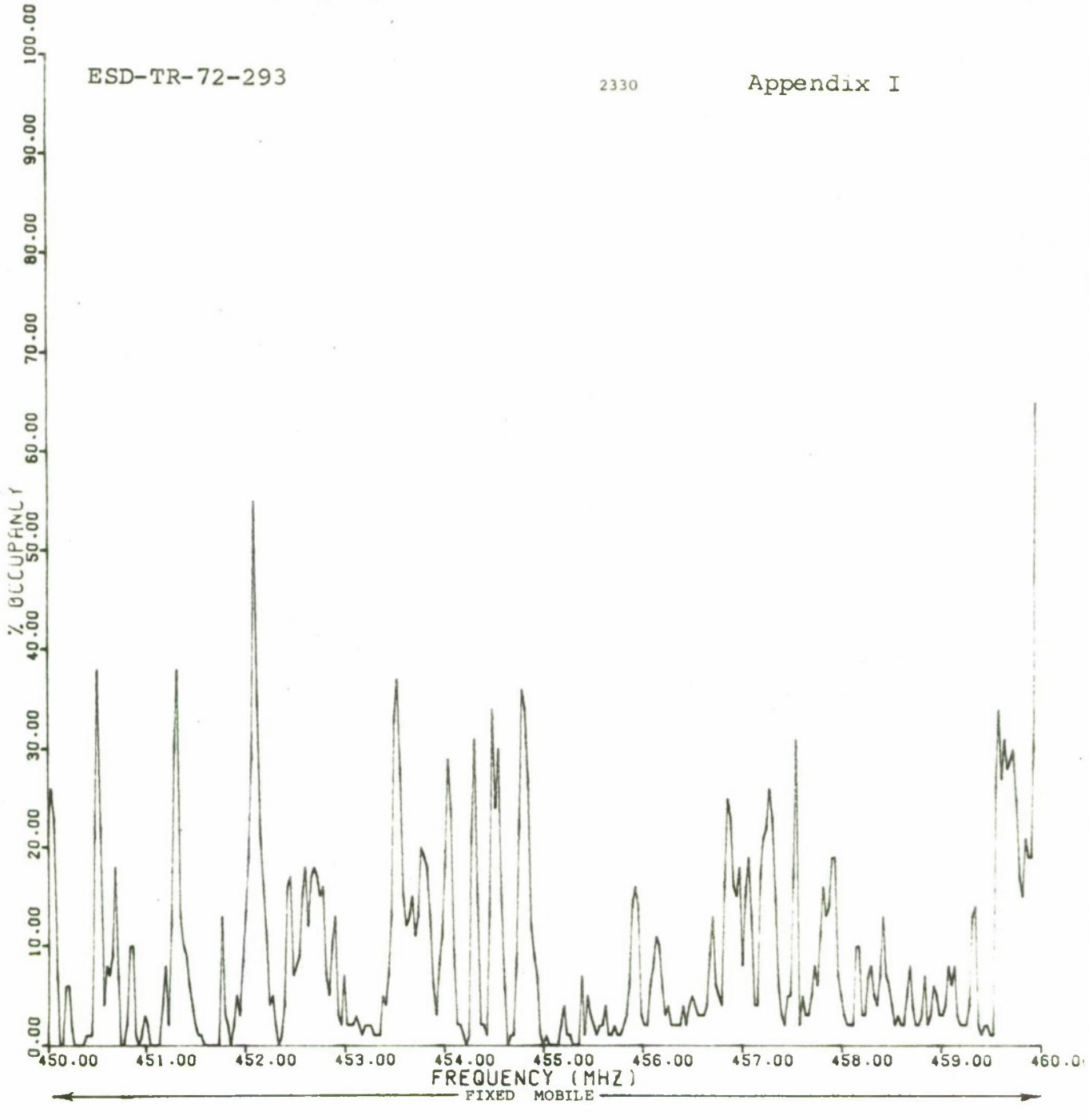


Figure I-36. Occupancy Levels in the 450-460 MHz Band

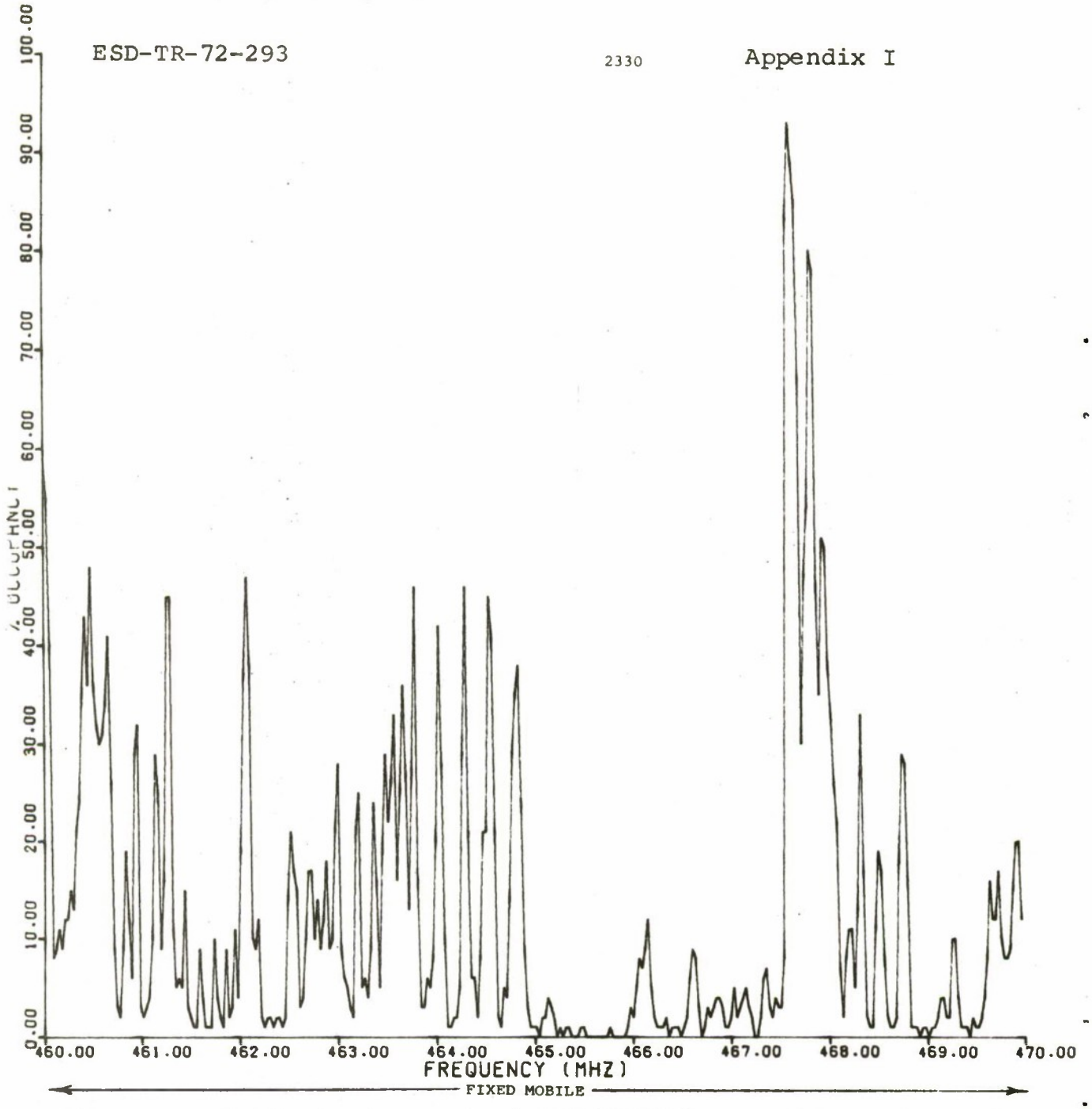


Figure I-37. Occupancy Levels in the 460-470 MHz Band

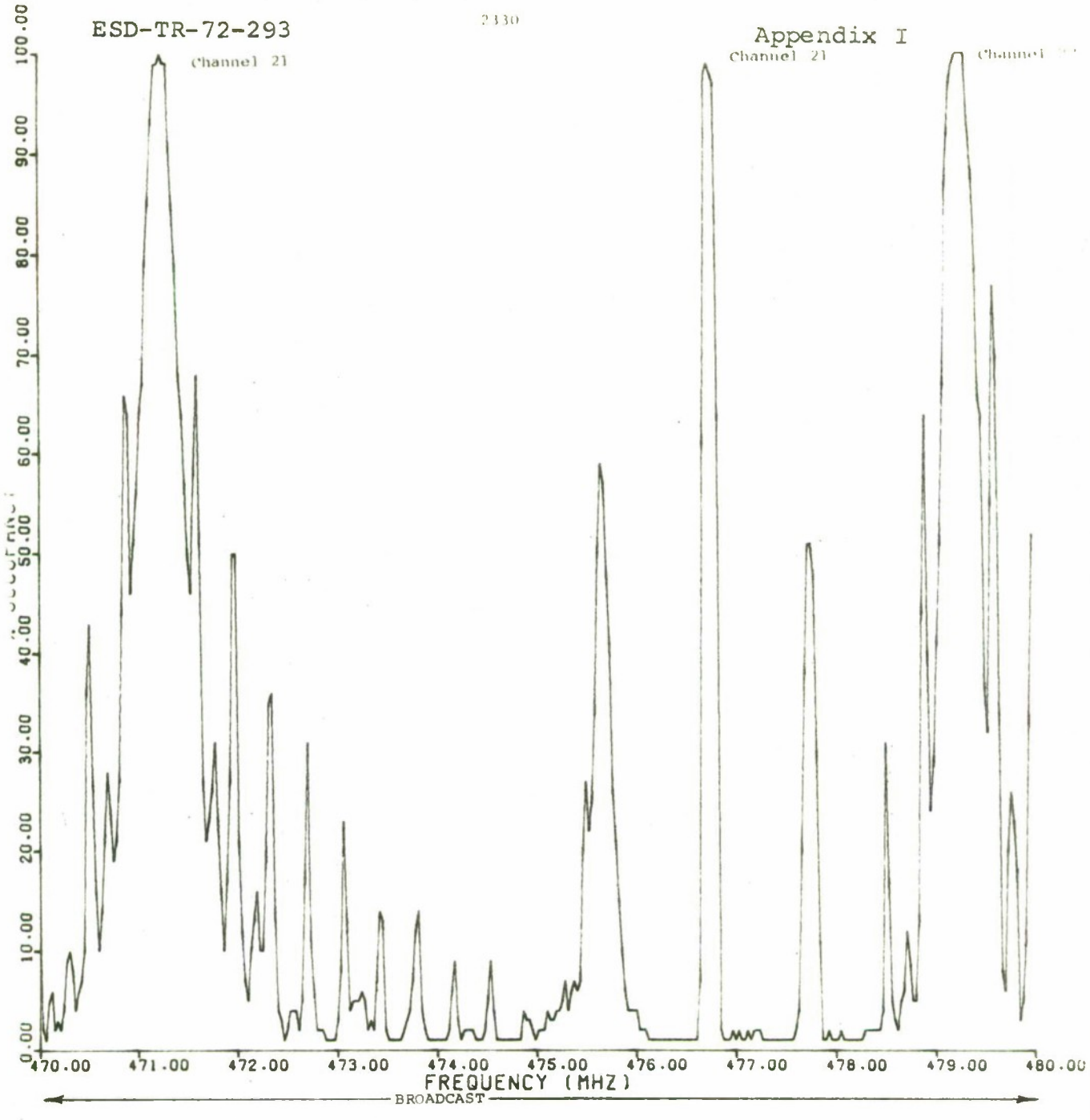


Figure I-38. Occupancy Levels in the 470-480 MHz Band

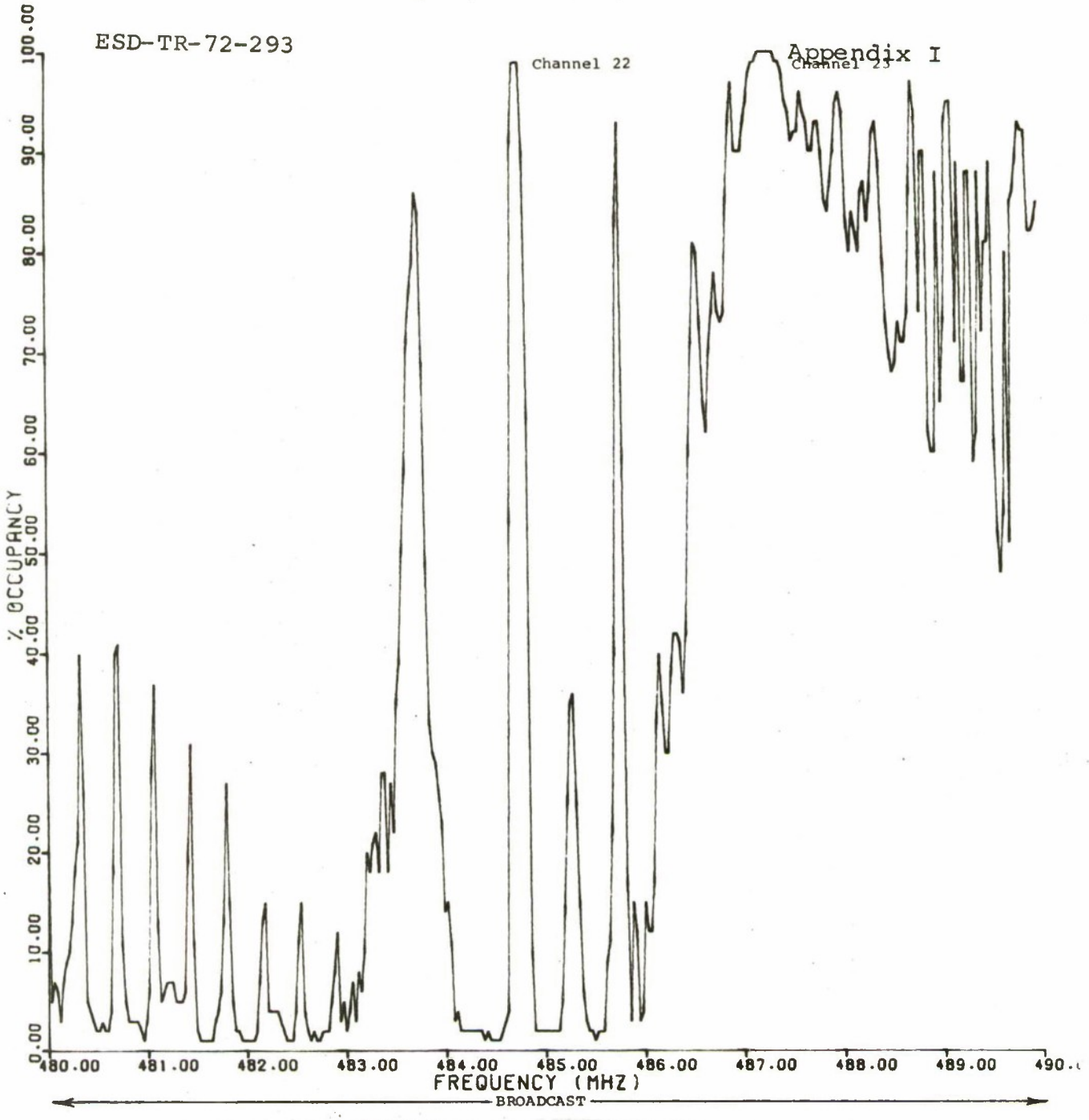


Figure I-39. Occupancy Levels in the 480-490 MHz Band

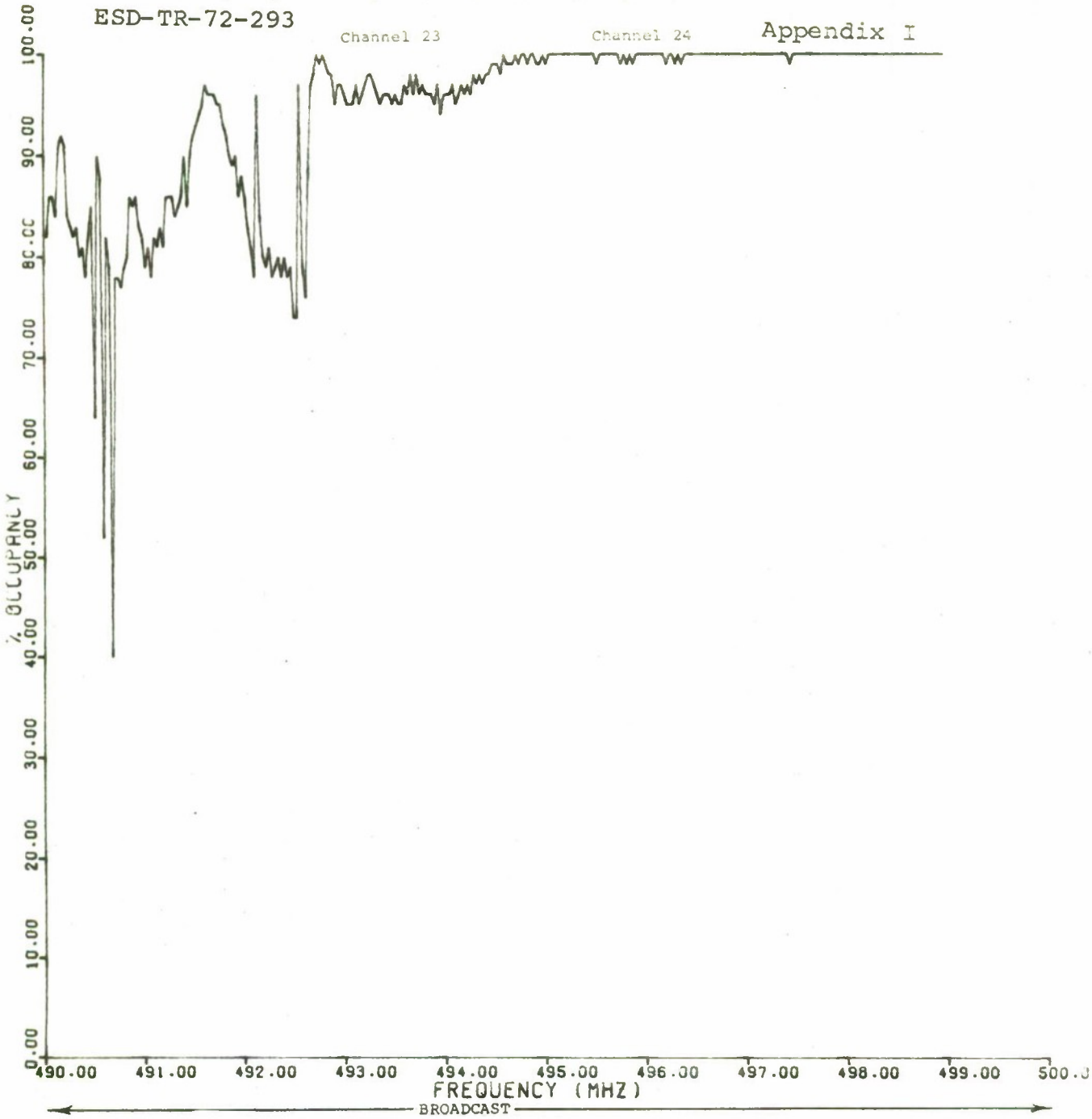


Figure I-40. Occupancy Levels in the 490-500 MHz Band

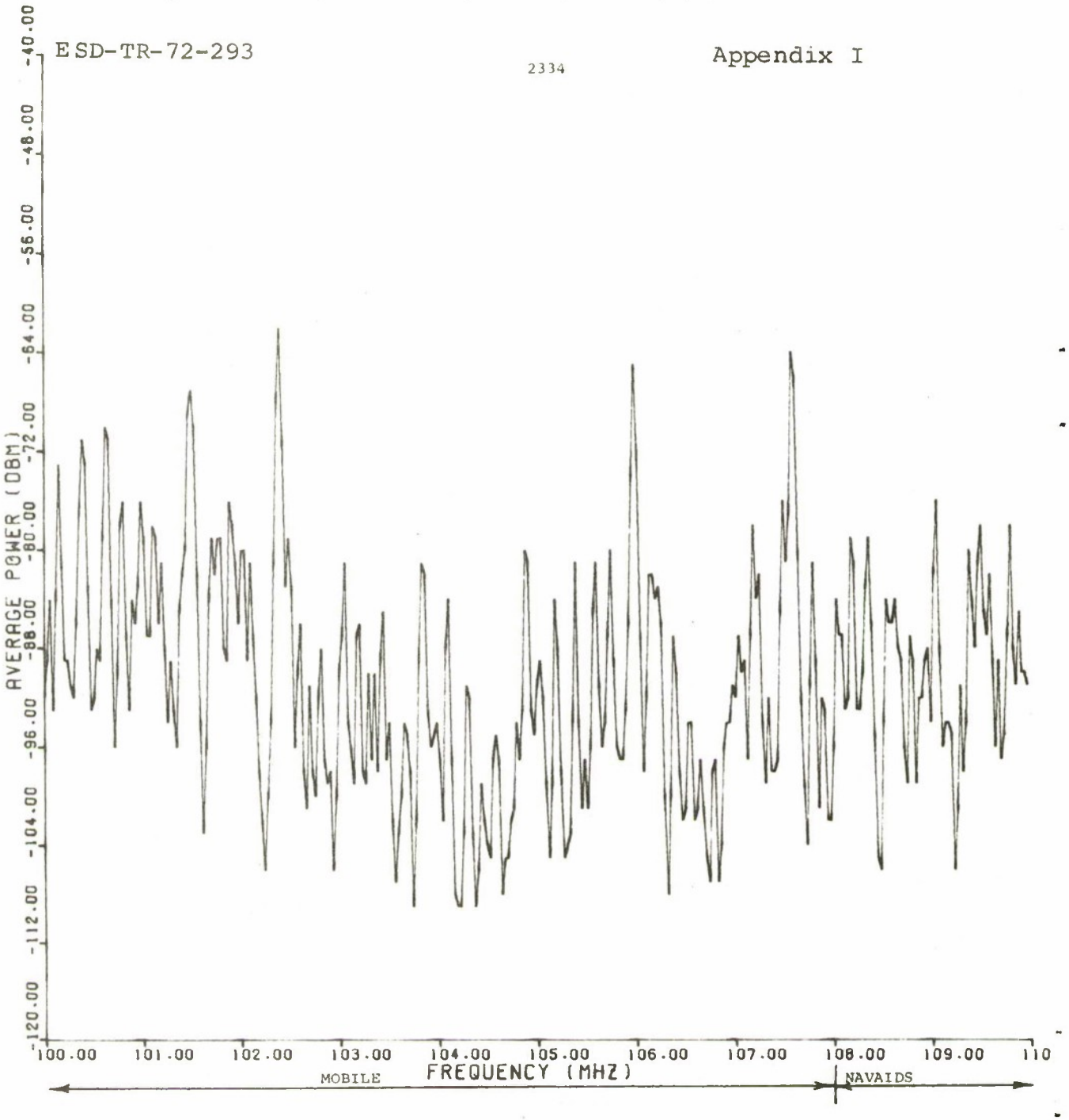


Figure I-41. Average Power Levels in the 100-110 MHz Band

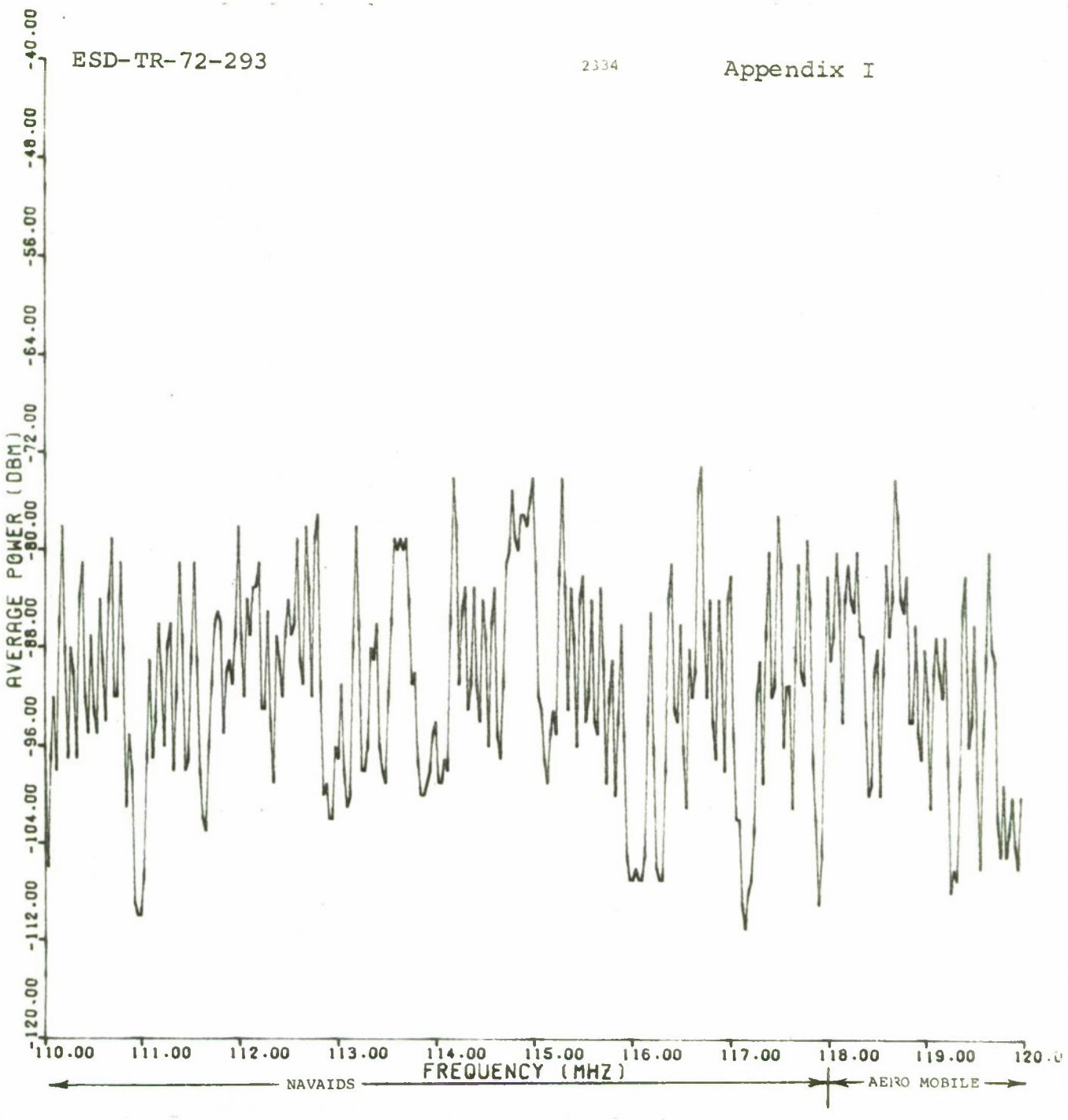


Figure I-42. Average Power Levels in the 110-120 MHz Band

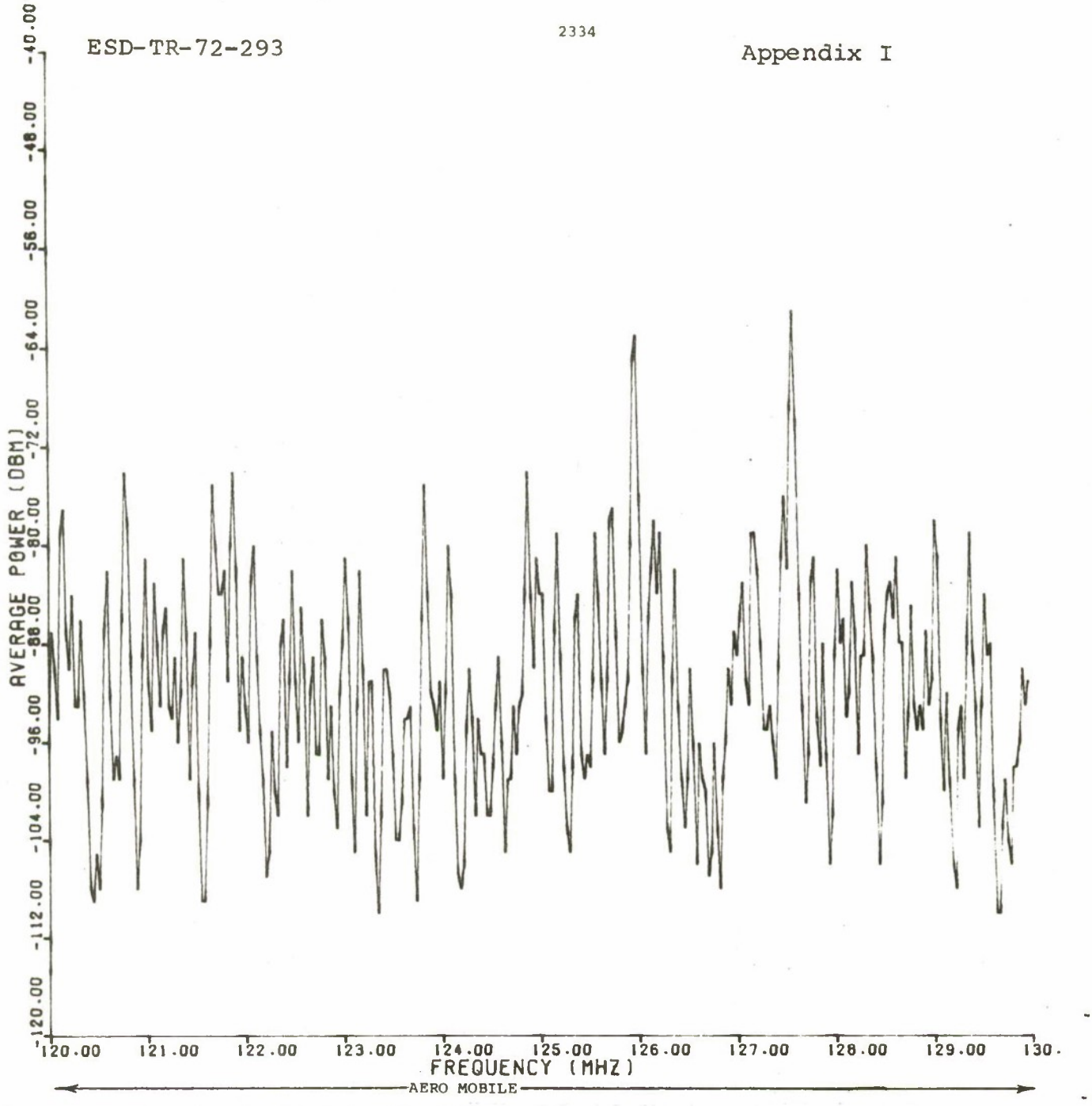


Figure I-43. Average Power Levels in the 120-130 MHz Band

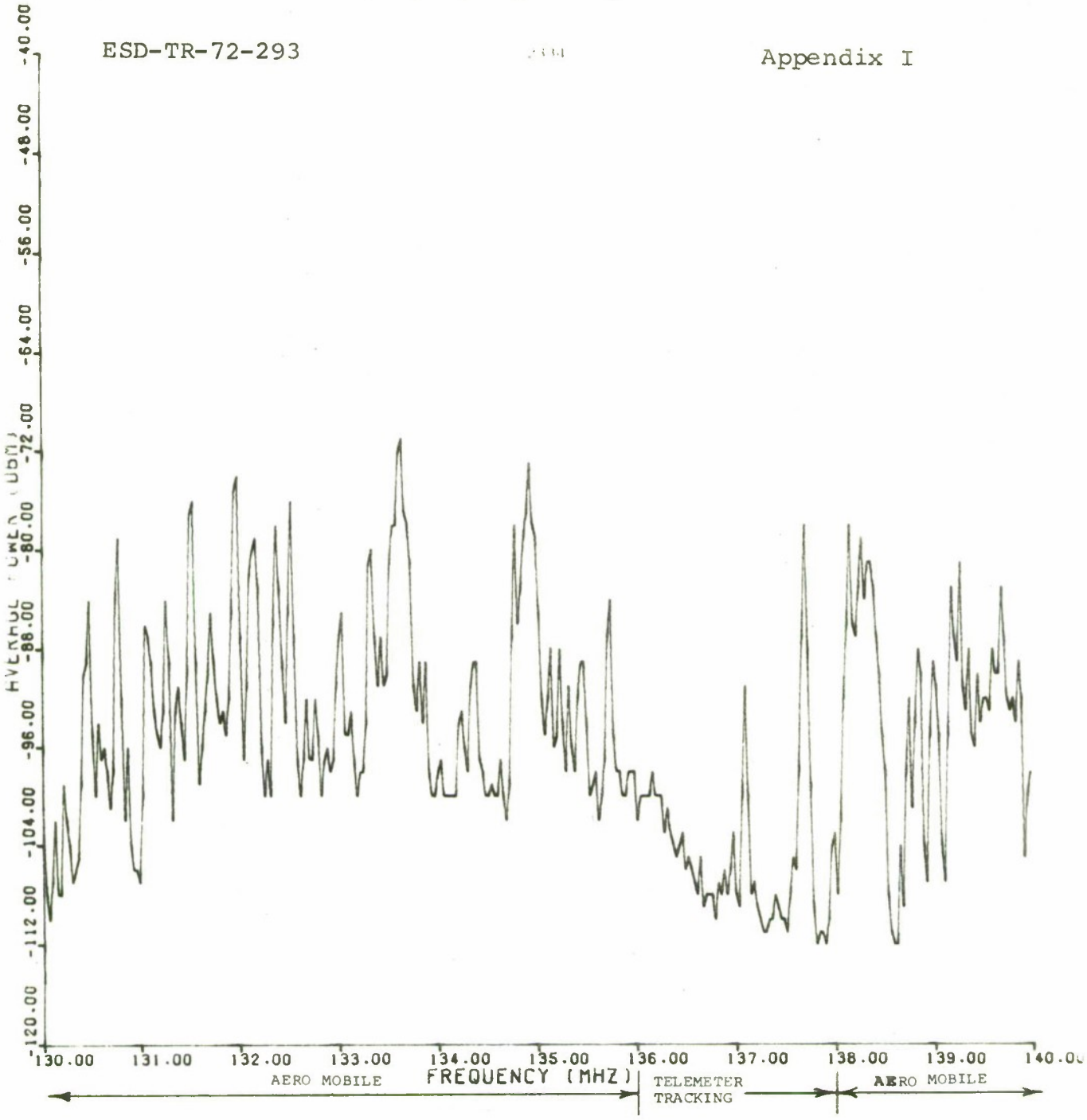


Figure I-44. Average Power Levels in the 130-140 MHz Band

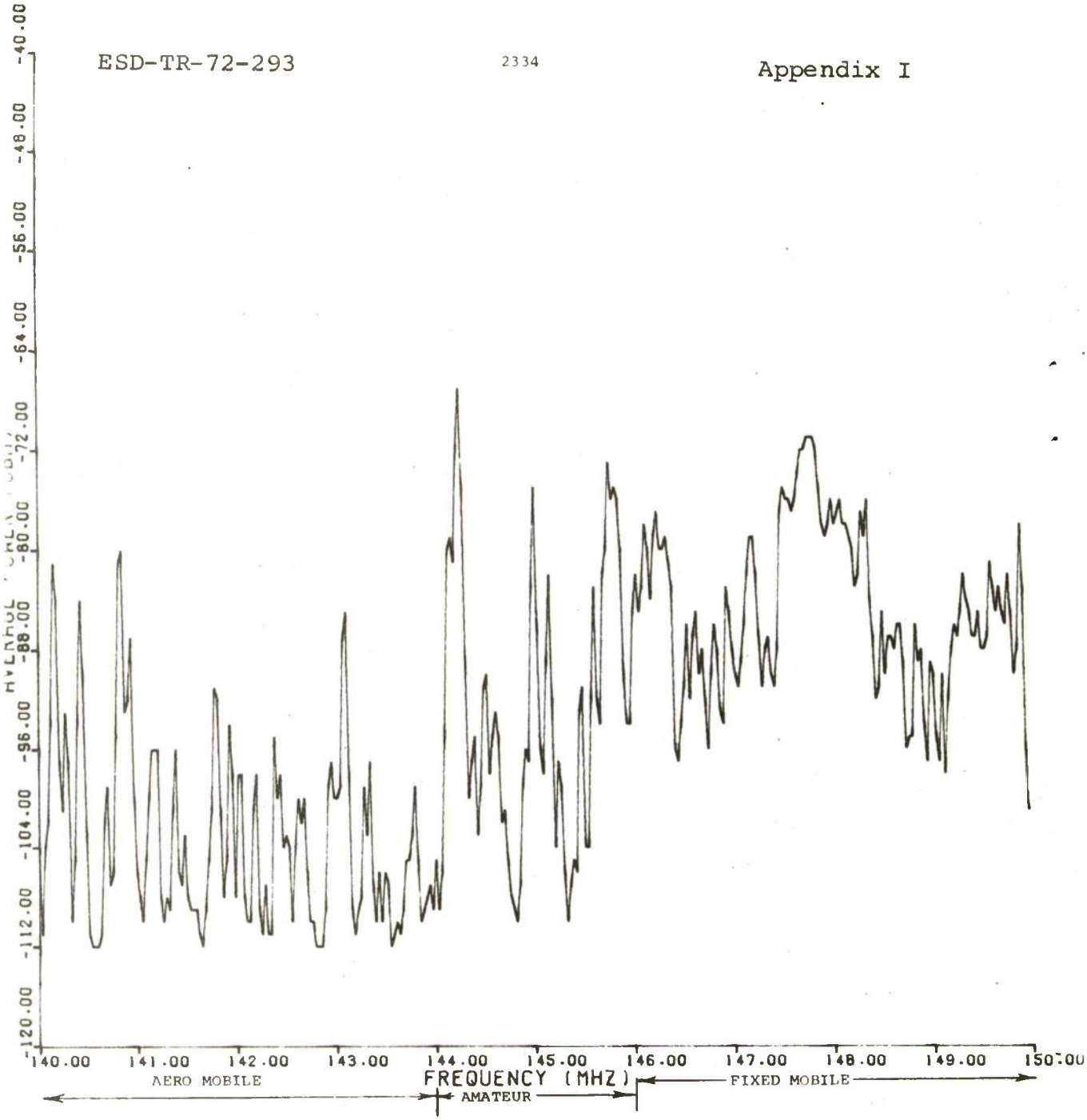


Figure I-45. Average Power Levels in the 140-150 MHz Band

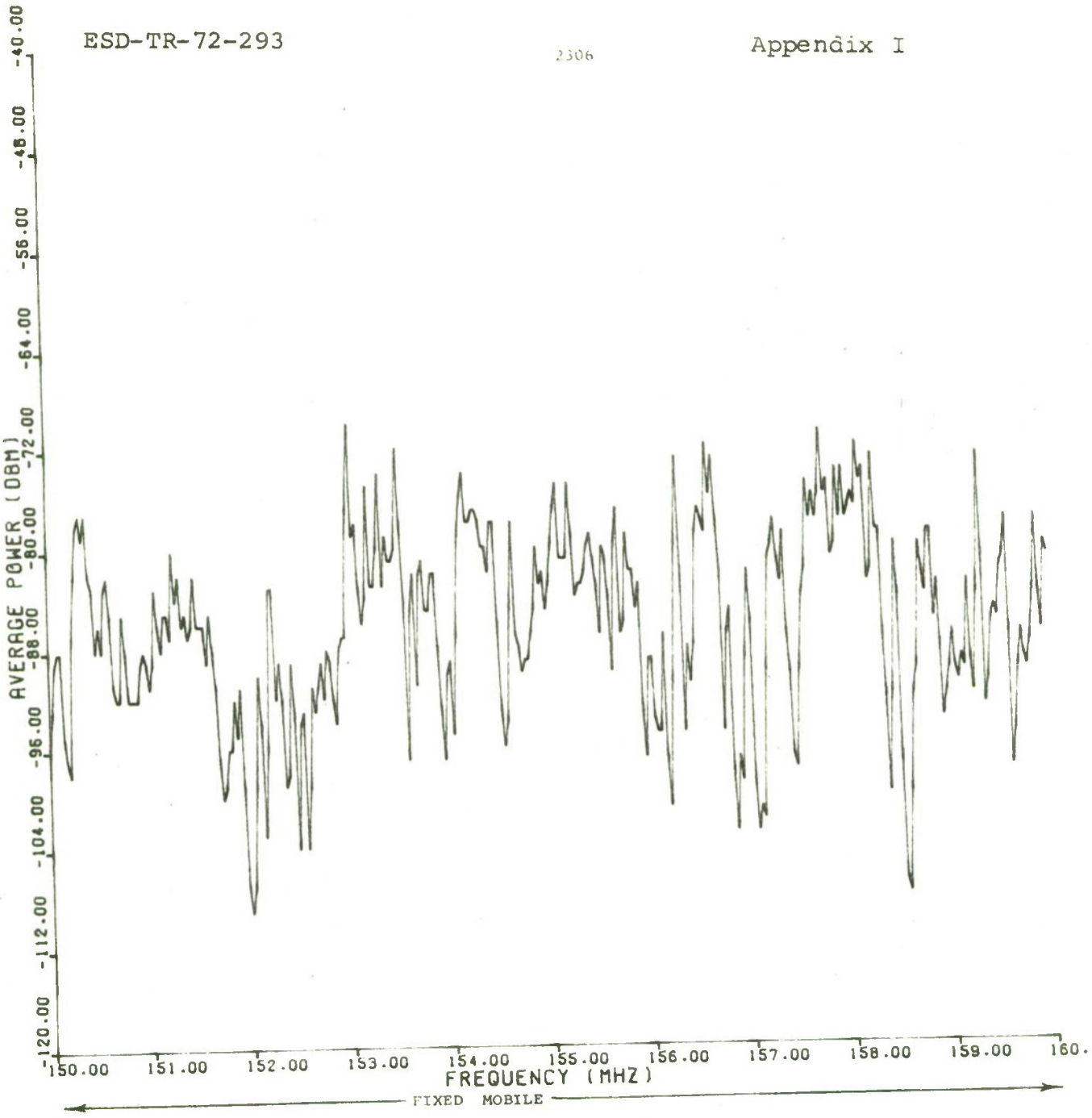


Figure I-46. Average Power Levels in the 150-160 MHz Band

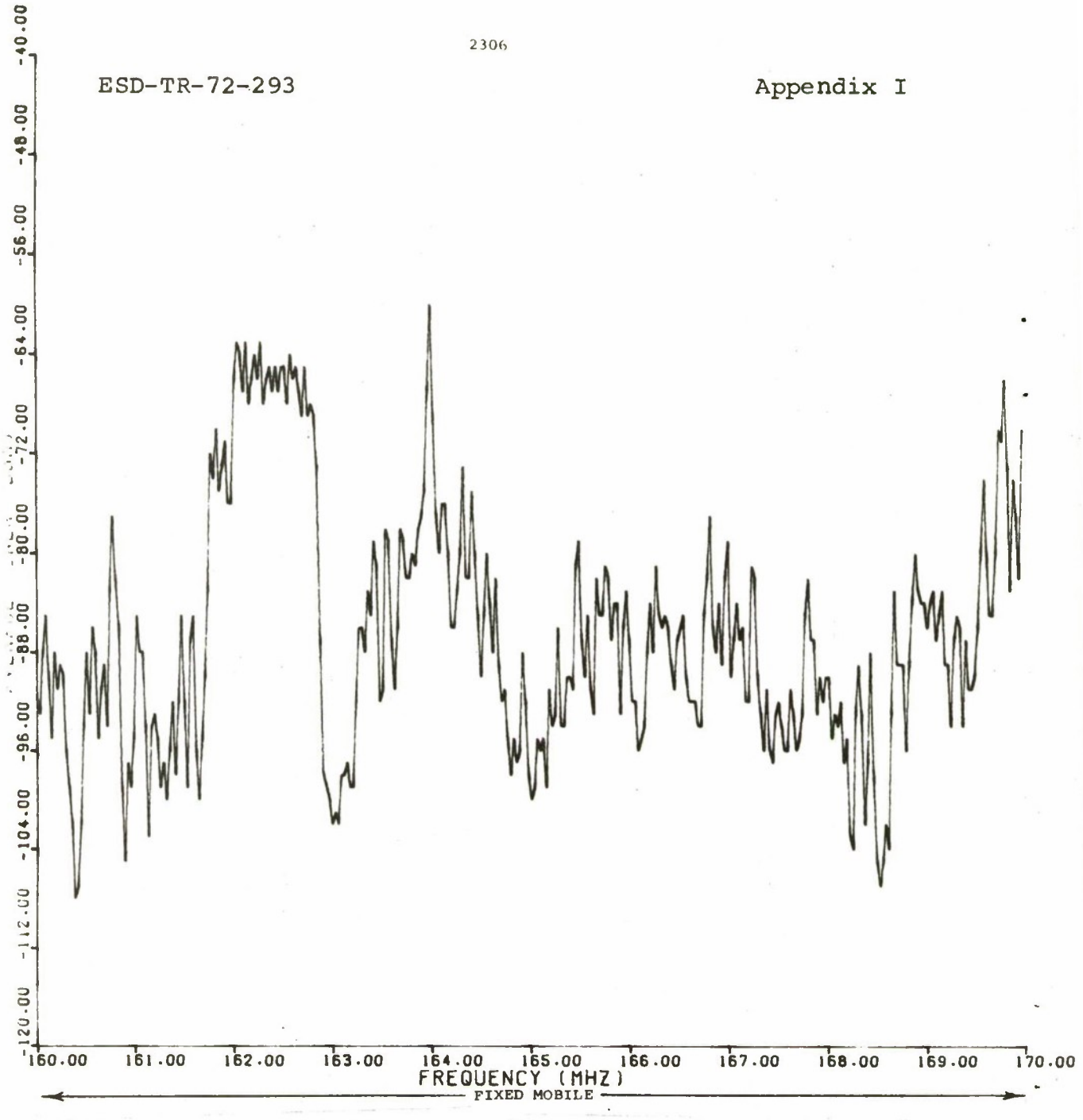


Figure I-47. Average Power Levels in the 160-170 MHz Band

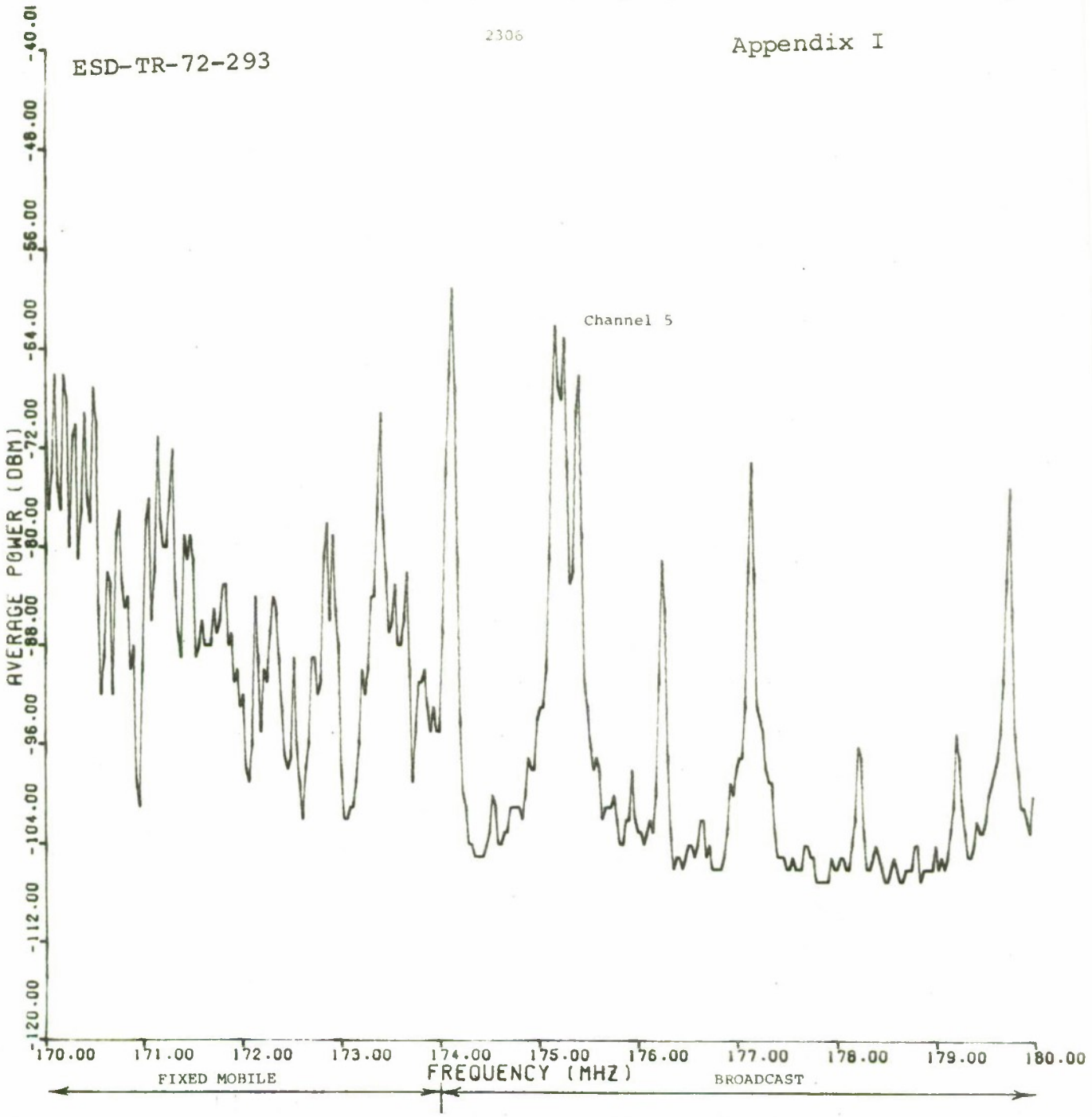


Figure I-48. Average Power Levels in the 170-180 MHz Band

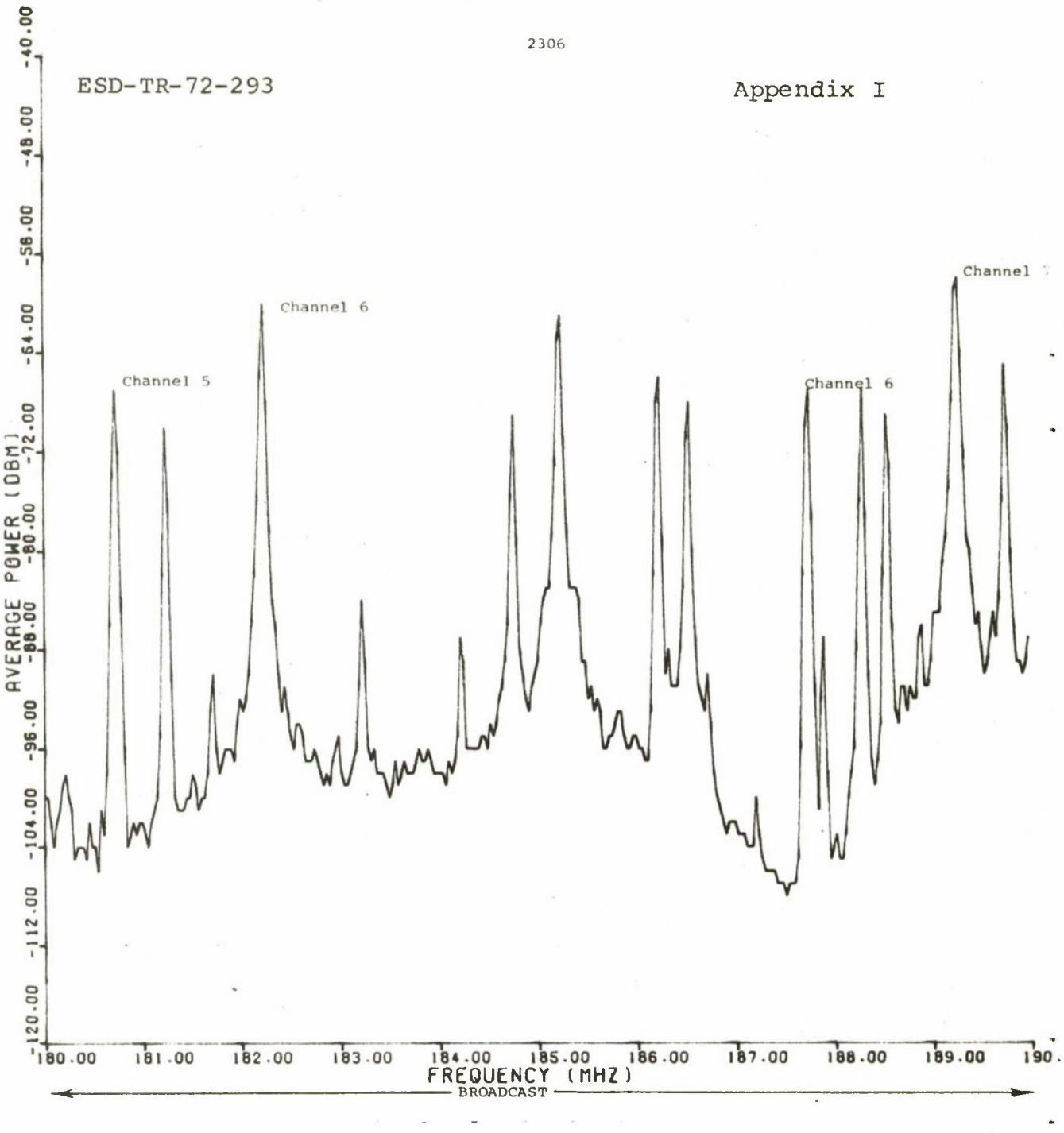


Figure I-49. Average Power Levels in the 180-190 MHz Band

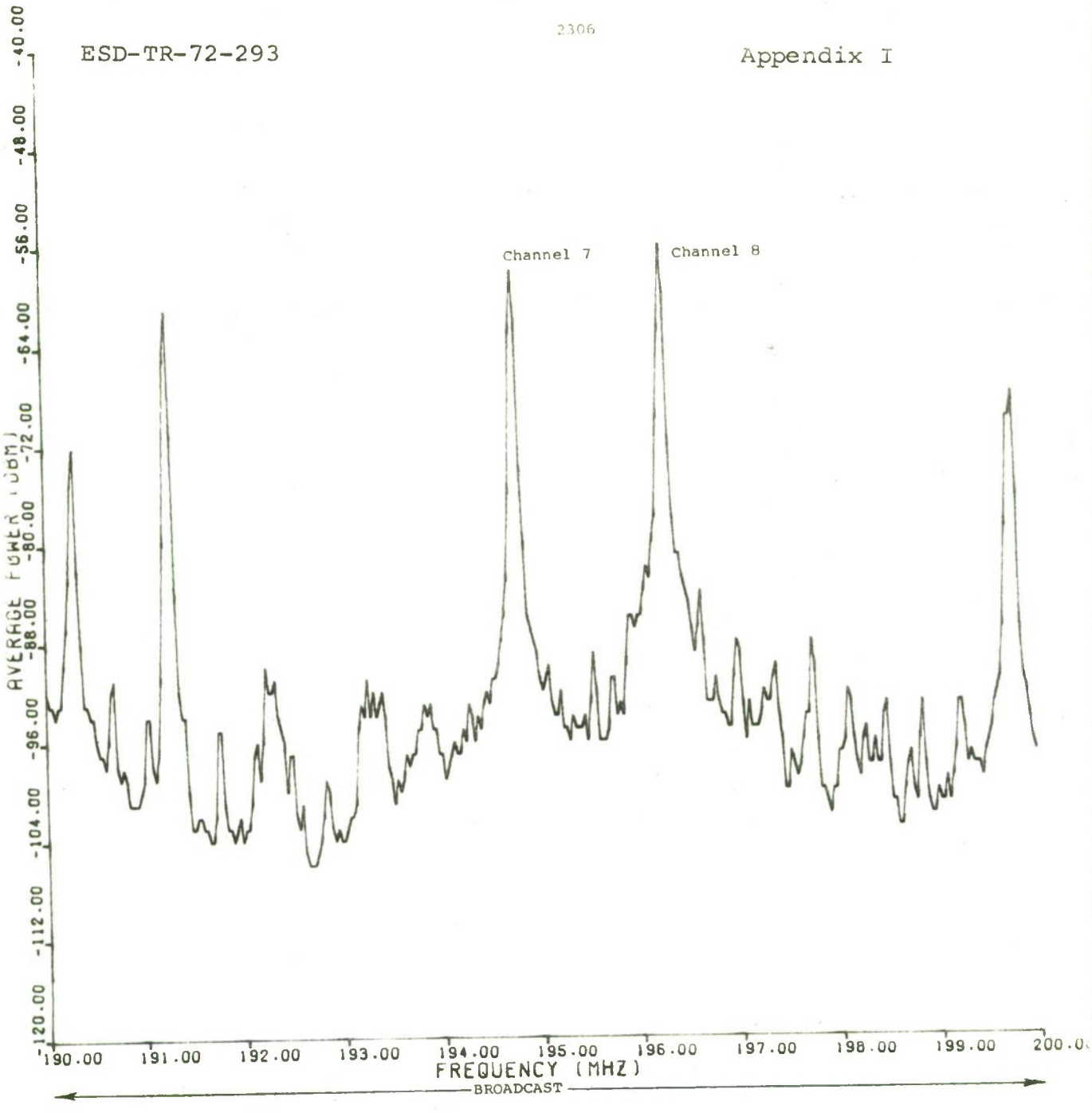


Figure I-50. Average Power Levels in the 190-200 MHz Band

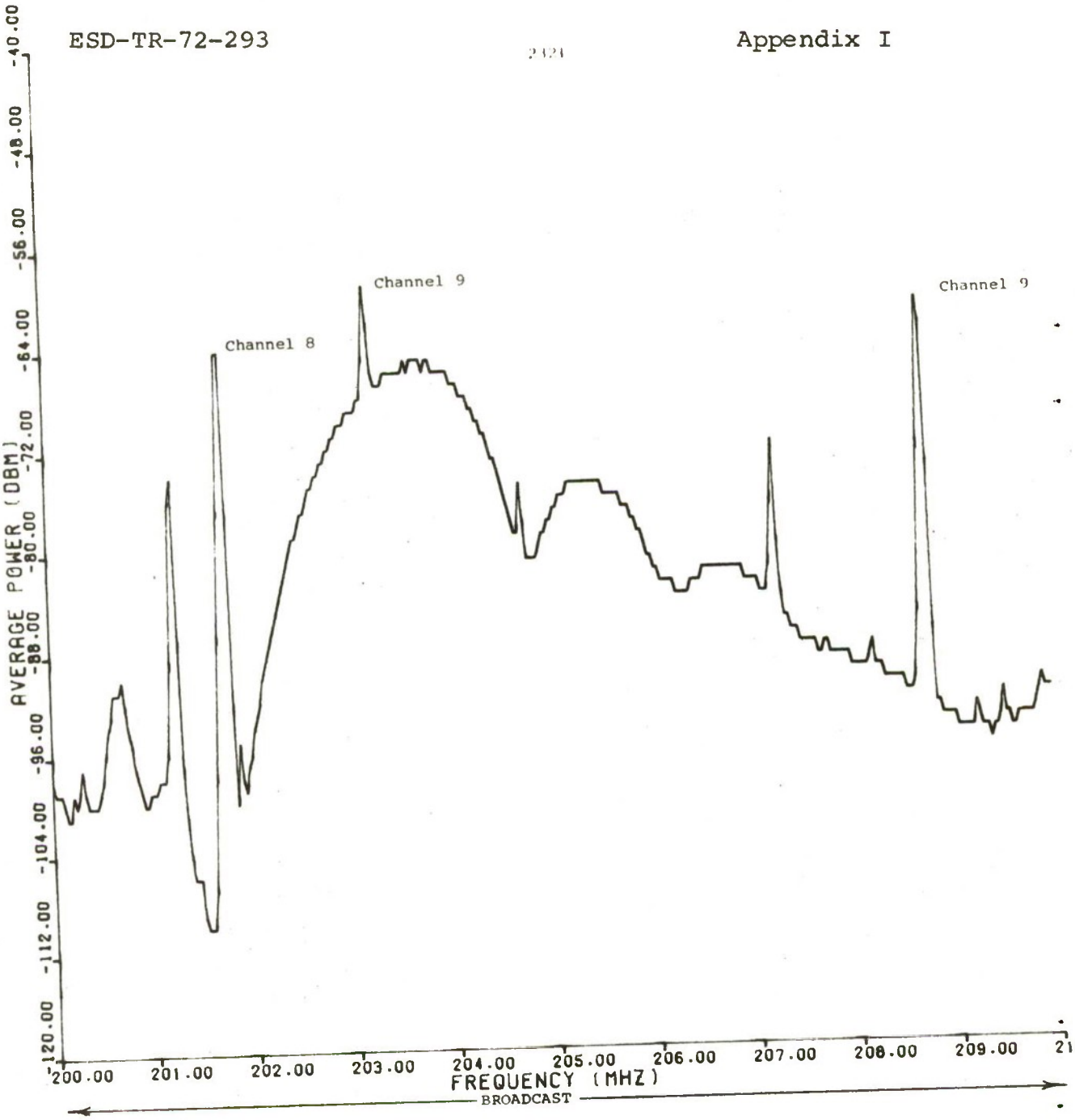


Figure I-51. Average Power Levels in the 200-210 MHz Band

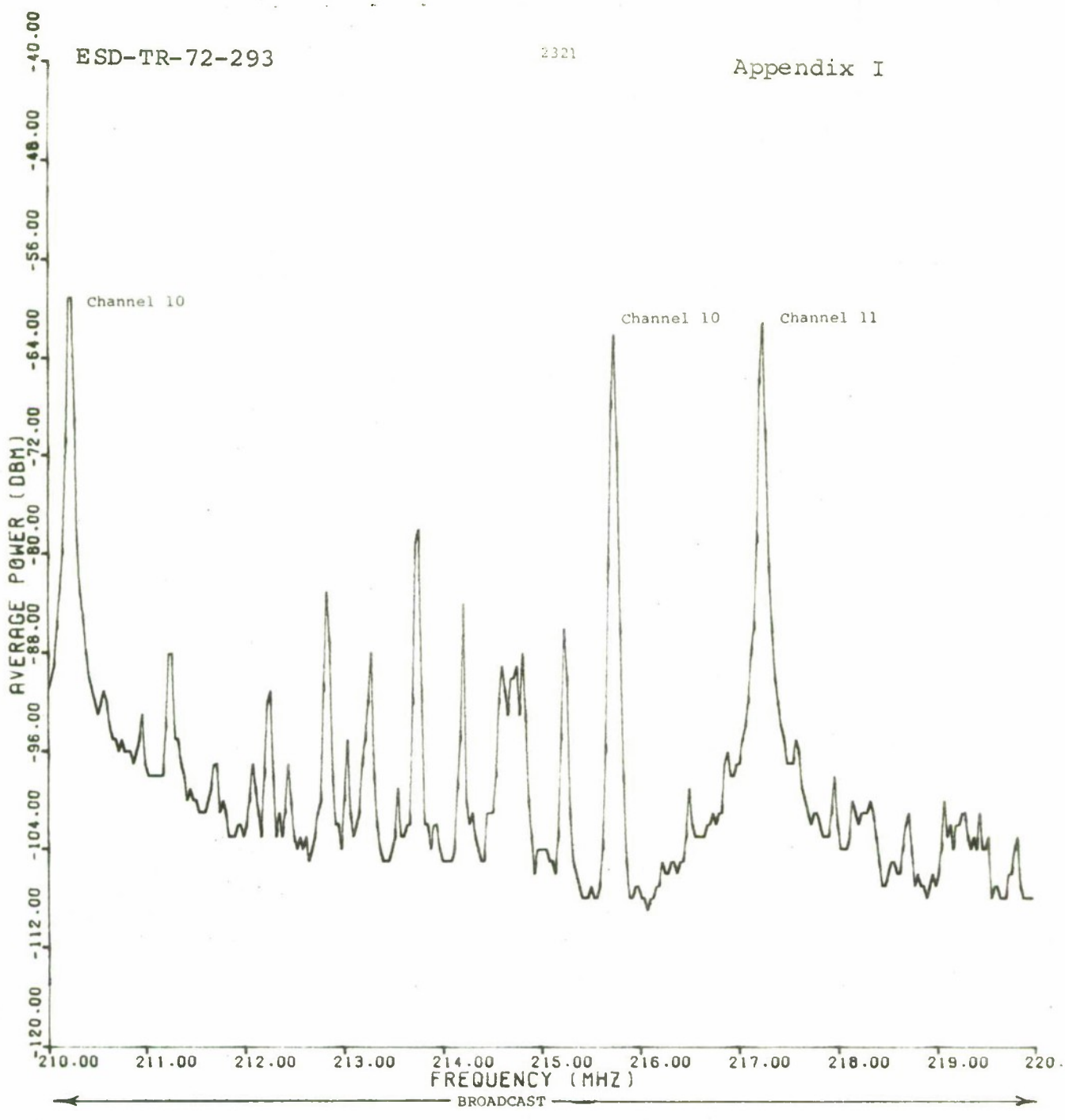


Figure I-52. Average Power Levels in the 210-220 MHz Band

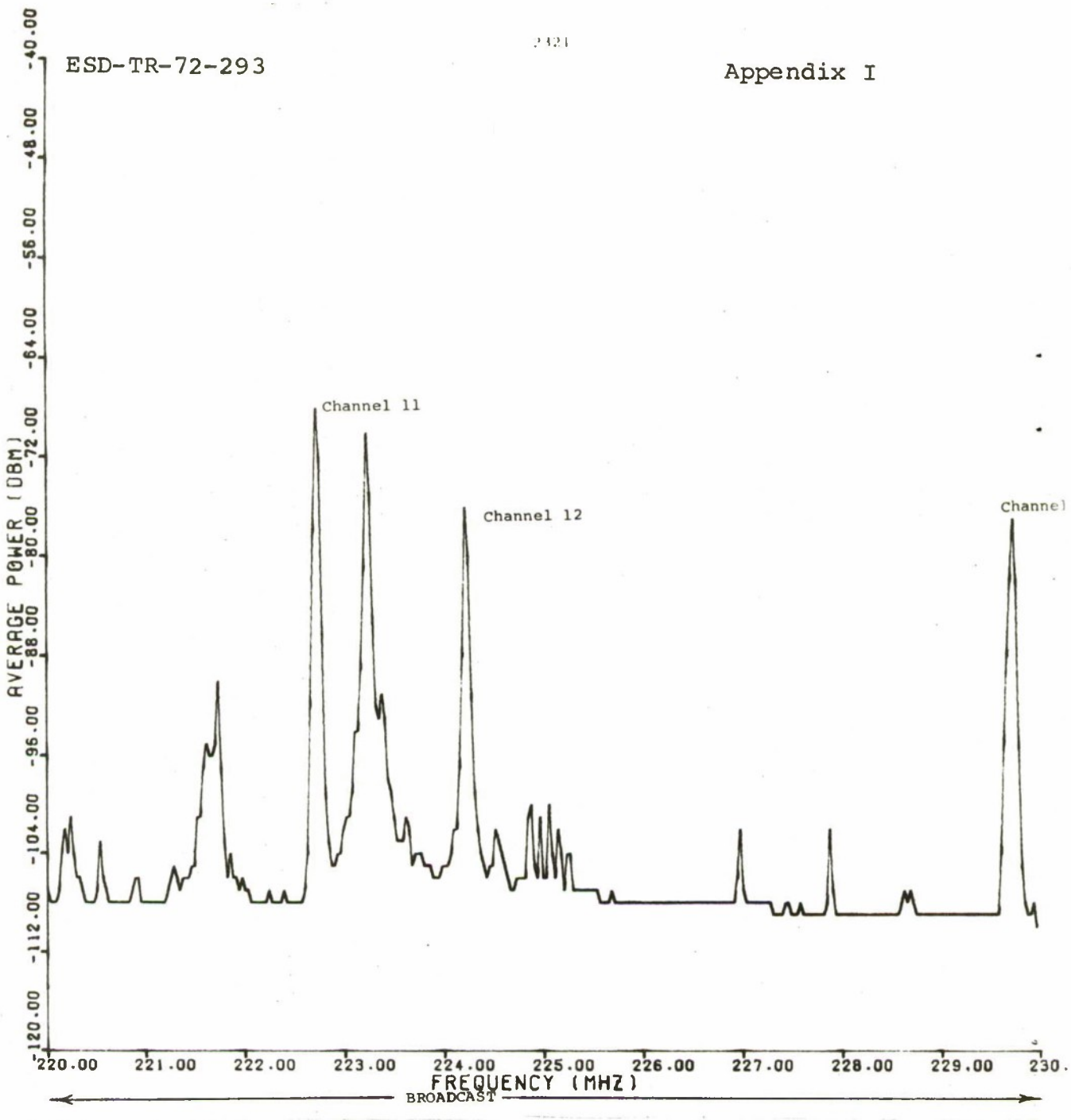


Figure I-53. Average Power Levels in the 220-230 MHz Band

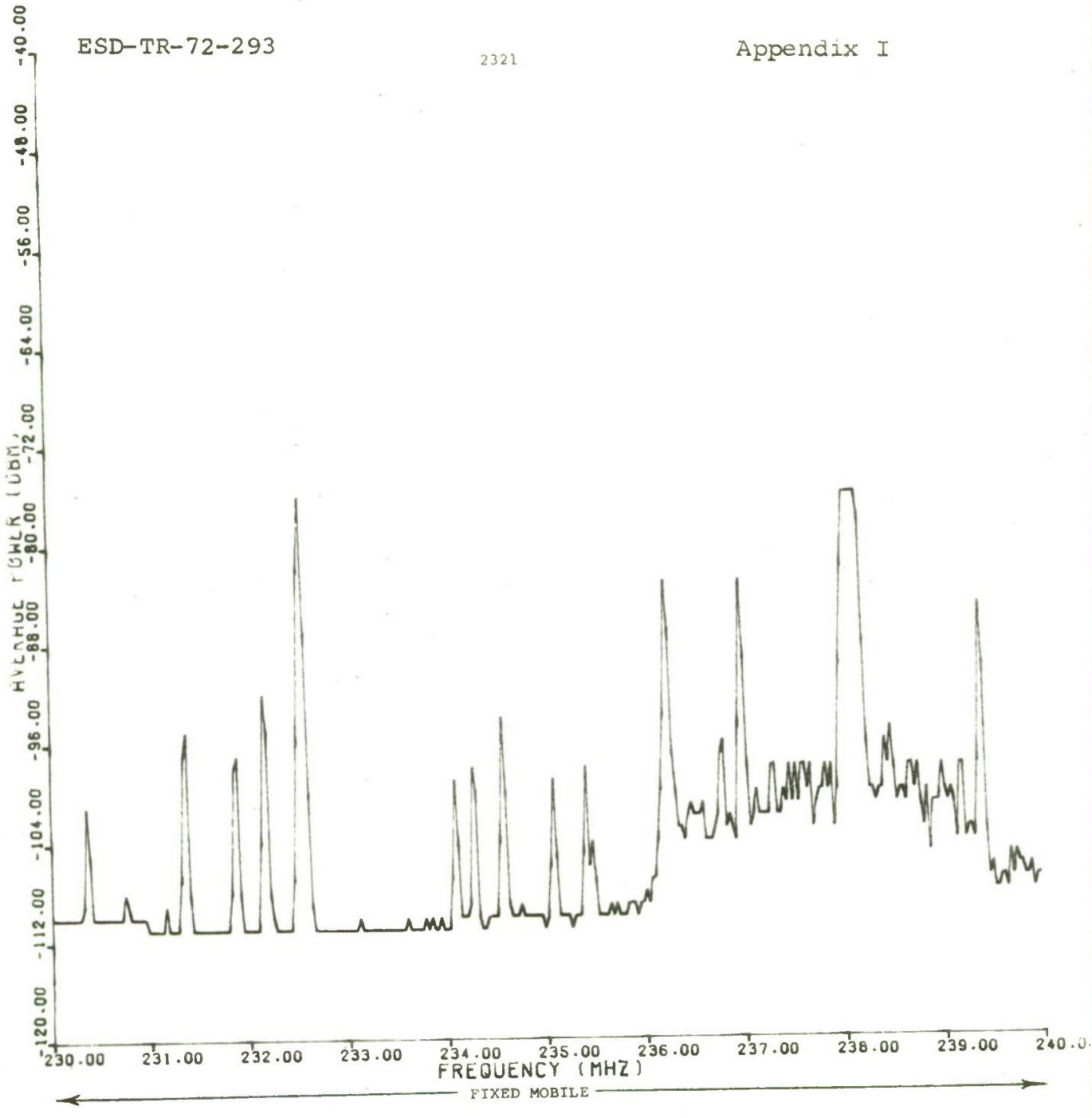


Figure I-54. Average Power Levels in the 230-240 MHz Band

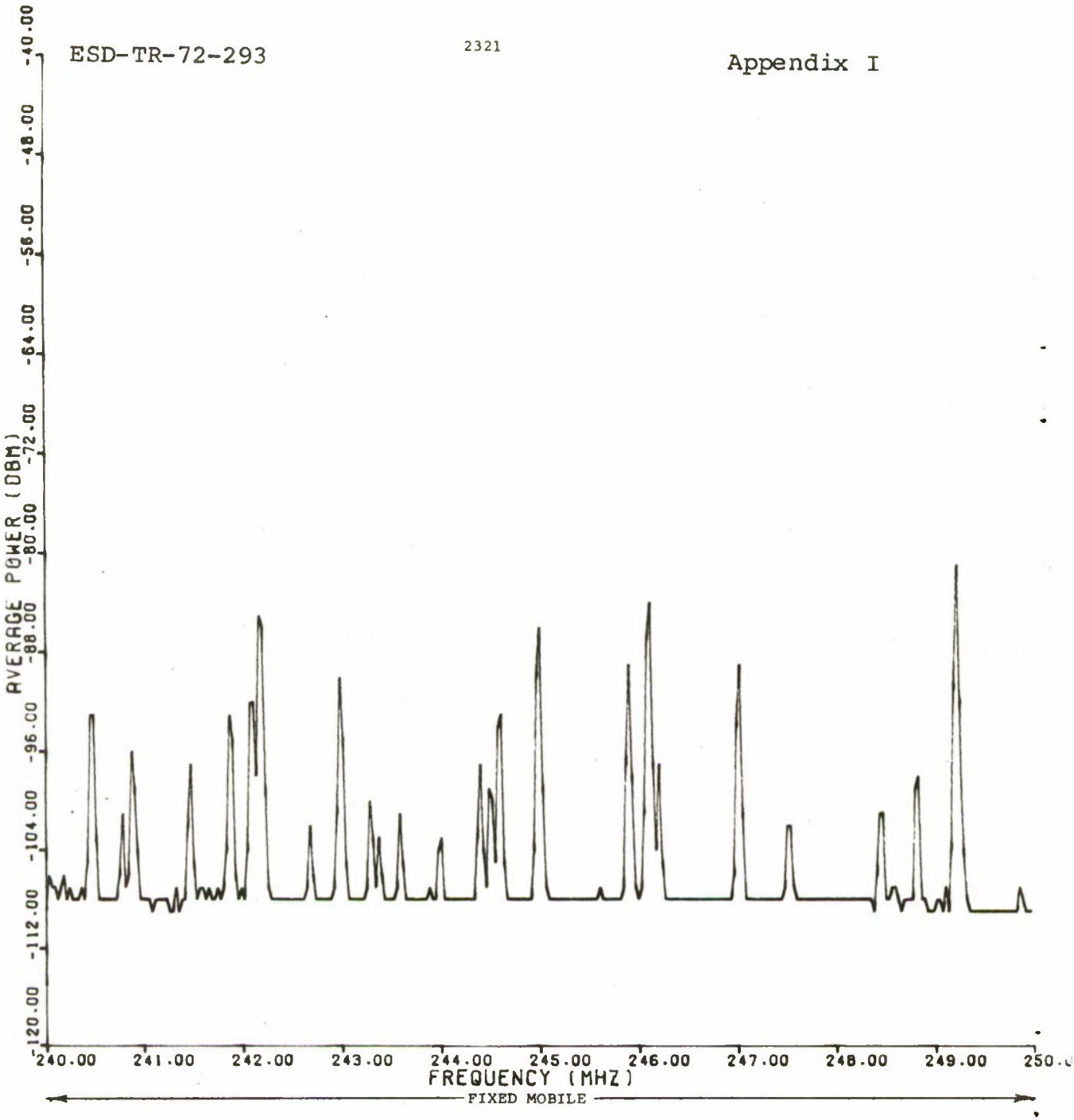


Figure I-55. Average Power Levels in the 240-250 MHz Band

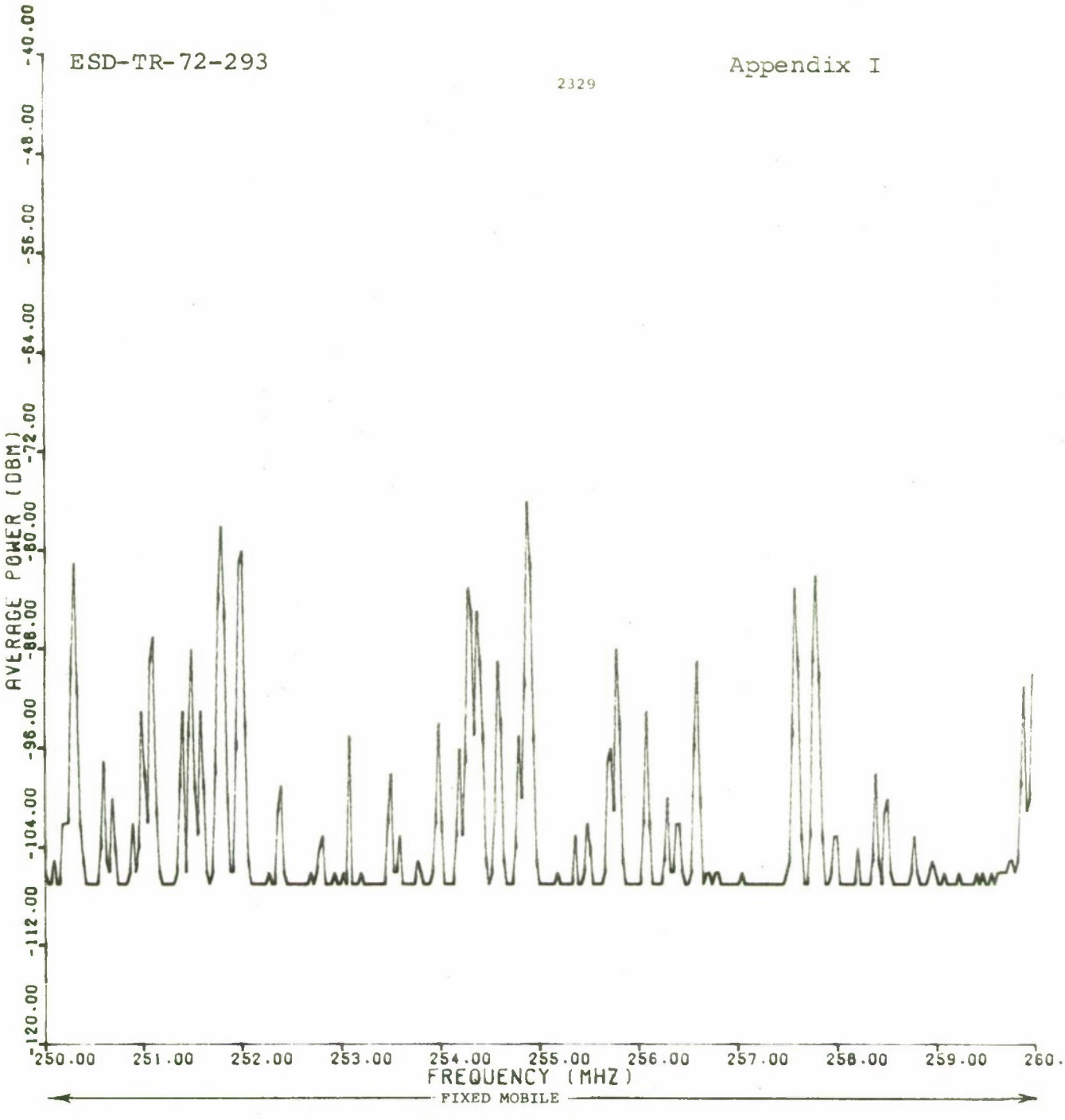


Figure I-56. Average Power Levels in the 250-260 MHz Band

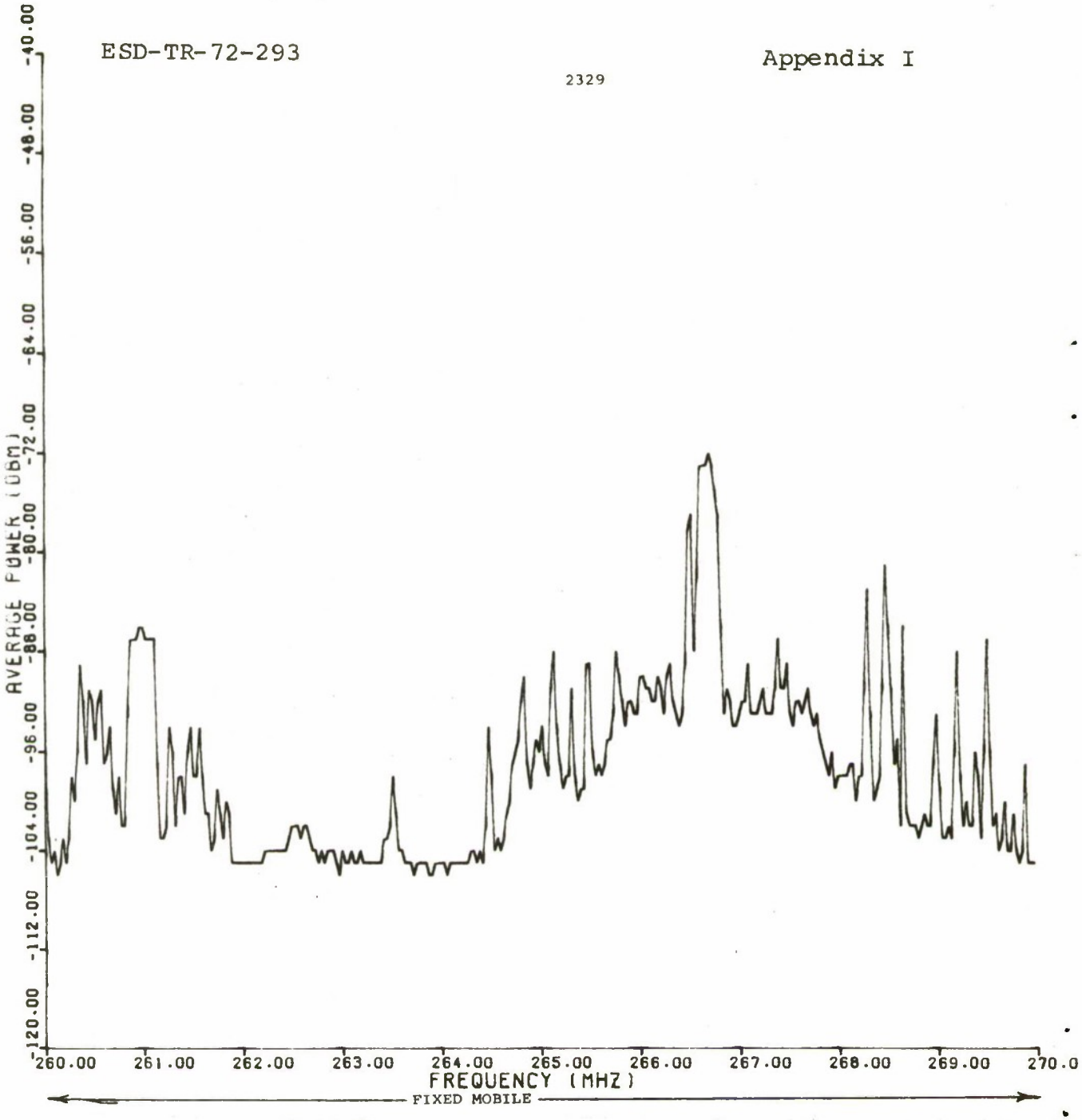


Figure I-57. Average Power Levels in the 260-270 MHz Band

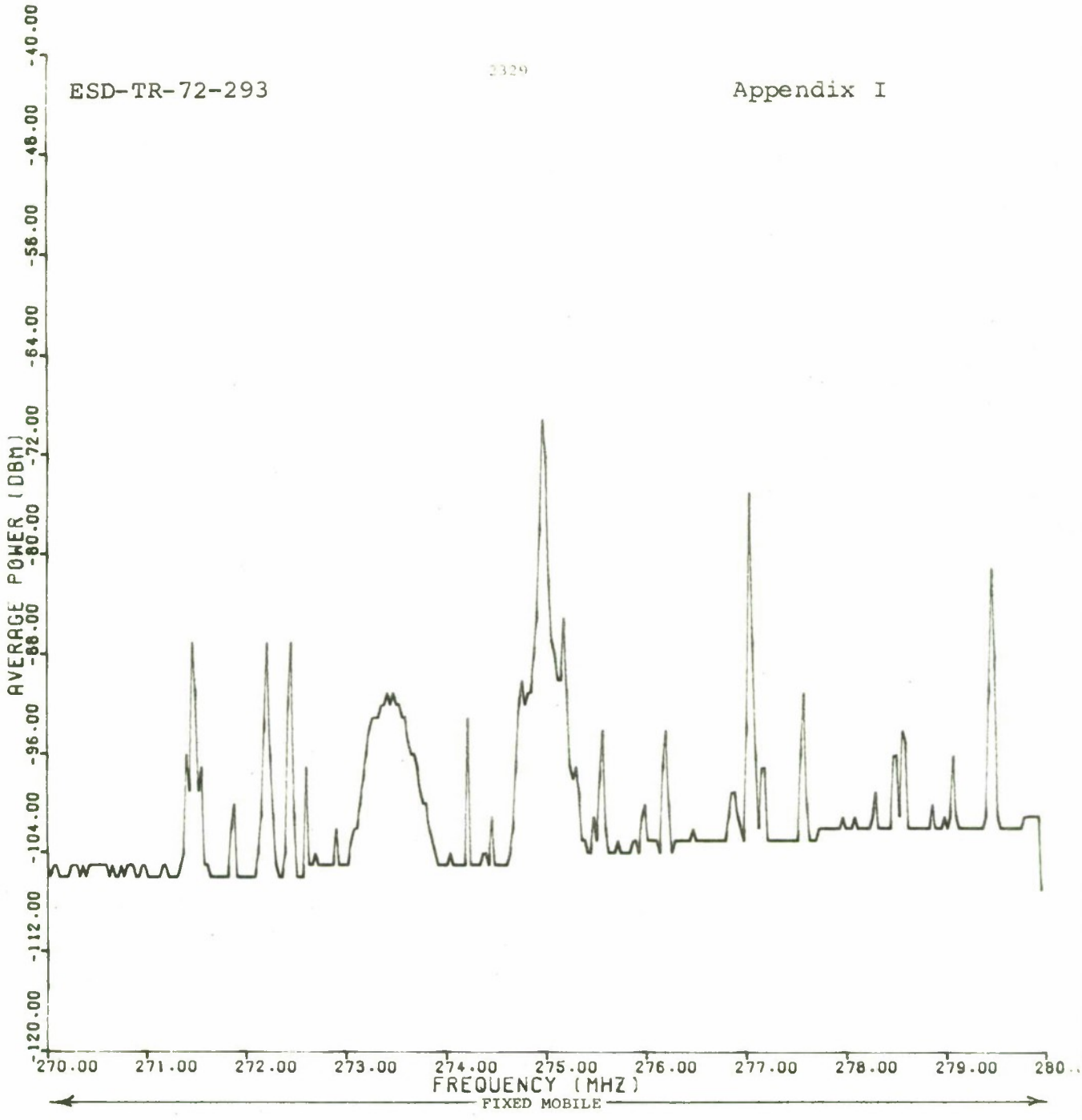


Figure I-58. Average Power Levels in the 270-280 MHz Band

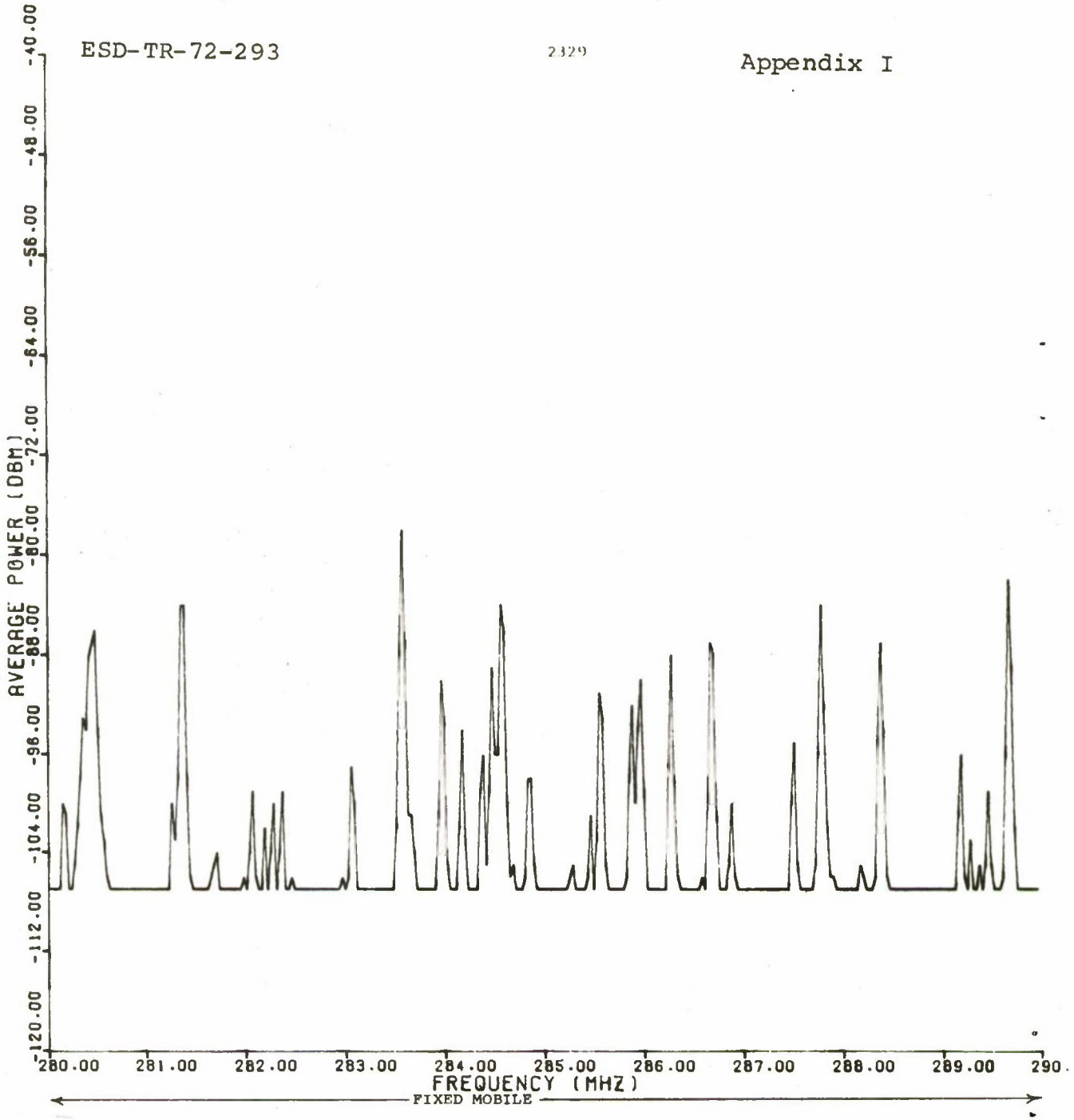


Figure I-59. Average Power Levels in the 280-290 MHz Band

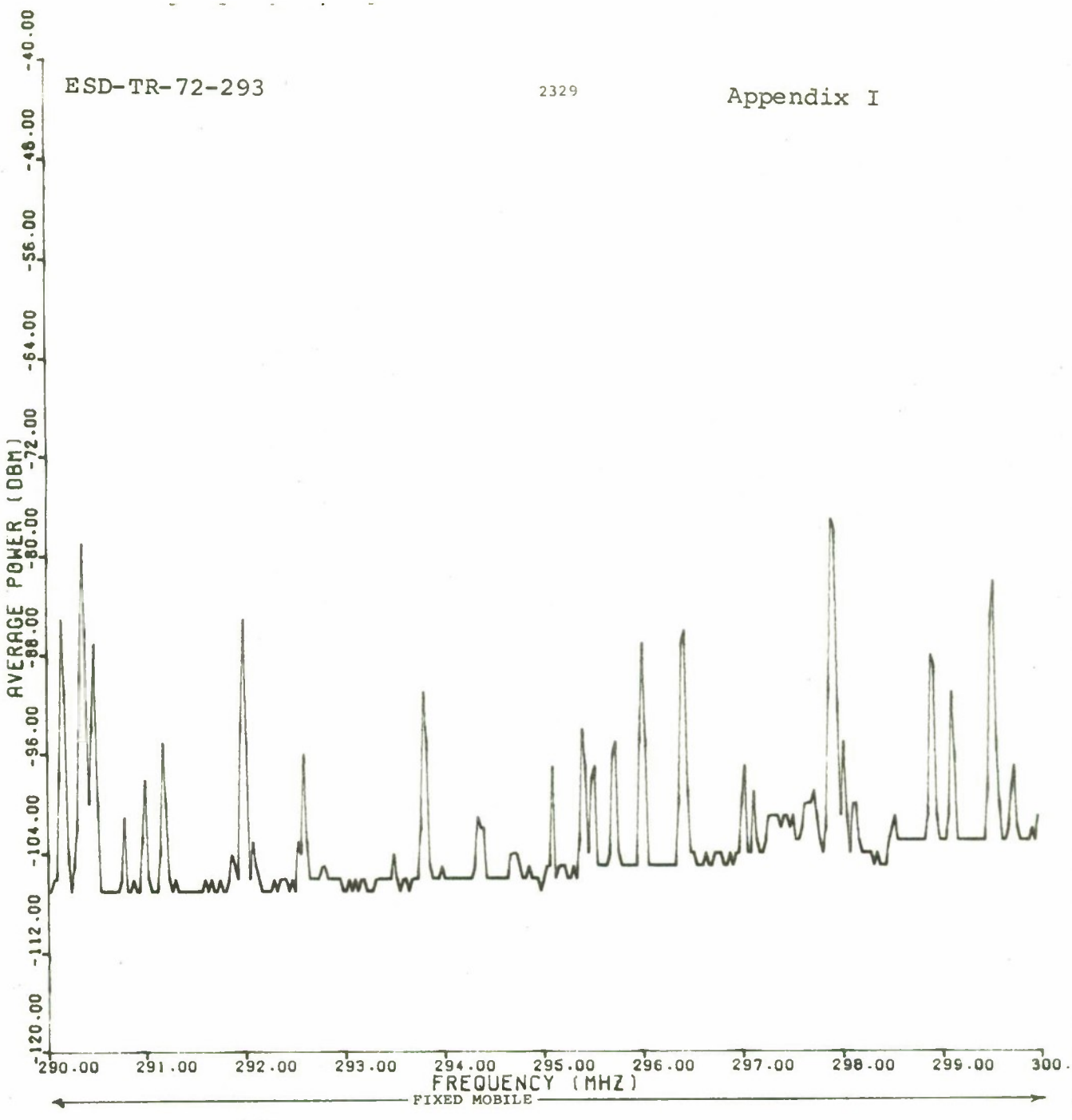


Figure I-60. Average Power Levels in the 290-300 MHz Band

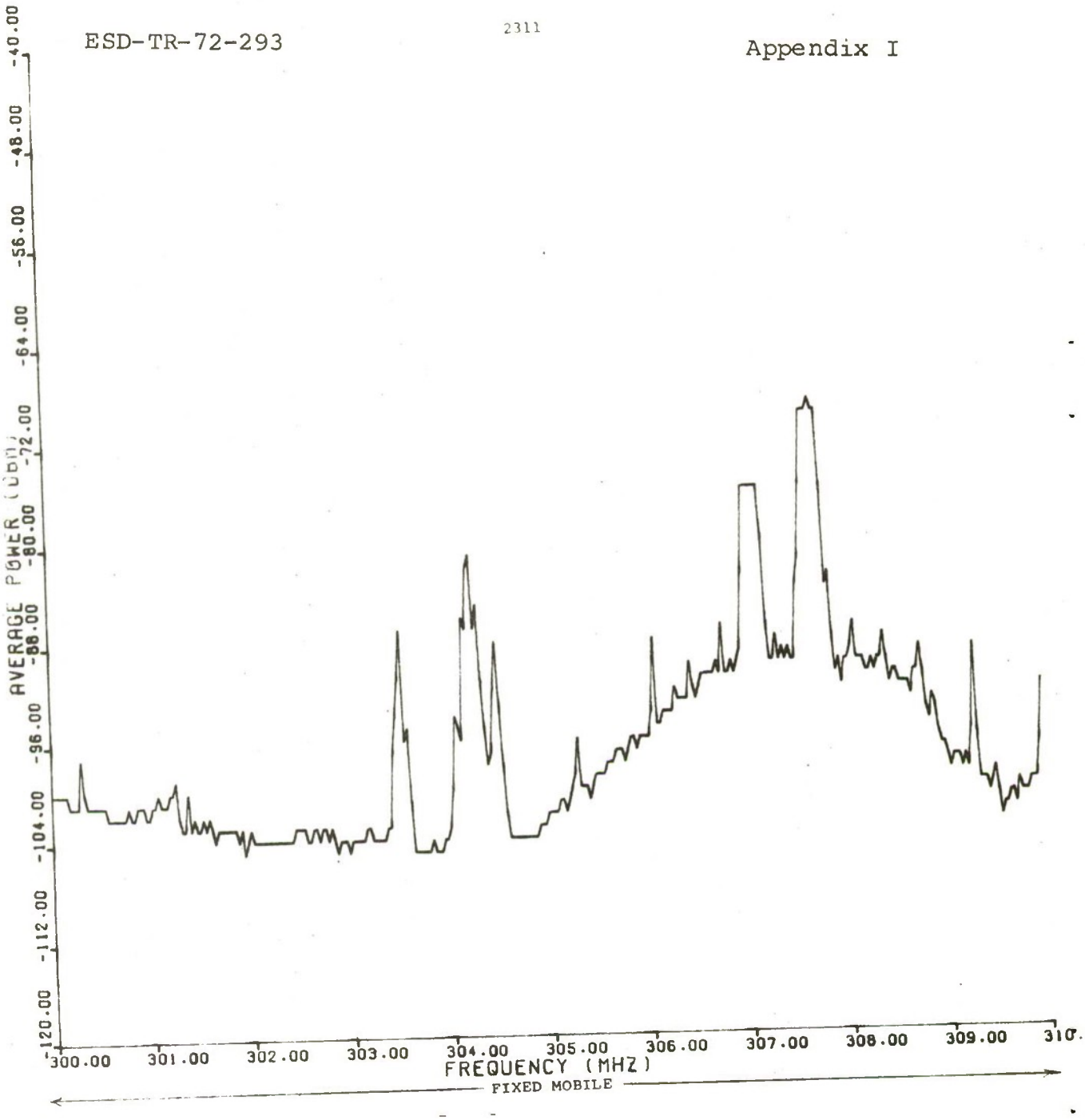


Figure I-61. Average Power Levels in the 300-310 MHz Band

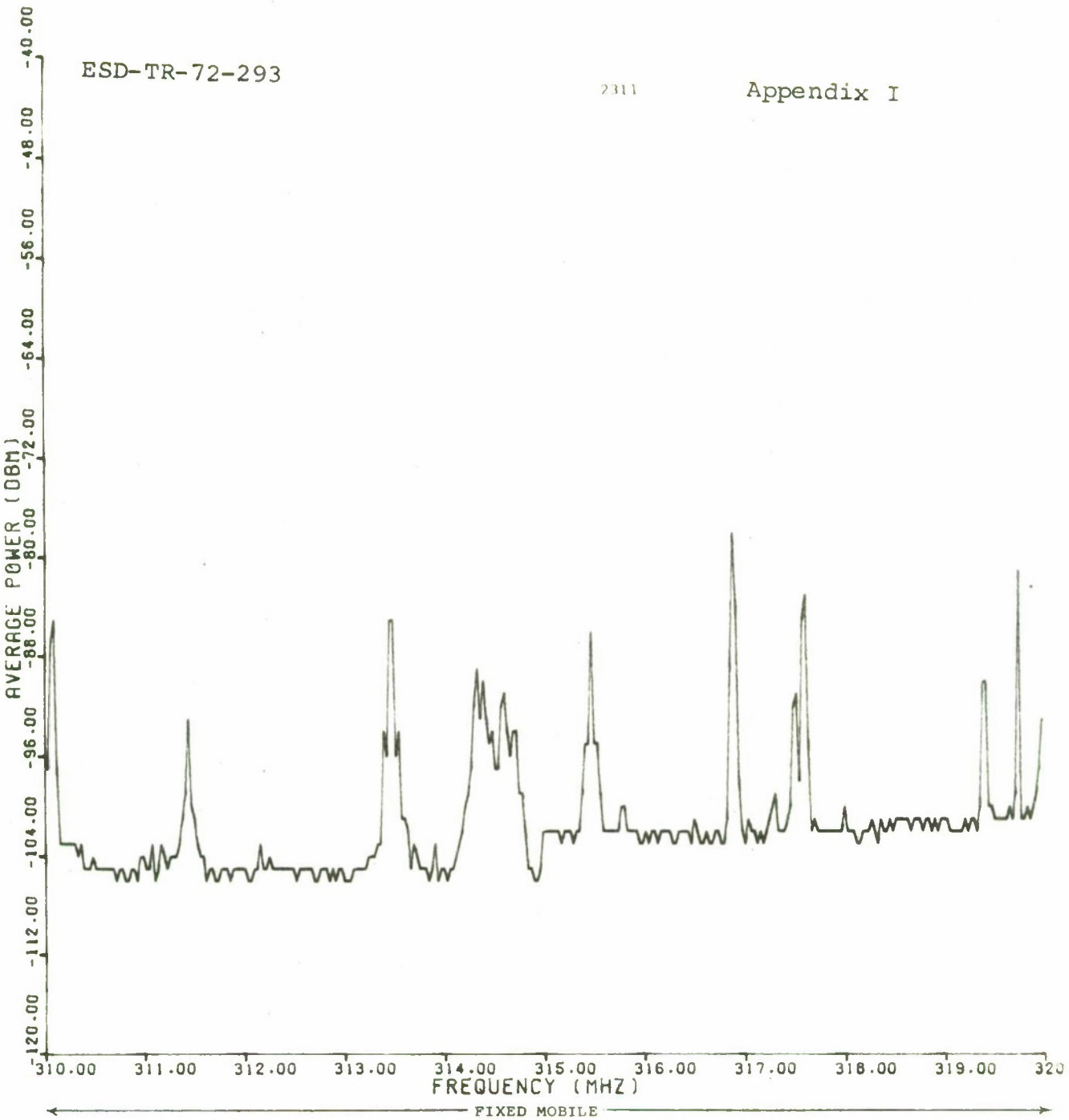


Figure I-62. Average Power Levels in the 310-320 MHz Band

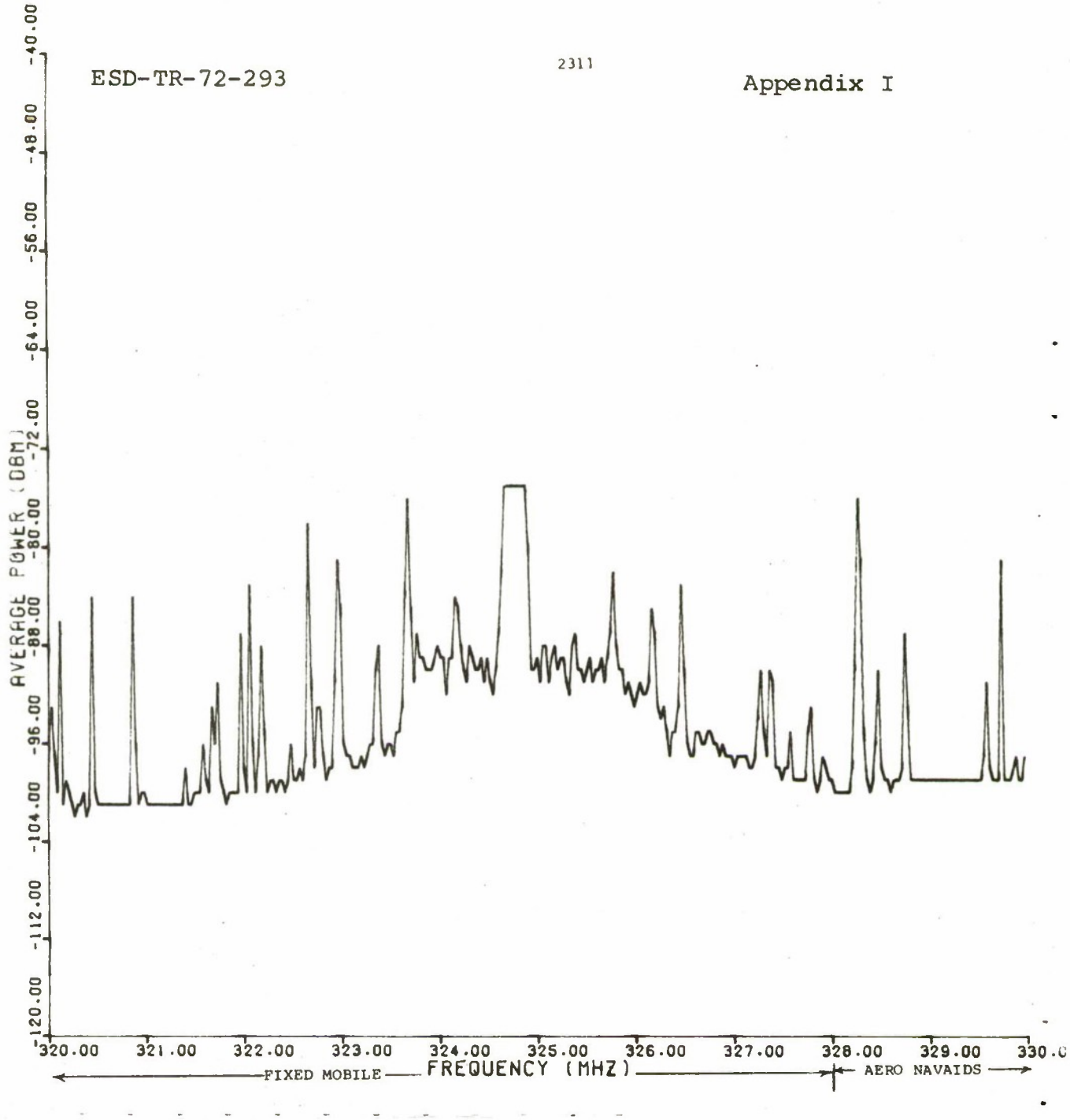


Figure I-63. Average Power Levels in the 320-330 MHz Band

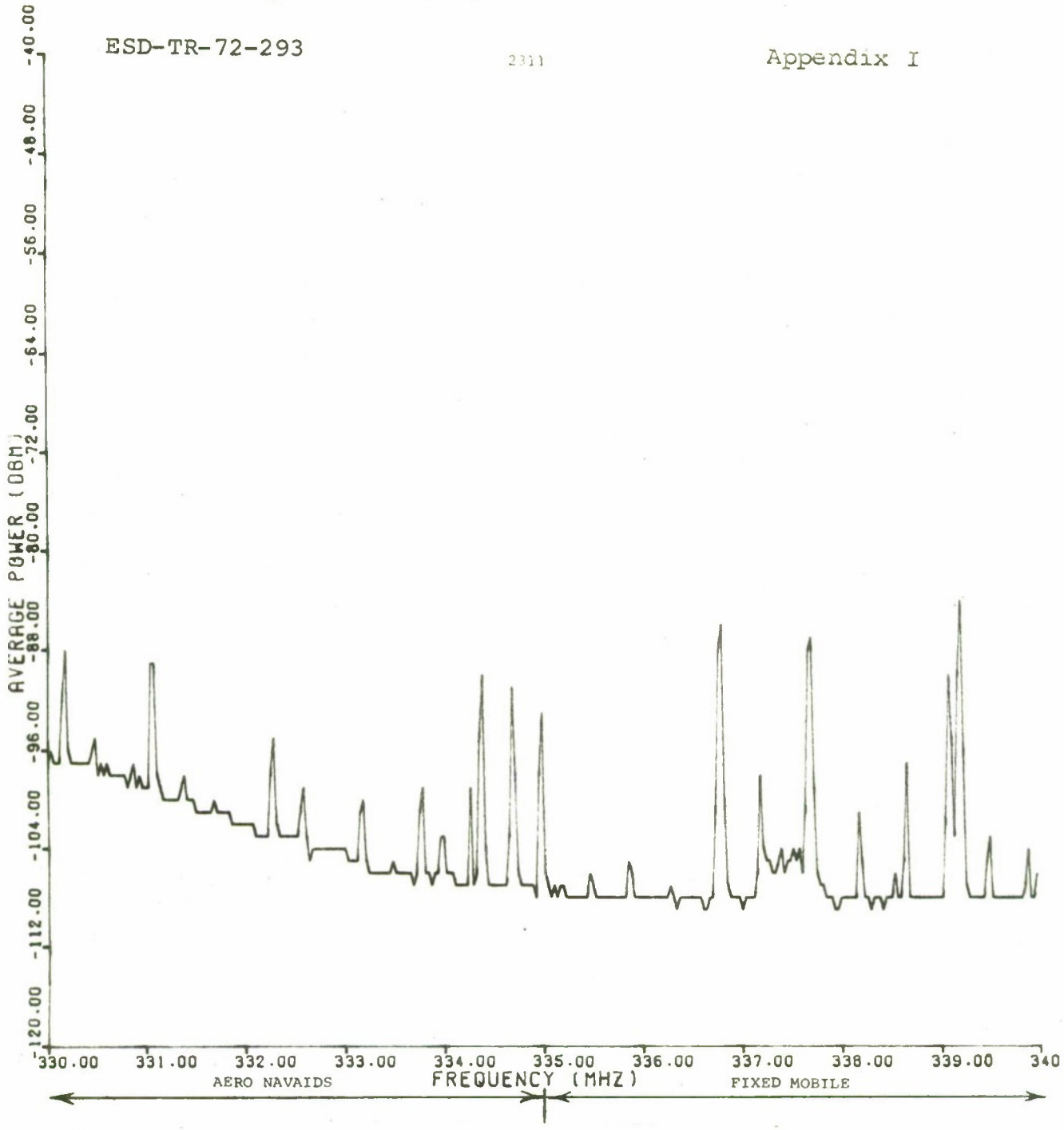


Figure I-64. Average Power Levels in the 330-340 MHz Band

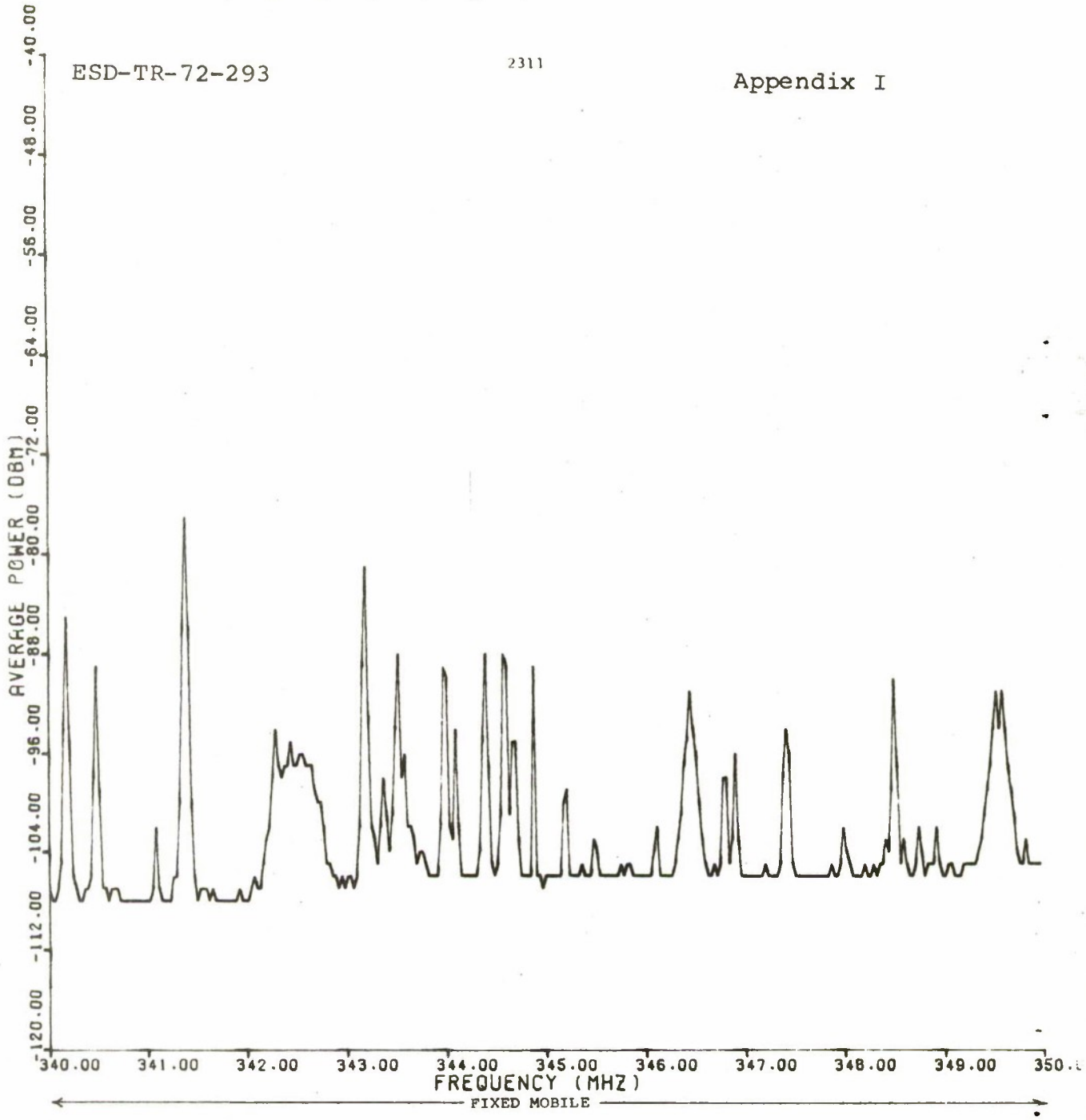


Figure I-65. Average Power Levels in the 340-350 MHz Band

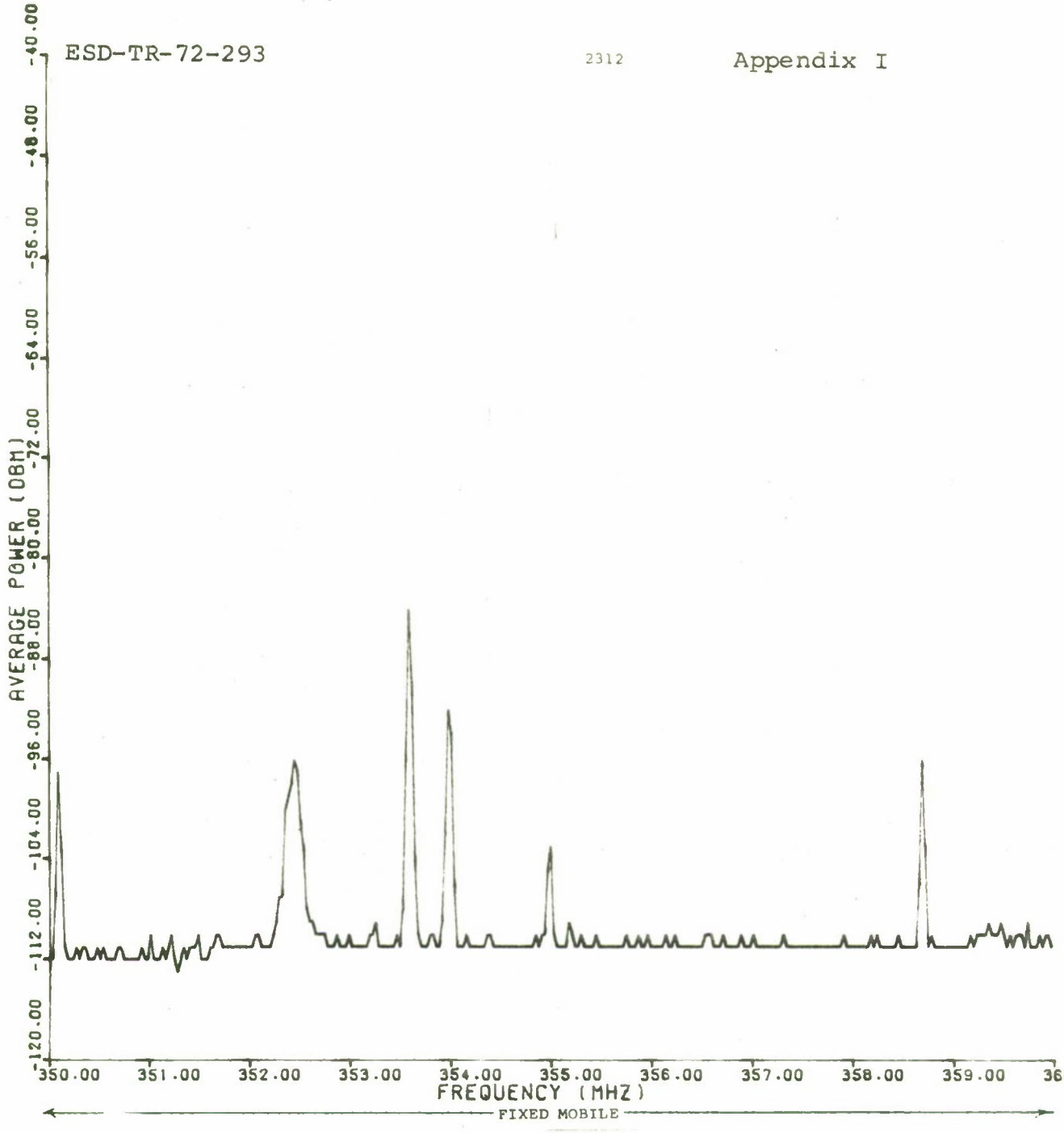


Figure I-66. Average Power Levels in the 350-360 MHz Band

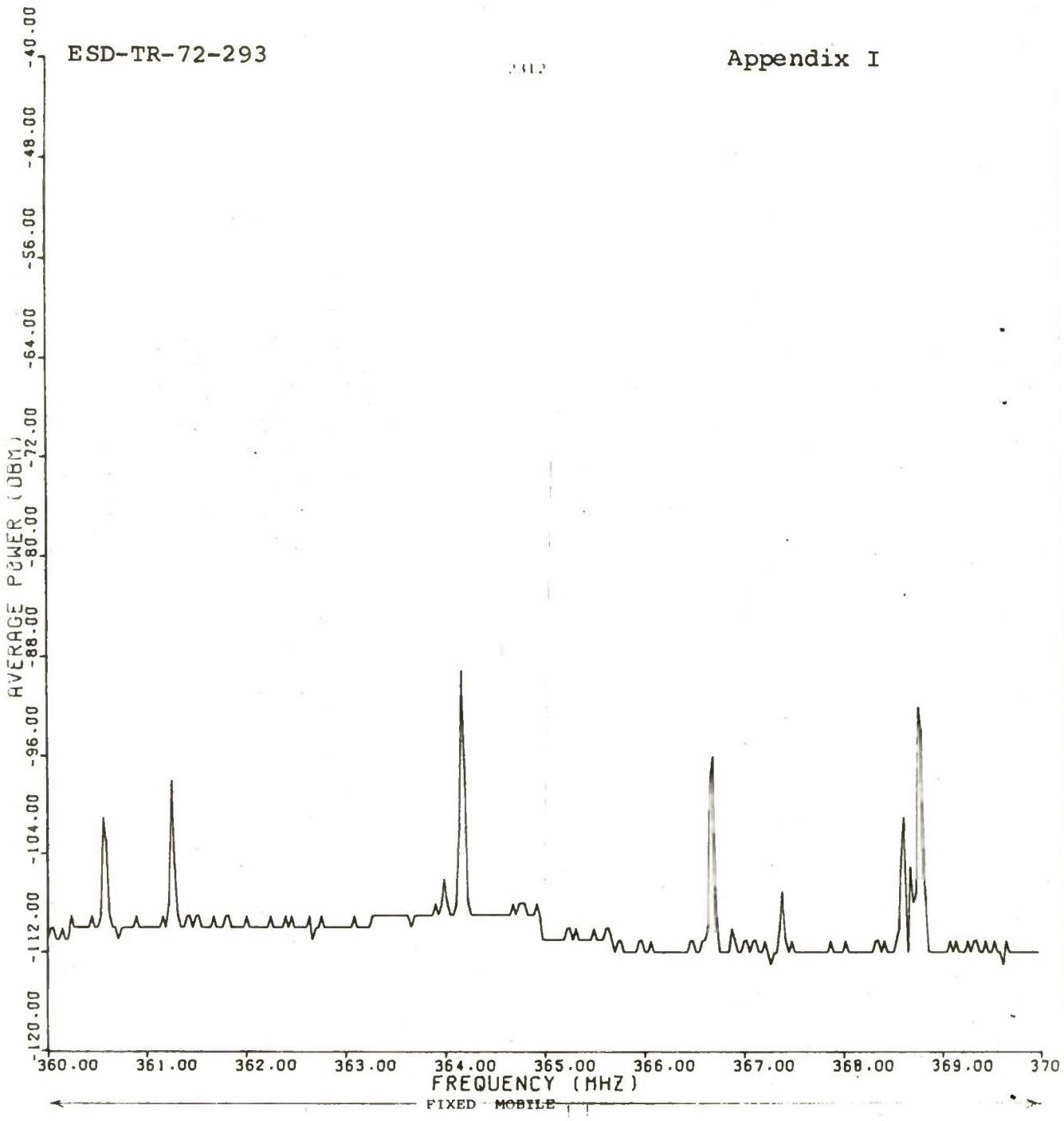


Figure I-67. Average Power Levels in the 360-370 MHz Band

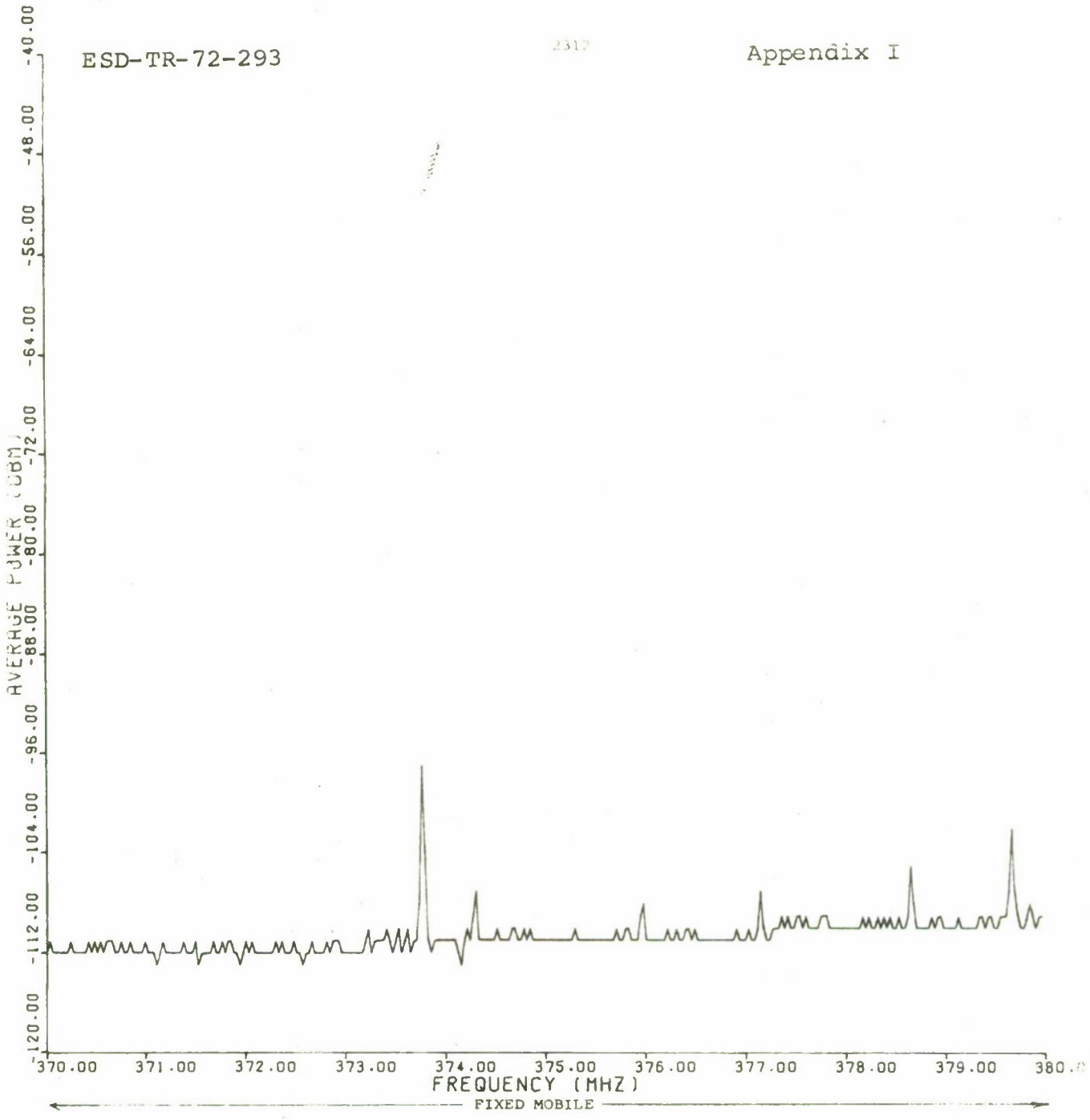


Figure I-68. Average Power Levels in the 370-380 MHz Band

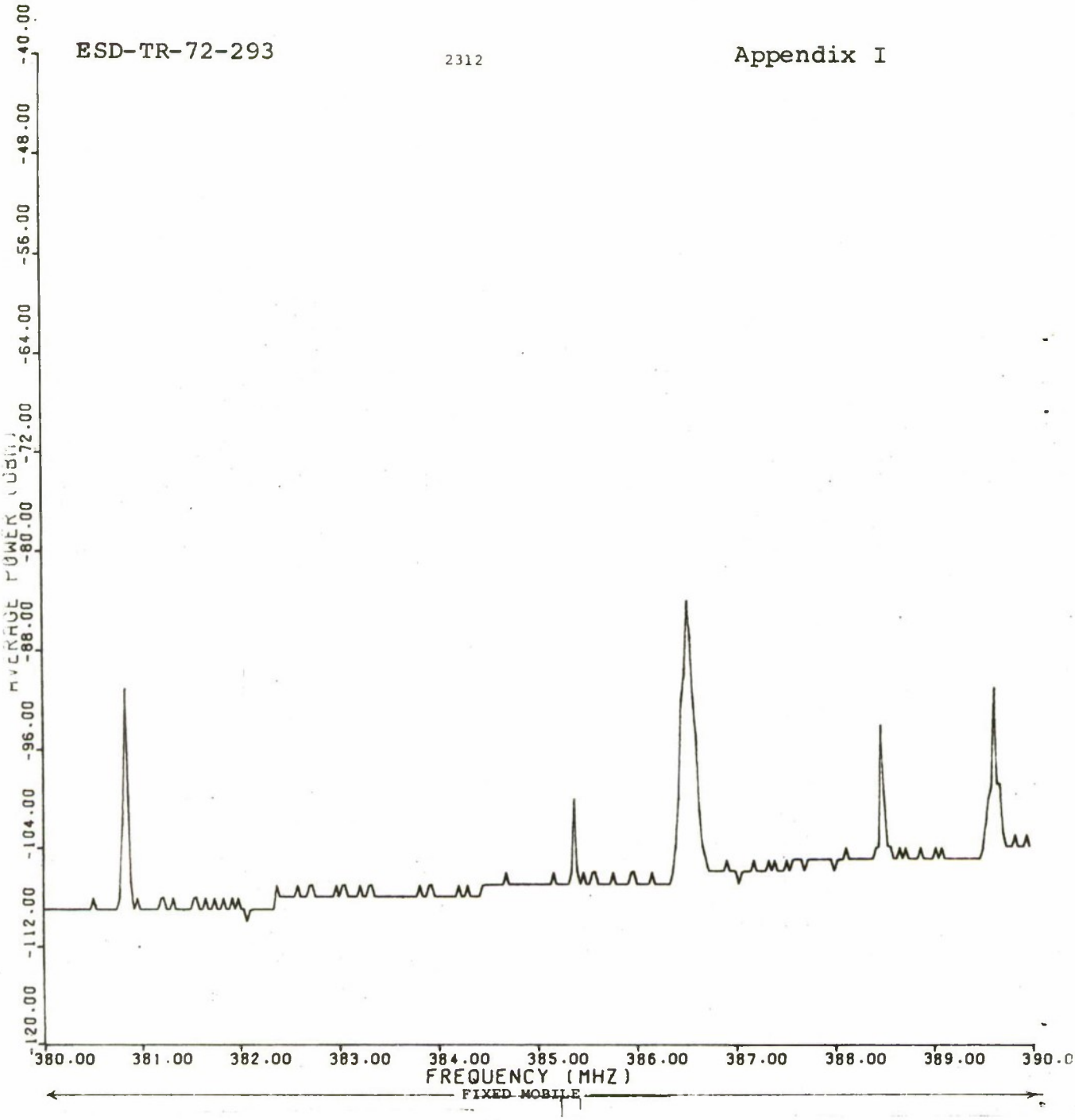


Figure I-69. Average Power Levels in the 380-390 MHz Band

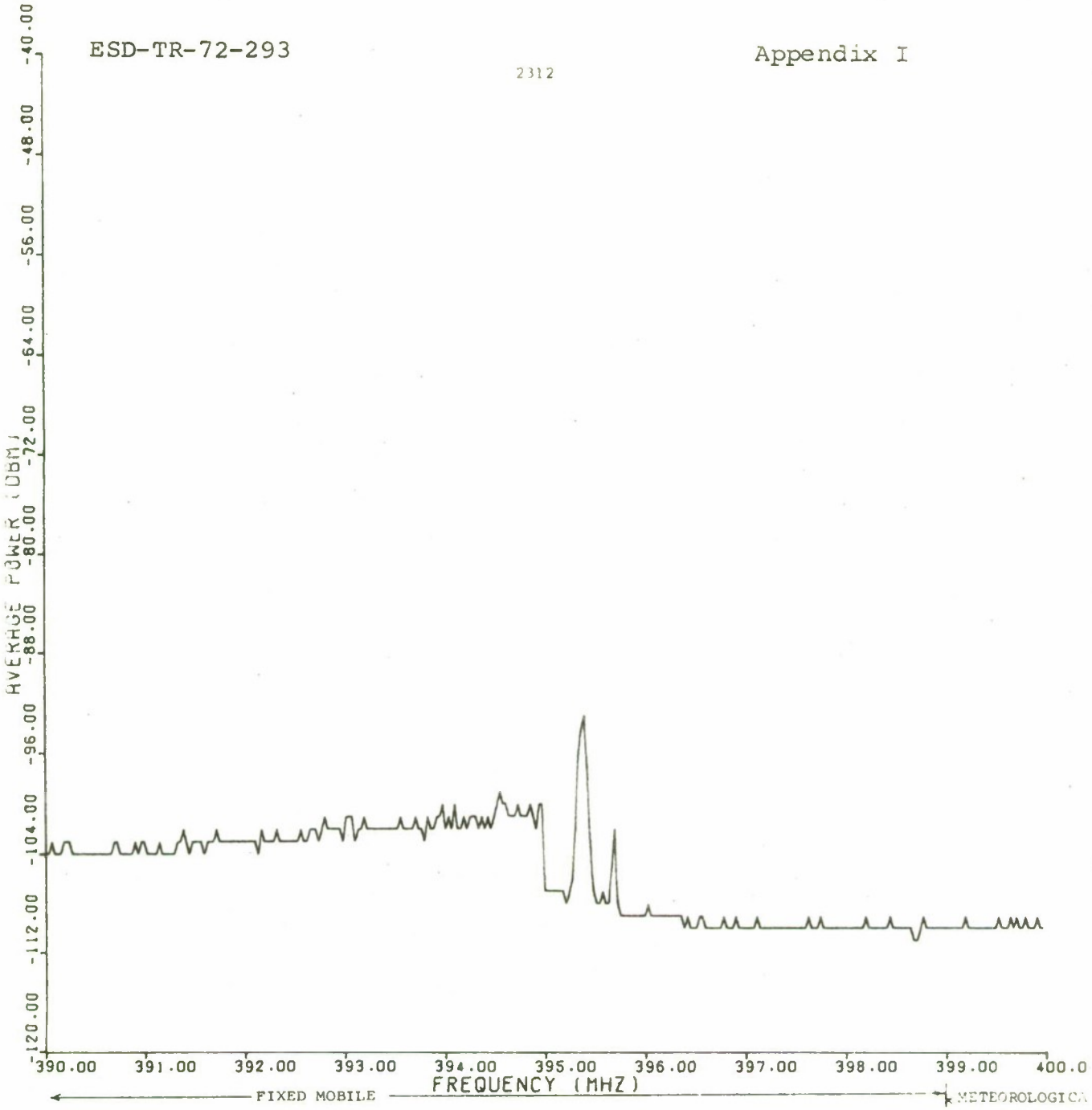


Figure I-70. Average Power Levels in the 390-400 MHz Band

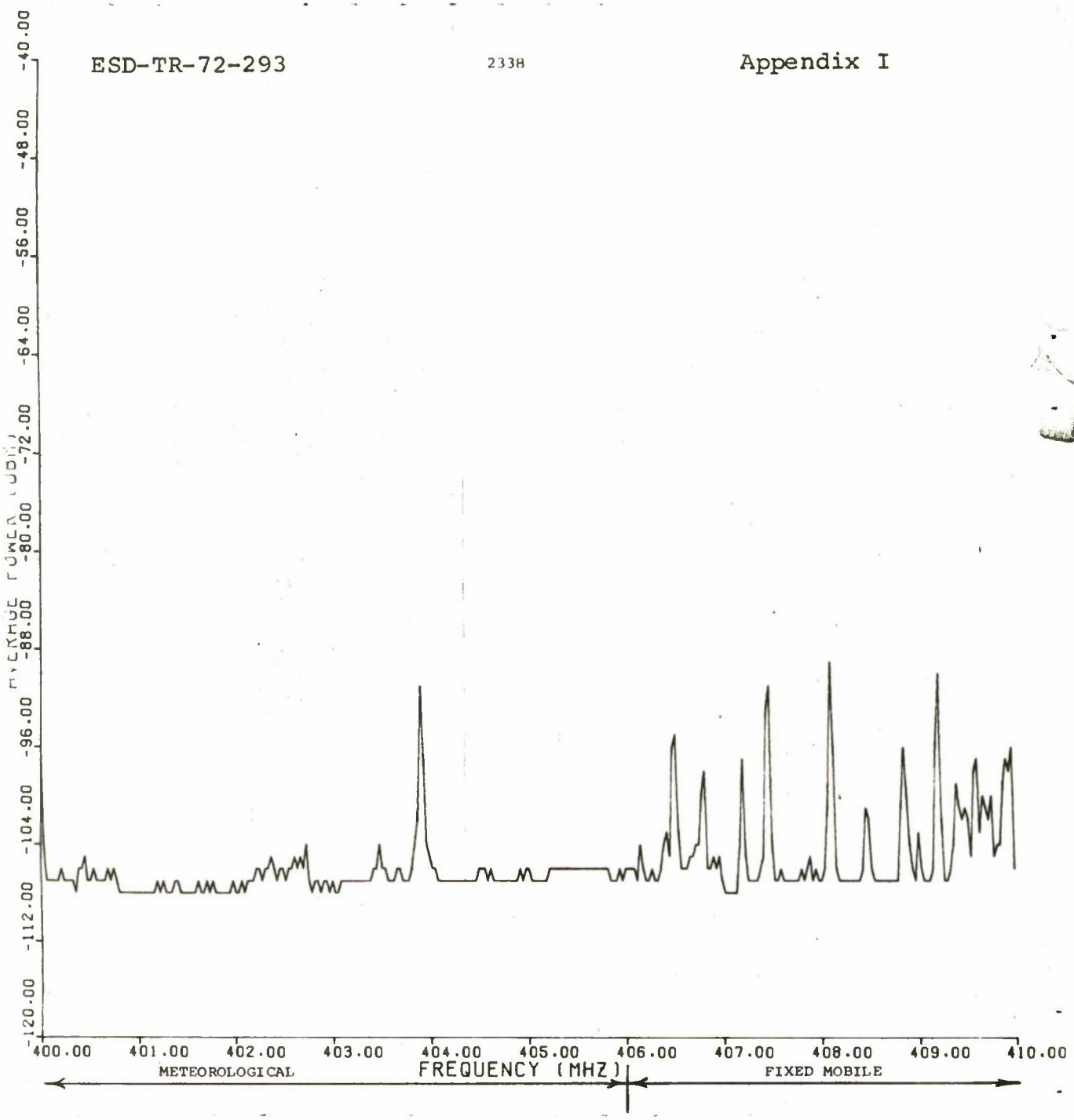


Figure I-71. Average Power Levels in the 400-410 MHz Band

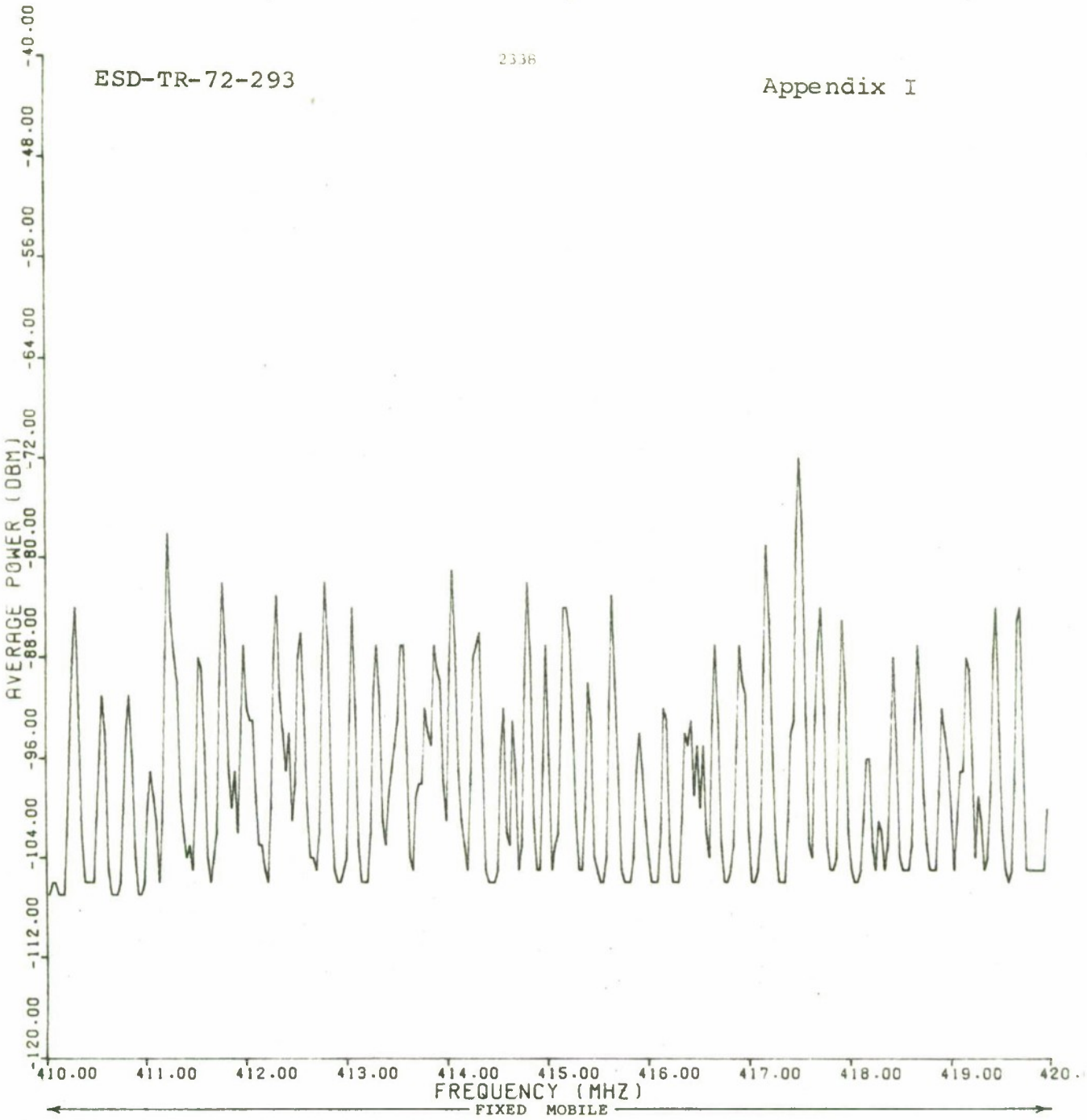


Figure I-72. Average Power Levels in the 410-420 MHz Band

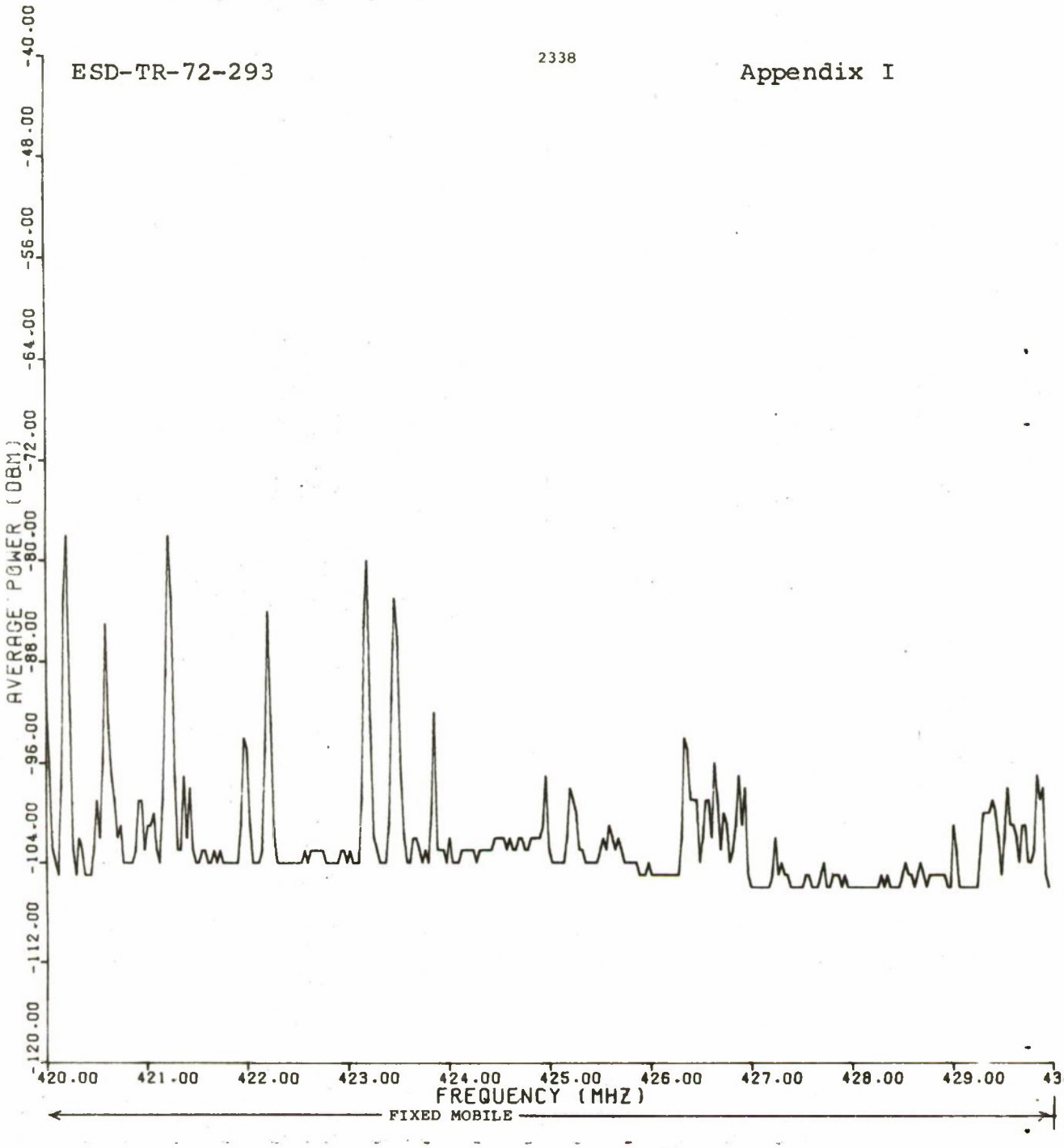


Figure I-73. Average Power Levels in the 420-430 MHz Band

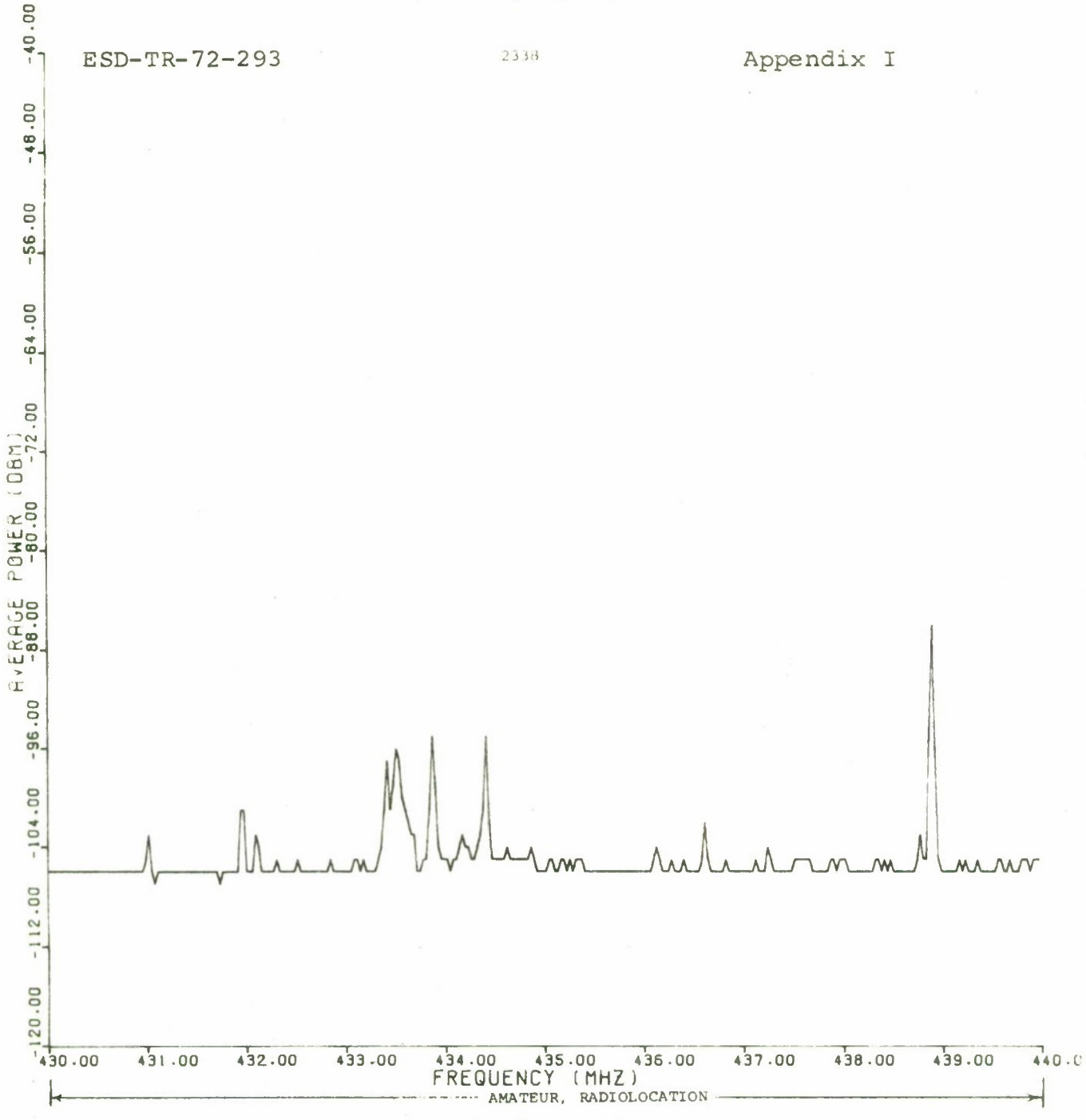


Figure I-74. Average Power Levels in the 430-440 MHz Band

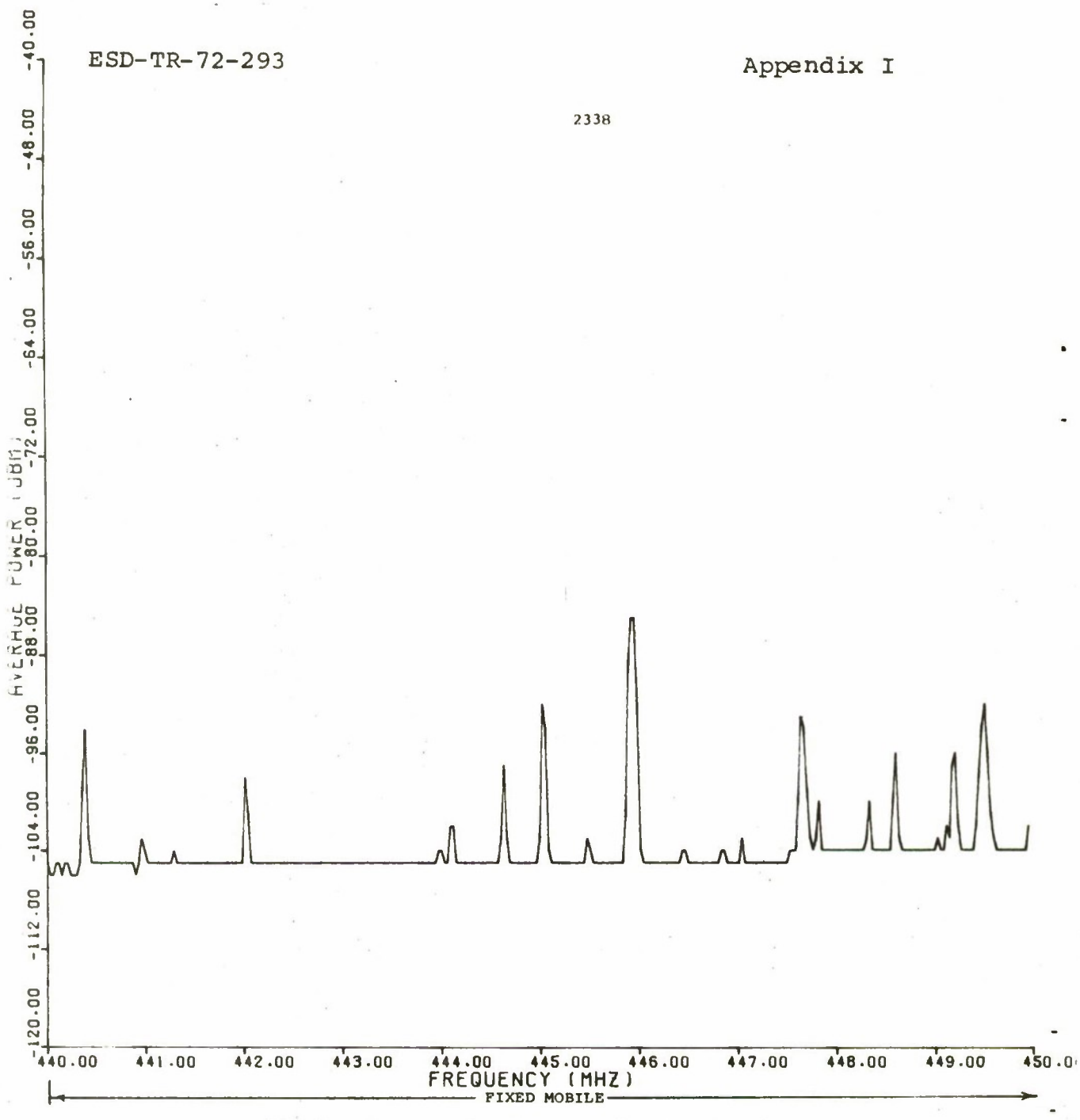


Figure I-75. Average Power Levels in the 440-450 MHz Band

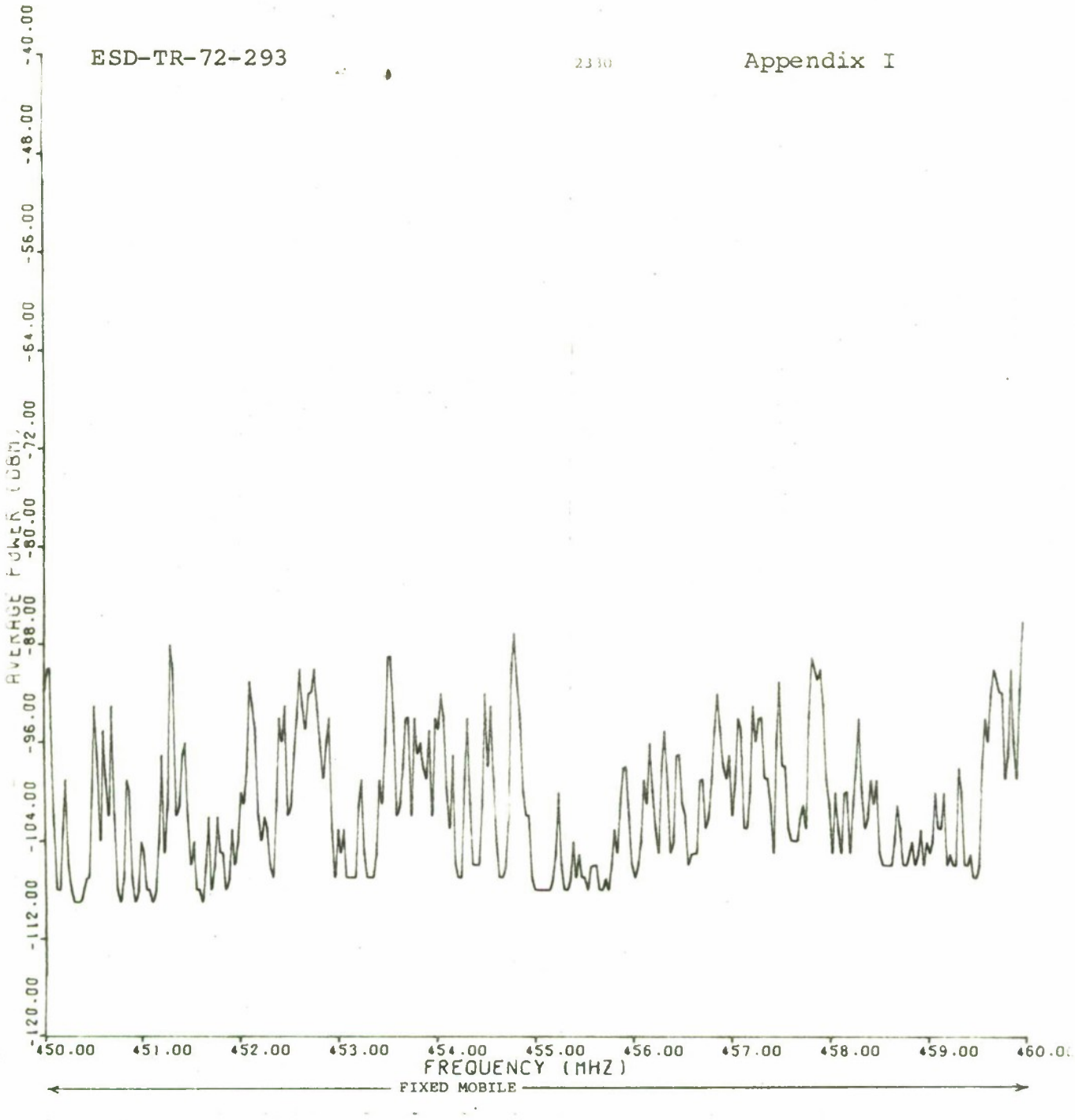


Figure I-76. Average Power Levels in the 450-460 MHz Band

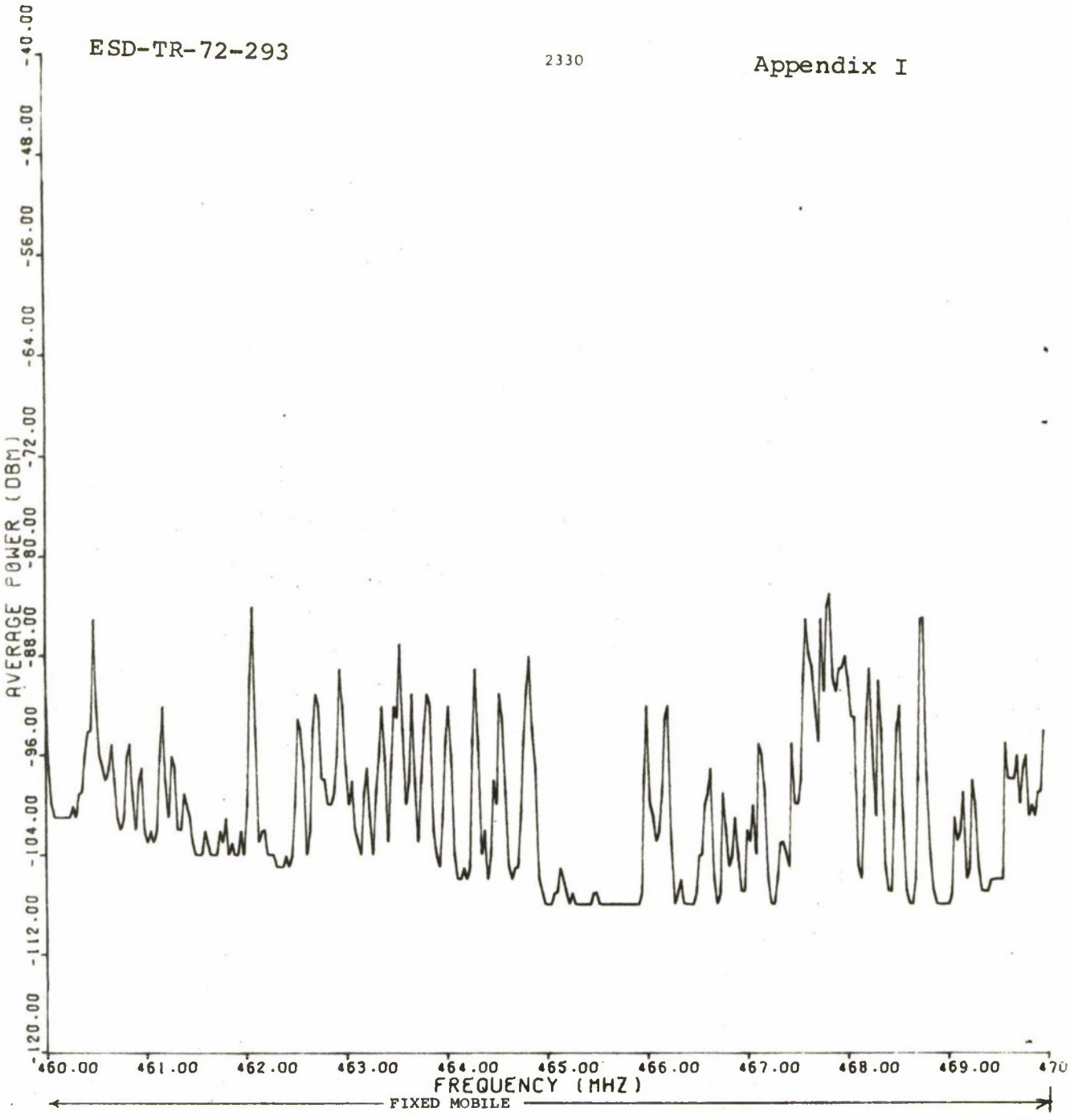


Figure I-77. Average Power Levels in the 460-470 MHz Band

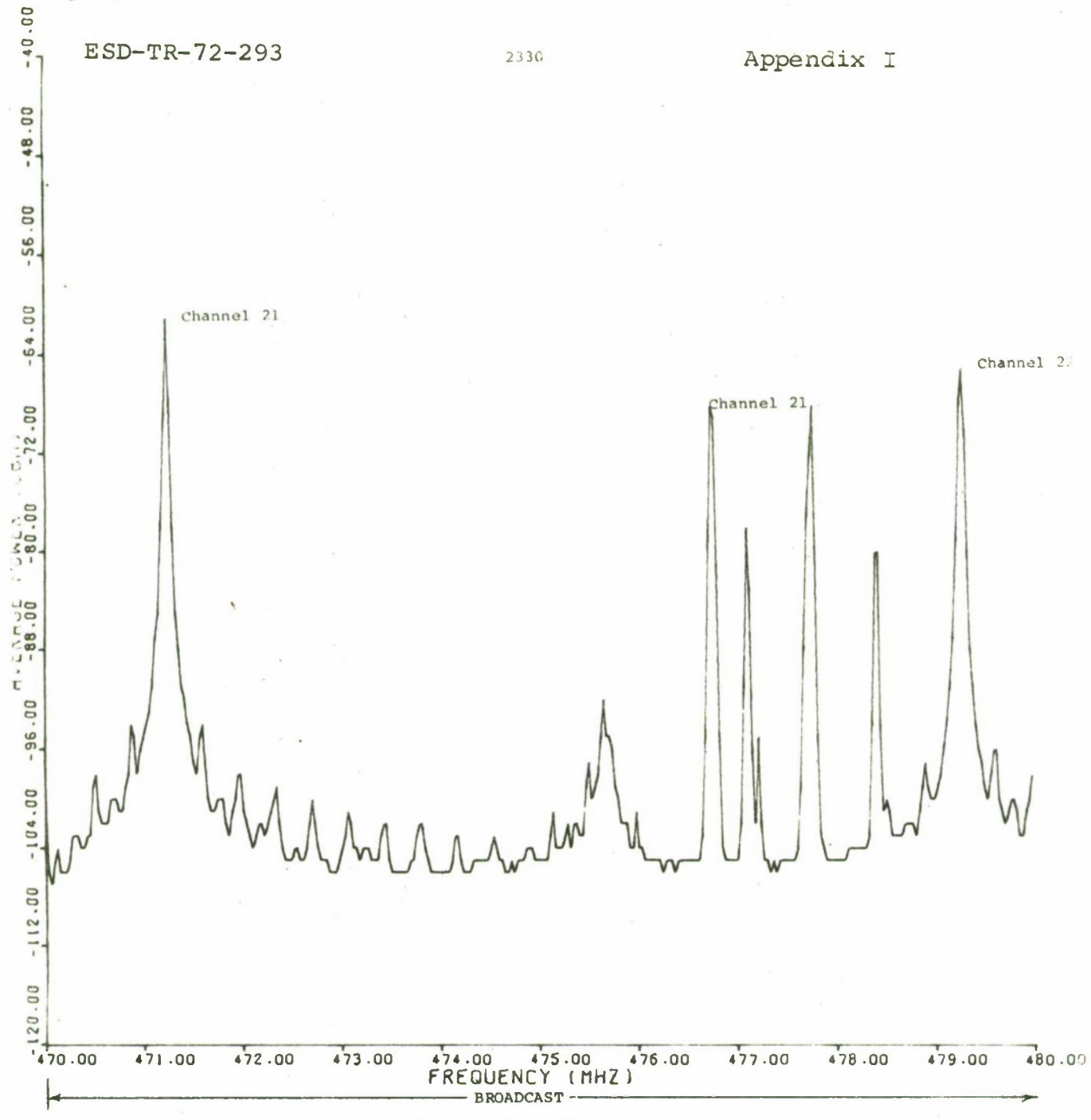


Figure I-78. Average Power Levels in the 470-480 MHz Band

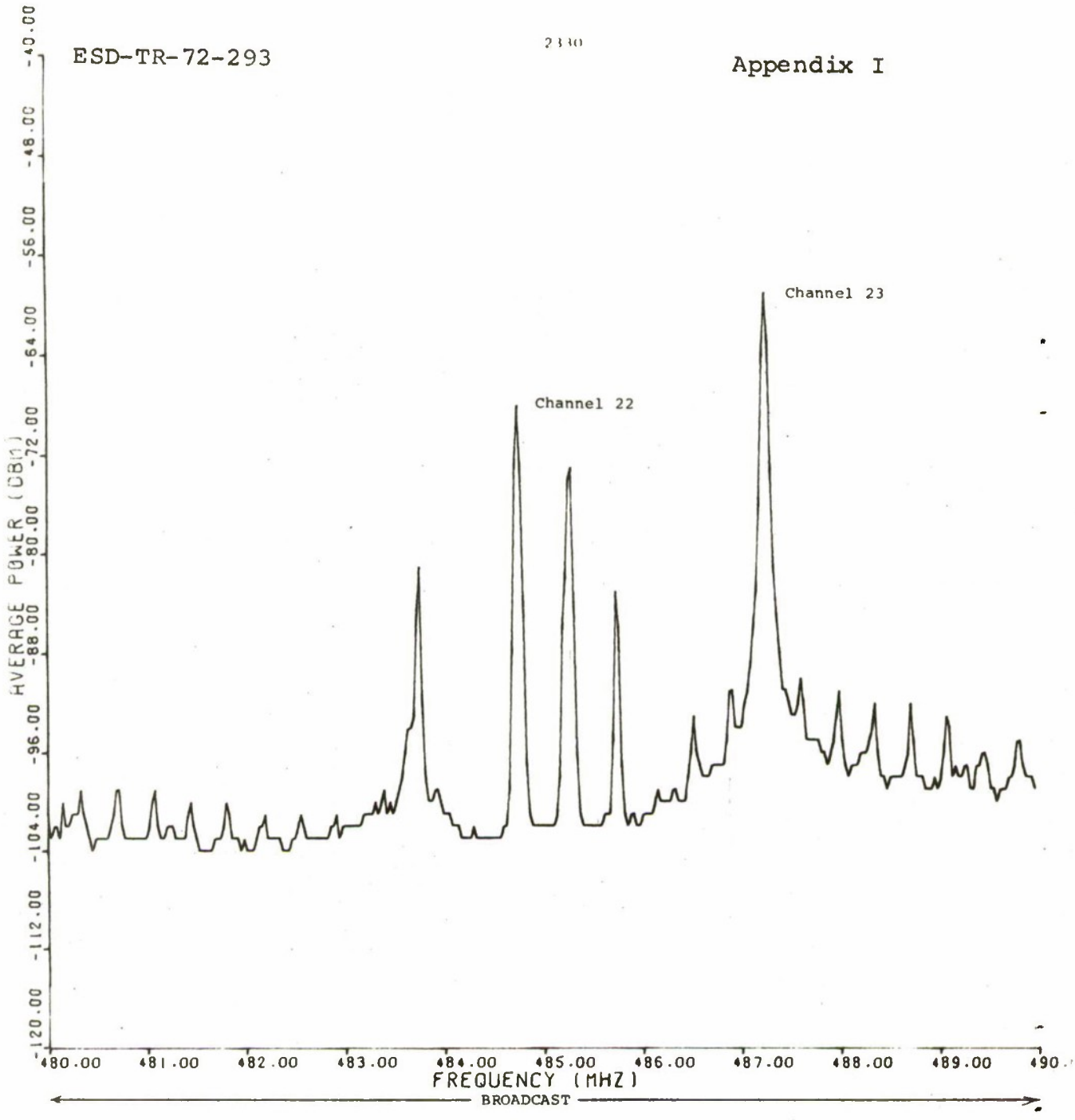


Figure I-79. Average Power Levels in the 480-490 MHz Band

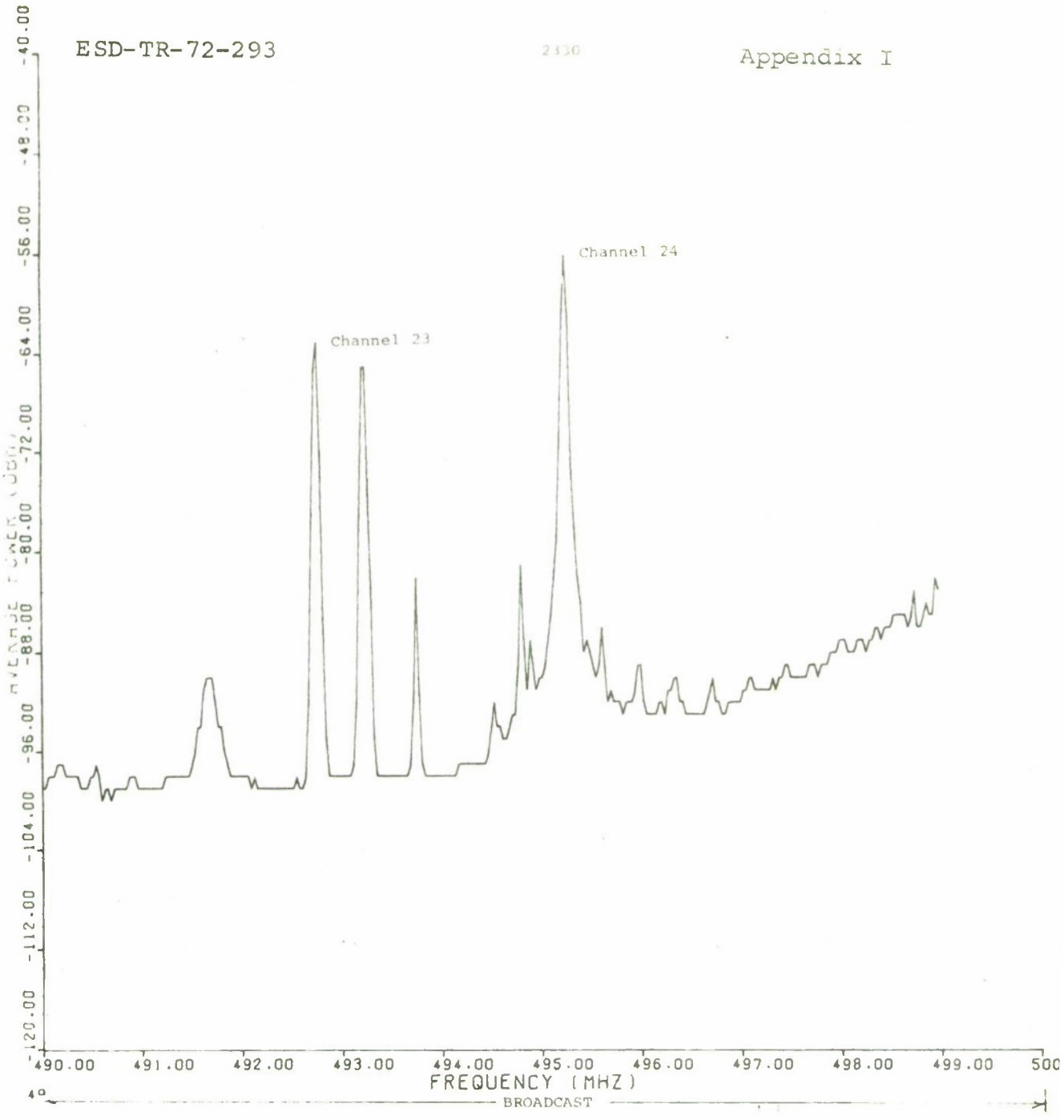


Figure I-80. Average Power Levels in the 490-500 MHz Band

APPENDIX II

DATA TAPE STATISTICS

The tables in this appendix (pages II-2 through II-65) summarize the measurements by presenting statistics on each tape in ITU band order. The bands are outlined in TABLE 5-2 and some information about each tape is contained both in this appendix and in TABLE 5-4.

As an example of how to use the tables, consider the first tape (#2323). The first frequency band on the tape is 100-108 MHz, and the recording was made on 3 May 1972 between 0858 and 1126. The top half of each frequency column consists of occupancy statistics, where a channel was considered occupied if a measurement was made at a power level greater than -99 dBm. Thus, it is seen that 40 out of the 267 channels in this band (each channel being 30 kHz) were occupied less than or equal to 5% of the time. Based on these measurements, these 40 channels, representing 15% of the total of 267 channels, were clear at least 95% of the time.

The lower half of each frequency column presents power level statistics and is read similarly. For example, 12 of the 267 channels (4.5%) had average power levels between -71 and -75 dBm. The power level indicated is the logarithmic average of all measurements on each channel over the entire flight path.

TAPE #	2323		2316		2334		2340	
BAND	100-108 MHZ		100-108 MHZ		100-108 MHZ		100-108 MHZ	
DATE	5/ 3/72		4/29/72		5/10/72		5/14/72	
TIME	858-1126		1726-2013		1253-1511		1255-1512	
OCC LEVEL	-99		-99		-99		-99	
OCCUPANCY LIMITS	# OF CHAN	% OF TOTAL	# OF CHAN	% OF TOTAL	# OF CHAN	% OF TOTAL	# OF CHAN	% OF TOTAL
< 5%	40	15.0	60	22.5	50	18.7	67	25.1
< 10%	71	26.6	111	41.6	93	34.8	117	43.8
< 20%	139	52.1	159	59.6	150	56.2	163	61.0
< 30%	172	64.4	185	69.3	181	67.8	182	68.2
< 40%	189	70.8	199	74.5	201	75.3	199	74.5
< 50%	216	80.9	213	79.8	215	80.5	217	81.3
< 60%	231	86.5	231	86.5	235	88.0	233	87.3
< 70%	250	93.6	242	90.6	248	92.9	246	92.1
< 80%	254	95.1	248	92.9	254	95.1	253	94.8
< 90%	261	97.8	258	96.6	263	98.5	263	98.5
<100%	267	100.0	267	100.0	267	100.0	267	100.0
< 10% > 0%	71	26.6	111	41.6	93	34.8	117	43.8
< 20% >11%	68	25.5	48	18.0	57	21.3	46	17.2
< 30% >21%	33	12.4	26	9.7	31	11.6	19	7.1
< 40% >31%	17	6.4	14	5.2	20	7.5	17	6.4
< 50% >41%	27	10.1	14	5.2	14	5.2	18	6.7
< 60% >51%	15	5.6	18	6.7	20	7.5	16	6.0
< 70% >61%	19	7.1	11	4.1	13	4.9	13	4.9
< 80% >71%	4	1.5	6	2.2	6	2.2	7	2.6
< 90% >81%	7	2.6	10	3.7	9	3.4	10	3.7
<100% >91%	6	2.2	9	3.4	4	1.5	4	1.5
PWR LIMITS (DBM)								
< -55	267	100.0	267	100.0	267	100.0	267	100.0
< -60	267	100.0	267	100.0	267	100.0	267	100.0
< -65	266	99.6	263	98.5	265	99.3	264	98.9
< -70	261	97.8	259	97.0	260	97.4	259	97.0
< -75	251	94.0	250	93.6	251	94.0	252	94.4
< -80	237	88.8	235	88.0	234	87.6	232	86.9
< -85	192	71.9	196	73.4	195	73.0	199	74.5
< -90	146	54.7	159	59.6	153	57.3	158	59.2
< -95	106	39.7	113	42.3	102	38.2	117	43.8
<-100	59	22.1	76	28.5	52	19.5	74	27.7
<-105	26	9.7	34	12.7	19	7.1	26	9.7
<-110	6	2.2	7	2.6	0	.0	13	4.9
< -50> -55	0	.0	0	.0	0	.0	0	.0
< -56> -60	0	.0	0	.0	0	.0	0	.0
< -61> -65	3	1.1	4	1.5	3	1.1	4	1.5
< -66> -70	4	1.5	5	1.9	6	2.2	6	2.2
< -71> -75	12	4.5	9	3.4	7	2.6	6	2.2
< -76> -80	19	7.1	25	9.4	23	8.6	26	9.7
< -81> -85	47	17.6	31	11.6	37	13.9	34	12.7
< -86> -90	40	15.0	45	16.9	45	16.9	38	14.2
< -91> -95	45	16.9	40	15.0	48	18.0	46	17.2
< -96>-100	47	17.6	44	16.5	52	19.5	42	15.7
<-101>-105	28	10.5	34	12.7	33	12.4	43	16.1
<-106>-110	18	6.7	28	10.5	13	4.9	11	4.1
<-111>-115	4	1.5	2	.7	0	.0	11	4.1

TAPE #	2349		2366		2310		2343	
BAND	100-108 MHZ		100-108 MHZ		100-108 MHZ		100-108 MHZ	
DATE	5/22/72		5/29/72		4/18/72		5/16/72	
TIME	1515-1659		1516-1723		1624-1725		2028-2223	
OCC LEVEL	-99		-99		-99		-99	
OCCUPANCY LIMITS	# OF CHAN	% OF TOTAL	# OF CHAN	% OF TOTAL	# OF CHAN	% OF TOTAL	# OF CHAN	% OF TOTAL
< 5%	42	15.7	40	15.0	34	12.7	66	24.7
< 10%	85	31.8	98	36.7	71	26.6	93	34.8
< 20%	138	51.7	157	58.8	131	49.1	144	53.9
< 30%	176	65.9	182	68.2	171	64.0	174	65.2
< 40%	192	71.9	203	76.0	187	70.0	203	76.0
< 50%	208	77.9	226	84.6	209	78.3	210	78.7
< 60%	227	85.0	241	90.3	225	84.3	227	85.0
< 70%	234	87.6	256	95.9	238	89.1	243	91.0
< 80%	249	93.3	259	97.0	244	91.4	247	92.5
< 90%	254	95.1	263	98.5	252	94.4	254	95.1
<100%	267	100.0	267	100.0	267	100.0	267	100.0
< 10% > 0%	85	31.8	98	36.7	71	26.6	93	34.8
< 20% >11%	53	19.9	59	22.1	60	22.5	51	19.1
< 30% >21%	38	14.2	25	9.4	40	15.0	30	11.2
< 40% >31%	16	6.0	21	7.9	16	6.0	29	10.9
< 50% >41%	16	6.0	23	8.6	22	8.2	7	2.6
< 60% >51%	19	7.1	15	5.6	16	6.0	17	6.4
< 70% >61%	7	2.6	15	5.6	13	4.9	16	6.0
< 80% >71%	15	5.6	3	1.1	6	2.2	4	1.5
< 90% >81%	5	1.9	4	1.5	8	3.0	7	2.6
<100% >91%	13	4.9	4	1.5	15	5.6	13	4.9
PWR LIMITS (DBM)								
< -55	267	100.0	267	100.0	267	100.0	267	100.0
< -60	266	99.6	267	100.0	267	100.0	267	100.0
< -65	263	98.5	266	99.6	265	99.3	263	98.5
< -70	258	96.6	258	96.6	258	96.6	256	95.9
< -75	252	94.4	252	94.4	249	93.3	250	93.6
< -80	236	88.4	237	88.8	231	86.5	225	84.3
< -85	203	76.0	200	74.9	198	74.2	185	69.3
< -90	158	59.2	156	58.4	163	61.0	150	56.2
< -95	114	42.7	102	38.2	110	41.2	99	37.1
<-100	58	21.7	35	13.1	53	19.9	64	24.0
<-105	23	8.6	7	2.6	20	7.5	33	12.4
<-110	4	1.5	0	.0	6	2.2	7	2.6
< -50> -55	0	.0	0	.0	0	.0	0	.0
< -56> -60	1	.4	0	.0	1	.4	0	.0
< -61> -65	5	1.9	2	.7	3	1.1	5	1.9
< -66> -70	3	1.1	8	3.0	5	1.9	6	2.2
< -71> -75	10	3.7	6	2.2	10	3.7	12	4.5
< -76> -80	18	6.7	22	8.2	23	8.6	25	9.4
< -81> -85	36	13.5	39	14.6	35	13.1	36	13.5
< -86> -90	44	16.5	42	15.7	37	13.9	44	16.5
< -91> -95	50	18.7	57	21.3	53	19.9	44	16.5
< -96>-100	51	19.1	64	24.0	57	21.3	36	13.5
<-101>-105	31	11.6	21	7.9	28	10.5	28	10.5
<-106>-110	18	6.7	6	2.2	11	4.1	27	10.1
<-111>-115	0	.0	0	.0	4	1.5	4	1.5

TAPE #	2323	2316	2334	2340
BAND	108-118 MHZ	108-118 MHZ	108-118 MHZ	108-118 MHZ
DATE	5/ 3/72	4/24/72	5/10/72	5/14/72
TIME	858-1126	1726-2013	1253-1511	1255-1512
OCC LEVEL	-99	-99	-99	-99

OCCUPANCY LIMITS	# OF CHAN	% OF TOTAL	# OF CHAN	% OF TOTAL	# OF CHAN	% OF TOTAL	# OF CHAN	% OF TOTAL
< 5%	41	12.3	41	12.3	40	12.0	55	16.5
< 10%	66	19.8	74	22.2	64	19.2	84	25.1
< 20%	130	38.9	134	40.1	134	40.1	156	46.7
< 30%	194	58.1	211	63.2	195	58.4	223	66.8
< 40%	269	79.0	266	79.6	256	76.6	274	82.0
< 50%	291	87.1	301	90.1	290	86.8	305	91.3
< 60%	312	93.4	319	95.5	309	92.5	319	95.5
< 70%	323	96.7	325	97.3	323	96.7	325	97.3
< 80%	328	98.2	330	98.8	325	97.3	330	98.8
< 90%	334	100.0	334	100.0	334	100.0	334	100.0
<100%	334	100.0	334	100.0	334	100.0	334	100.0
< 10% > 0%	66	19.8	74	22.2	64	19.2	84	25.1
< 20% >11%	64	19.2	60	18.0	70	21.0	72	21.6
< 30% >21%	64	19.2	77	23.1	61	18.3	67	20.1
< 40% >31%	70	21.0	55	16.5	61	18.3	51	15.3
< 50% >41%	27	8.1	35	10.5	34	10.2	31	9.3
< 60% >51%	21	6.3	18	5.4	19	5.7	14	4.2
< 70% >61%	11	3.3	6	1.8	14	4.2	6	1.8
< 80% >71%	5	1.5	5	1.5	2	.6	5	1.5
< 90% >81%	6	1.8	4	1.2	9	2.7	4	1.2
<100% >91%	0	.0	0	.0	0	.0	0	.0
PWR LIMITS (DBMI)								
< -55	334	100.0	334	100.0	334	100.0	334	100.0
< -60	334	100.0	334	100.0	334	100.0	334	100.0
< -65	334	100.0	334	100.0	334	100.0	334	100.0
< -70	334	100.0	334	100.0	334	100.0	334	100.0
< -75	326	97.6	331	99.1	330	98.8	331	99.1
< -80	309	92.5	318	95.2	304	91.0	314	94.0
< -85	261	78.1	265	79.3	252	75.4	270	80.8
< -90	191	57.2	208	62.3	183	54.8	214	64.1
< -95	106	31.7	122	36.5	109	32.6	148	44.3
<-100	48	14.4	69	20.7	42	12.6	80	24.0
<-105	23	6.9	31	9.3	24	7.2	48	14.4
<-110	2	.6	6	1.8	3	.9	19	5.7
< -50> -55	0	.0	0	.0	0	.0	0	.0
< -56> -60	0	.0	0	.0	0	.0	0	.0
< -61> -65	0	.0	0	.0	0	.0	0	.0
< -66> -70	0	.0	0	.0	0	.0	0	.0
< -71> -75	9	2.7	6	1.8	6	1.8	4	1.2
< -76> -80	21	6.3	19	5.7	30	9.0	20	6.0
< -81> -85	56	16.8	53	15.9	52	15.6	54	16.2
< -86> -90	67	20.1	65	19.5	72	21.6	59	17.7
< -91> -95	92	27.5	85	25.4	79	23.7	65	19.5
< -96>-100	47	14.1	48	14.4	58	17.4	58	17.4
<-101>-105	22	6.6	31	9.3	17	5.1	34	10.2
<-106>-110	20	6.0	27	8.1	19	5.7	27	8.1
<-111>-115	0	.0	0	.0	1	.3	13	3.9

TAPE #	2349		2366		2310		2343	
BAND	108-118 MHZ		108-118 MHZ		108-118 MHZ		108-118 MHZ	
DATE	5/22/72		5/29/72		4/18/72		5/16/72	
TIME	1515-1659		1516-1723		1524-1725		2028-2223	
OCC LEVEL	-99		-99		-99		-99	
OCCUPANCY LIMITS	# OF CHAN	% OF TOTAL	# OF CHAN	% OF TOTAL	# OF CHAN	% OF TOTAL	# OF CHAN	% OF TOTAL
< 5%	48	14.4	21	6.3	42	12.6	48	14.4
< 10%	77	23.1	43	12.9	66	19.8	79	23.7
< 20%	147	44.0	88	26.3	135	40.4	129	38.6
< 30%	210	62.9	160	47.9	197	59.0	191	57.2
< 40%	257	76.9	240	71.9	243	72.8	247	74.0
< 50%	286	85.6	282	84.4	288	86.2	280	83.8
< 60%	304	91.0	309	92.5	307	91.9	301	90.1
< 70%	323	96.7	323	96.7	321	96.1	316	94.6
< 80%	328	98.2	332	99.4	329	98.5	327	97.9
< 90%	332	99.4	334	100.0	333	99.7	331	99.1
<100%	334	100.0	334	100.0	334	100.0	334	100.0
< 10% > 0%	77	23.1	43	12.9	66	19.6	79	23.7
< 20% >11%	70	21.0	45	13.5	69	20.7	50	15.0
< 30% >21%	63	18.9	72	21.6	62	18.6	62	18.6
< 40% >31%	47	14.1	80	24.0	46	13.8	56	16.8
< 50% >41%	29	8.7	42	12.6	45	13.5	33	9.9
< 60% >51%	18	5.4	27	8.1	19	5.7	21	6.3
< 70% >61%	19	5.7	14	4.2	14	4.2	15	4.5
< 80% >71%	5	1.5	9	2.7	8	2.4	11	3.3
< 90% >81%	4	1.2	2	.6	4	1.2	4	1.2
<100% >91%	2	.6	0	.0	1	.3	3	.9
PWR LIMITS (DBM)								
< -55	334	100.0	334	100.0	334	100.0	334	100.0
< -60	334	100.0	334	100.0	334	100.0	334	100.0
< -65	334	100.0	334	100.0	334	100.0	334	100.0
< -70	334	100.0	334	100.0	334	100.0	334	100.0
< -75	321	96.1	324	97.0	330	98.8	329	98.5
< -80	304	91.0	284	85.0	305	91.3	291	87.1
< -85	272	81.4	233	69.8	266	79.6	243	72.8
< -90	205	61.4	155	46.4	198	59.3	178	53.3
< -95	121	36.2	87	26.0	114	34.1	116	34.7
<-100	65	19.5	34	10.2	38	11.4	68	20.4
<-105	33	9.9	6	1.8	18	5.4	39	11.7
<-110	2	.6	0	.0	0	.0	11	3.3
< -50> -55	0	.0	0	.0	0	.0	0	.0
< -56> -60	0	.0	0	.0	0	.0	0	.0
< -61> -65	0	.0	0	.0	0	.0	0	.0
< -66> -70	0	.0	0	.0	1	.3	0	.0
< -71> -75	17	5.1	15	4.5	7	2.1	12	3.6
< -76> -80	17	5.1	44	13.2	29	8.7	37	11.1
< -81> -85	43	12.9	59	17.7	43	12.9	61	18.3
< -86> -90	61	18.3	72	21.6	72	21.6	54	16.2
< -91> -95	95	28.4	66	19.8	91	27.2	66	19.8
< -96>-100	42	12.6	55	16.5	59	17.7	44	13.2
<-101>-105	34	10.2	18	5.4	15	4.5	31	9.3
<-106>-110	25	7.5	5	1.5	17	5.1	22	6.6
<-111>-115	0	.0	0	.0	0	.0	7	2.1

TAPE #	2323	2316	2334	2340
BAND	118-136 MHZ	118-136 MHZ	118-136 MHZ	118-136 MHZ
DATE	5/ 3/72	4/24/72	5/10/72	5/14/72
TIME	858-1126	1726-2013	1253-1511	1255-1512
OCC LEVEL	-99	-99	-99	-99

OCCUPANCY LIMITS	# OF CHAN	% OF TOTAL	# OF CHAN	% OF TOTAL	# OF CHAN	% OF TOTAL	# OF CHAN	% OF TOTAL
< 5%	168	28.0	250	41.7	179	29.8	226	37.7
< 10%	312	52.0	393	65.5	321	53.5	381	63.5
< 20%	494	82.3	525	87.5	503	83.8	522	87.0
< 30%	558	93.0	568	94.7	555	92.5	560	93.3
< 40%	582	97.0	583	97.2	581	96.8	585	97.5
< 50%	588	98.0	592	98.7	589	98.2	592	98.7
< 60%	593	98.8	595	99.2	595	99.2	593	98.8
< 70%	595	99.2	597	99.5	595	99.2	596	99.3
< 80%	597	99.5	597	99.5	597	99.5	597	99.5
< 90%	597	99.5	600	100.0	597	99.5	600	100.0
<100%	600	100.0	600	100.0	600	100.0	600	100.0
< 10% > 0%	312	52.0	393	65.5	321	53.5	381	63.5
< 20% >11%	182	30.3	132	22.0	182	30.3	141	23.5
< 30% >21%	64	10.7	43	7.2	52	8.7	38	6.3
< 40% >31%	24	4.0	15	2.5	26	4.3	25	4.2
< 50% >41%	6	1.0	9	1.5	8	1.3	7	1.2
< 60% >51%	5	.8	3	.5	6	1.0	1	.2
< 70% >61%	2	.3	2	.3	0	.0	3	.5
< 80% >71%	2	.3	0	.0	2	.3	1	.2
< 90% >81%	0	.0	3	.5	0	.0	3	.5
<100% >91%	3	.5	0	.0	3	.5	0	.0
PWR LIMITS (DBM)								
< -55	600	100.0	600	100.0	600	100.0	600	100.0
< -60	600	100.0	600	100.0	600	100.0	600	100.0
< -65	599	99.8	599	99.8	598	99.7	599	99.8
< -70	596	99.3	597	99.5	596	99.3	596	99.3
< -75	582	97.0	588	98.0	587	97.8	592	98.7
< -80	555	92.5	560	93.3	553	92.2	562	93.7
< -85	487	81.2	507	84.5	483	80.5	500	83.3
< -90	389	64.8	407	67.8	381	63.5	417	69.5
< -95	221	36.8	295	49.2	257	42.8	305	50.8
<-100	124	20.7	158	26.3	122	20.3	184	30.7
<-105	52	8.7	69	11.5	48	8.0	90	15.0
<-110	6	1.0	15	2.5	4	.7	24	4.0
< -50> -55	0	.0	0	.0	0	.0	0	.0
< -56> -60	0	.0	0	.0	0	.0	0	.0
< -61> -65	2	.3	1	.2	3	.5	1	.2
< -66> -70	10	1.7	4	.7	2	.3	4	.7
< -71> -75	10	1.7	9	1.5	11	1.8	7	1.2
< -76> -80	32	5.3	34	5.7	42	7.0	36	6.0
< -81> -85	74	12.3	61	10.2	71	11.8	69	11.5
< -86> -90	106	17.7	97	16.2	111	18.5	83	13.8
< -91> -95	165	27.5	128	21.3	126	21.0	121	20.2
< -96>-100	101	16.8	134	22.3	147	24.5	122	20.3
<-101>-105	59	9.8	73	12.2	50	8.3	79	13.2
<-106>-110	38	6.3	55	9.2	37	6.2	62	10.3
<-111>-115	3	.5	4	.7	0	.0	16	2.7

TAPE #	2349	2366	2310	2343
BAND	118-134 MHZ	118-136 MHZ	118-136 MHZ	118-136 MHZ
DATE	5/22/72	5/29/72	4/18/72	5/16/72
TIME	1515-1659	1516-1723	1524-1725	2028-2223
OCC LEVEL	-99	-99	-99	-99

OCCUPANCY LIMITS	# OF CHAN	% OF TOTAL	# OF CHAN	% OF TOTAL	# OF CHAN	% OF TOTAL	# OF CHAN	% OF TOTAL
< 5%	190	31.7	128	21.3	189	31.5	349	58.2
< 10%	321	53.5	296	49.3	326	54.3	452	75.3
< 20%	477	79.5	491	81.8	502	83.7	544	90.7
< 30%	529	88.2	552	92.0	552	92.0	576	96.0
< 40%	558	93.0	575	95.8	573	95.5	589	98.2
< 50%	578	96.3	587	97.8	589	98.2	591	98.5
< 60%	586	97.7	594	99.0	593	98.8	595	99.2
< 70%	590	98.3	599	99.8	595	99.2	595	99.2
< 80%	595	99.2	600	100.0	595	99.2	595	99.2
< 90%	596	99.3	600	100.0	597	99.5	597	99.5
<100%	600	100.0	600	100.0	600	100.0	600	100.0
< 10% > 0%	321	53.5	296	49.3	326	54.3	452	75.3
< 20% >11%	156	26.0	195	32.5	176	29.3	92	15.3
< 30% >21%	52	8.7	61	10.2	50	8.3	32	5.3
< 40% >31%	29	4.8	23	3.8	21	3.5	13	2.2
< 50% >41%	20	3.3	12	2.0	16	2.7	2	.3
< 60% >51%	8	1.3	7	1.2	4	.7	4	.7
< 70% >61%	4	.7	5	.8	2	.3	0	.0
< 80% >71%	5	.8	1	.2	0	.0	0	.0
< 90% >81%	1	.2	0	.0	2	.3	2	.3
<100% >91%	4	.7	0	.0	3	.5	3	.5
PWR LIMITS (DBM)								
< -55	600	100.0	600	100.0	600	100.0	600	100.0
< -60	599	99.8	599	99.8	600	100.0	599	99.8
< -65	598	99.7	597	99.5	598	99.7	599	99.8
< -70	595	99.2	596	99.3	595	99.2	595	99.2
< -75	584	97.3	577	96.2	584	97.3	585	97.5
< -80	548	91.3	534	89.0	550	91.7	555	92.5
< -85	479	79.8	465	77.5	494	82.3	504	84.0
< -90	389	64.8	324	54.0	400	66.7	413	68.8
< -95	271	45.2	195	32.5	262	43.7	287	47.8
<-100	132	22.0	88	14.7	132	22.0	191	31.8
<-105	55	9.2	25	4.2	60	10.0	112	18.7
<-110	3	.5	0	.0	8	1.3	27	4.5
< -50> -55	0	.0	0	.0	0	.0	0	.0
< -56> -60	1	.2	2	.3	0	.0	1	.2
< -61> -65	1	.2	1	.2	3	.5	1	.2
< -66> -70	4	.7	1	.2	3	.5	3	.5
< -71> -75	15	2.5	33	5.5	13	2.2	10	1.7
< -76> -80	42	7.0	42	7.0	38	6.3	36	6.0
< -81> -85	75	12.5	70	11.7	64	10.7	59	9.8
< -86> -90	98	16.3	155	25.8	106	17.7	100	16.7
< -91> -95	137	22.8	130	21.7	147	24.5	123	20.5
< -96>-100	108	18.0	94	15.7	113	18.8	93	15.5
<-101>-105	77	12.8	57	9.5	66	11.0	77	12.8
<-106>-110	41	6.8	15	2.5	43	7.2	84	14.0
<-111>-115	1	.2	0	.0	4	.7	13	2.2

TAPE #	2323		2316		2334		2340	
BAND	136-138 MHZ		136-138 MHZ		136-138 MHZ		136-138 MHZ	
DATE	5/ 3/72		4/24/72		5/10/72		5/14/72	
TIME	858-1126		1726-2013		1253-1511		1255-1512	
OCC LEVEL	-99		-99		-99		-99	
OCCUPANCY LIMITS	# OF CHAN	% OF TOTAL	# OF CHAN	% OF TOTAL	# OF CHAN	% OF TOTAL	# OF CHAN	% OF TOTAL
< 5%	66	98.5	67	100.0	66	98.5	67	100.0
< 10%	66	98.5	67	100.0	67	100.0	67	100.0
< 20%	67	100.0	67	100.0	67	100.0	67	100.0
< 30%	67	100.0	67	100.0	67	100.0	67	100.0
< 40%	67	100.0	67	100.0	67	100.0	67	100.0
< 50%	67	100.0	67	100.0	67	100.0	67	100.0
< 60%	67	100.0	67	100.0	67	100.0	67	100.0
< 70%	67	100.0	67	100.0	67	100.0	67	100.0
< 80%	67	100.0	67	100.0	67	100.0	67	100.0
< 90%	67	100.0	67	100.0	67	100.0	67	100.0
<100%	67	100.0	67	100.0	67	100.0	67	100.0
< 10% > 0%	66	98.5	67	100.0	67	100.0	67	100.0
< 20% >11%	1	1.5	0	.0	0	.0	0	.0
< 30% >21%	0	.0	0	.0	0	.0	0	.0
< 40% >31%	0	.0	0	.0	0	.0	0	.0
< 50% >41%	0	.0	0	.0	0	.0	0	.0
< 60% >51%	0	.0	0	.0	0	.0	0	.0
< 70% >61%	0	.0	0	.0	0	.0	0	.0
< 80% >71%	0	.0	0	.0	0	.0	0	.0
< 90% >81%	0	.0	0	.0	0	.0	0	.0
<100% >91%	0	.0	0	.0	0	.0	0	.0
PWR LIMITS (DBM)								
< -55	67	100.0	67	100.0	67	100.0	67	100.0
< -60	67	100.0	67	100.0	67	100.0	67	100.0
< -65	67	100.0	67	100.0	67	100.0	67	100.0
< -70	67	100.0	67	100.0	67	100.0	67	100.0
< -75	67	100.0	67	100.0	67	100.0	67	100.0
< -80	67	100.0	67	100.0	66	98.5	67	100.0
< -85	67	100.0	66	98.5	66	98.5	67	100.0
< -90	66	98.5	65	97.0	64	95.5	65	97.0
< -95	64	95.5	63	94.0	63	94.0	65	97.0
<-100	61	91.0	58	86.6	59	88.1	60	89.6
<-105	46	68.7	46	68.7	41	61.2	48	71.6
<-110	4	6.0	3	4.5	14	20.9	25	37.3
< -50> -55	0	.0	0	.0	0	.0	0	.0
< -56> -60	0	.0	0	.0	0	.0	0	.0
< -61> -65	0	.0	0	.0	0	.0	0	.0
< -66> -70	0	.0	0	.0	0	.0	0	.0
< -71> -75	0	.0	0	.0	0	.0	0	.0
< -76> -80	0	.0	0	.0	1	1.5	0	.0
< -81> -85	0	.0	1	1.5	0	.0	0	.0
< -86> -90	2	3.0	1	1.5	2	3.0	2	3.0
< -91> -95	1	1.5	2	3.0	1	1.5	2	3.0
< -96>-100	5	7.5	9	13.4	13	19.4	3	4.5
<-101>-105	20	29.9	12	17.9	13	19.4	13	19.4
<-106>-110	39	58.2	42	62.7	30	44.8	25	37.3
<-111>-115	0	.0	0	.0	7	10.4	22	32.8

TAPE #	2349		2366		2310		2343	
BAND	136-138 MHZ		136-138 MHZ		136-138 MHZ		136-138 MHZ	
DATE	5/22/72		5/29/72		4/18/72		5/16/72	
TIME	1515-1659		1516-1723		1524-1725		2028-2223	
OCC LEVEL	-99		-99		-99		-99	
OCCUPANCY LIMITS	# OF CHAN	% OF TOTAL	# OF CHAN	% OF TOTAL	# OF CHAN	% OF TOTAL	# OF CHAN	% OF TOTAL
< 5%	65	97.0	64	95.5	64	95.5	67	100.0
< 10%	67	100.0	67	100.0	66	98.5	67	100.0
< 20%	67	100.0	67	100.0	67	100.0	67	100.0
< 30%	67	100.0	67	100.0	67	100.0	67	100.0
< 40%	67	100.0	67	100.0	67	100.0	67	100.0
< 50%	67	100.0	67	100.0	67	100.0	67	100.0
< 60%	67	100.0	67	100.0	67	100.0	67	100.0
< 70%	67	100.0	67	100.0	67	100.0	67	100.0
< 80%	67	100.0	67	100.0	67	100.0	67	100.0
< 90%	67	100.0	67	100.0	67	100.0	67	100.0
<100%	67	100.0	67	100.0	67	100.0	67	100.0
< 10% > 0%	67	100.0	67	100.0	66	98.5	67	100.0
< 20% >11%	0	.0	0	.0	1	1.5	0	.0
< 30% >21%	0	.0	0	.0	0	.0	0	.0
< 40% >31%	0	.0	0	.0	0	.0	0	.0
< 50% >41%	0	.0	0	.0	0	.0	0	.0
< 60% >51%	0	.0	0	.0	0	.0	0	.0
< 70% >61%	0	.0	0	.0	0	.0	0	.0
< 80% >71%	0	.0	0	.0	0	.0	0	.0
< 90% >81%	0	.0	0	.0	0	.0	0	.0
<100% >91%	0	.0	0	.0	0	.0	0	.0
PWR LIMITS (DBM)								
< -55	67	100.0	67	100.0	67	100.0	67	100.0
< -60	67	100.0	67	100.0	67	100.0	67	100.0
< -65	67	100.0	67	100.0	67	100.0	67	100.0
< -70	67	100.0	67	100.0	67	100.0	67	100.0
< -75	67	100.0	67	100.0	67	100.0	67	100.0
< -80	67	100.0	67	100.0	67	100.0	67	100.0
< -85	67	100.0	67	100.0	67	100.0	67	100.0
< -90	67	100.0	67	100.0	67	100.0	67	100.0
< -95	65	97.0	47	70.1	67	100.0	63	94.0
<-100	64	95.5	32	47.8	61	91.0	51	76.1
<-105	48	71.6	7	10.4	54	80.6	25	37.3
<-110	7	10.4	0	.0	26	38.8	0	.0
< -50> -55	0	.0	0	.0	0	.0	0	.0
< -56> -60	0	.0	0	.0	0	.0	0	.0
< -61> -65	0	.0	0	.0	0	.0	0	.0
< -66> -70	0	.0	0	.0	0	.0	0	.0
< -71> -75	0	.0	0	.0	0	.0	0	.0
< -76> -80	0	.0	0	.0	0	.0	0	.0
< -81> -85	0	.0	0	.0	0	.0	0	.0
< -86> -90	1	1.5	0	.0	0	.0	0	.0
< -91> -95	2	3.0	25	37.3	2	3.0	8	11.9
< -96>-100	1	1.5	10	14.9	4	6.0	11	16.4
<-101>-105	21	31.3	30	44.8	10	14.9	31	46.3
<-106>-110	42	62.7	2	3.0	45	67.2	17	25.4
<-111>-115	0	.0	0	.0	6	9.0	0	.0

TAPE #	2323		2316		2334		2340	
BAND	138-144 MHZ		138-144 MHZ		138-144 MHZ		138-144 MHZ	
DATE	5/ 3/72		4/24/72		5/10/72		5/14/72	
TIME	858-1126		1726-2013		1253-1511		1255-1512	
OCC LEVEL	-99		-99		-99		-99	
OCCUPANCY LIMITS	# OF CHAN	% OF TOTAL	# OF CHAN	% OF TOTAL	# OF CHAN	% OF TOTAL	# OF CHAN	% OF TOTAL
< 5%	106	53.0	161	80.5	134	67.0	192	96.0
< 10%	138	69.0	184	92.0	159	79.5	196	98.0
< 20%	182	91.0	195	97.5	193	96.5	197	98.5
< 30%	198	99.0	200	100.0	199	99.5	200	100.0
< 40%	200	100.0	200	100.0	200	100.0	200	100.0
< 50%	200	100.0	200	100.0	200	100.0	200	100.0
< 60%	200	100.0	200	100.0	200	100.0	200	100.0
< 70%	200	100.0	200	100.0	200	100.0	200	100.0
< 80%	200	100.0	200	100.0	200	100.0	200	100.0
< 90%	200	100.0	200	100.0	200	100.0	200	100.0
<100%	200	100.0	200	100.0	200	100.0	200	100.0
< 10% > 0%	138	69.0	184	92.0	159	79.5	196	98.0
< 20% >11%	44	22.0	11	5.5	34	17.0	1	.5
< 30% >21%	16	8.0	5	2.5	6	3.0	3	1.5
< 40% >31%	2	1.0	0	.0	1	.5	0	.0
< 50% >41%	0	.0	0	.0	0	.0	0	.0
< 60% >51%	0	.0	0	.0	0	.0	0	.0
< 70% >61%	0	.0	0	.0	0	.0	0	.0
< 80% >71%	0	.0	0	.0	0	.0	0	.0
< 90% >81%	0	.0	0	.0	0	.0	0	.0
<100% >91%	0	.0	0	.0	0	.0	0	.0
PWR LIMITS (DBM)								
< -55	200	100.0	200	100.0	200	100.0	200	100.0
< -60	200	100.0	200	100.0	200	100.0	200	100.0
< -65	200	100.0	200	100.0	200	100.0	200	100.0
< -70	200	100.0	200	100.0	200	100.0	200	100.0
< -75	199	99.5	200	100.0	200	100.0	200	100.0
< -80	198	99.0	198	99.0	198	99.0	200	100.0
< -85	186	93.0	194	97.0	185	92.5	200	100.0
< -90	154	77.0	187	93.5	170	85.0	194	97.0
< -95	133	66.5	166	83.0	141	70.5	185	92.5
<-100	102	51.0	135	67.5	111	55.5	168	84.0
<-105	54	27.0	108	54.0	79	39.5	147	73.5
<-110	0	.0	38	19.0	33	16.5	104	52.0
< -50> -55	0	.0	0	.0	0	.0	0	.0
< -56> -60	0	.0	0	.0	0	.0	0	.0
< -61> -65	0	.0	0	.0	0	.0	0	.0
< -66> -70	0	.0	0	.0	0	.0	0	.0
< -71> -75	1	.5	1	.5	0	.0	0	.0
< -76> -80	2	1.0	1	.5	3	1.5	0	.0
< -81> -85	15	7.5	5	2.5	13	6.5	1	.5
< -86> -90	33	16.5	8	4.0	20	10.0	7	3.5
< -91> -95	22	11.0	27	13.5	30	15.0	10	5.0
< -96>-100	31	15.5	30	15.0	31	15.5	19	9.5
<-101>-105	48	24.0	33	16.5	32	16.0	23	11.5
<-106>-110	48	24.0	87	43.5	50	25.0	45	22.5
<-111>-115	0	.0	8	4.0	21	10.5	95	47.5

TAPE #	2349		2366		2310		2343	
BAND	138-144 MHZ		138-144 MHZ		138-144 MHZ		138-144 MHZ	
DATE	5/22/72		5/29/72		4/18/72		5/16/72	
TIME	1515-1659		1514-1723		1524-1725		2028-2223	
OCC LEVEL	-99		-99		-99		-99	
OCCUPANCY LIMITS	# OF CHAN	% OF TOTAL	# OF CHAN	% OF TOTAL	# OF CHAN	% OF TOTAL	# OF CHAN	% OF TOTAL
< 5%	125	62.5	156	78.0	123	61.5	171	85.5
< 10%	160	80.0	171	85.5	154	77.0	185	92.5
< 20%	196	98.0	190	95.0	184	92.0	198	99.0
< 30%	200	100.0	196	98.0	198	99.0	200	100.0
< 40%	200	100.0	200	100.0	200	100.0	200	100.0
< 50%	200	100.0	200	100.0	200	100.0	200	100.0
< 60%	200	100.0	200	100.0	200	100.0	200	100.0
< 70%	200	100.0	200	100.0	200	100.0	200	100.0
< 80%	200	100.0	200	100.0	200	100.0	200	100.0
< 90%	200	100.0	200	100.0	200	100.0	200	100.0
<100%	200	100.0	200	100.0	200	100.0	200	100.0
< 10% > 0%	160	80.0	171	85.5	154	77.0	185	92.5
< 20% >11%	36	18.0	19	9.5	30	15.0	13	6.5
< 30% >21%	4	2.0	6	3.0	14	7.0	2	1.0
< 40% >31%	0	.0	4	2.0	2	1.0	0	.0
< 50% >41%	0	.0	0	.0	0	.0	0	.0
< 60% >51%	0	.0	0	.0	0	.0	0	.0
< 70% >61%	0	.0	0	.0	0	.0	0	.0
< 80% >71%	0	.0	0	.0	0	.0	0	.0
< 90% >81%	0	.0	0	.0	0	.0	0	.0
<100% >91%	0	.0	0	.0	0	.0	0	.0
PWR LIMITS (DBM)								
< -55	200	100.0	200	100.0	200	100.0	200	100.0
< -60	200	100.0	200	100.0	200	100.0	200	100.0
< -65	200	100.0	200	100.0	200	100.0	200	100.0
< -70	200	100.0	200	100.0	200	100.0	200	100.0
< -75	199	99.5	200	100.0	200	100.0	200	100.0
< -80	196	98.0	200	100.0	196	98.0	200	100.0
< -85	191	95.5	196	98.0	186	93.0	196	98.0
< -90	164	82.0	189	94.5	159	79.5	187	93.5
< -95	139	69.5	174	87.0	134	67.0	172	86.0
<-100	114	57.0	155	77.5	107	53.5	151	75.5
<-105	92	46.0	111	55.5	77	38.5	128	64.0
<-110	25	12.5	5	2.5	32	16.0	5	2.5
< -50> -55	0	.0	0	.0	0	.0	0	.0
< -56> -60	0	.0	0	.0	0	.0	0	.0
< -61> -65	0	.0	0	.0	0	.0	0	.0
< -66> -70	0	.0	0	.0	0	.0	0	.0
< -71> -75	1	.5	0	.0	0	.0	0	.0
< -76> -80	3	1.5	1	.5	4	2.0	0	.0
< -81> -85	6	3.0	3	1.5	14	7.0	6	3.0
< -86> -90	29	14.5	11	5.5	26	13.0	8	4.0
< -91> -95	26	13.0	14	7.0	27	13.5	19	9.5
< -96>-100	29	14.5	22	11.0	23	11.5	24	12.0
<-101>-105	25	12.5	56	28.0	37	18.5	25	12.5
<-106>-110	75	37.5	93	46.5	50	25.0	118	59.0
<-111>-115	6	3.0	0	.0	19	9.5	0	.0

TAPE #	2323	2316	2334	2340
BAND	144-146 MHZ	144-146 MHZ	144-146 MHZ	144-146 MHZ
DATE	5/ 3/72	4/29/72	5/10/72	5/14/72
TIME	858-1126	1726-2013	1253-1511	1255-1512
OCC LEVEL	-99	-99	-99	-99

OCCUPANCY LIMITS	# OF CHAN	% OF TOTAL	# OF CHAN	% OF TOTAL	# OF CHAN	% OF TOTAL	# OF CHAN	% OF TOTAL
< 5%	23	34.3	1	1.5	21	31.3	1	1.5
< 10%	34	50.7	6	9.0	35	52.2	4	6.0
< 20%	43	64.2	17	25.4	43	64.2	8	11.9
< 30%	48	71.6	27	40.3	50	74.6	17	25.4
< 40%	52	77.6	35	52.2	53	79.1	26	38.8
< 50%	59	88.1	40	59.7	53	79.1	32	47.8
< 60%	60	89.6	44	65.7	58	86.6	40	59.7
< 70%	64	95.5	52	77.6	61	91.0	45	67.2
< 80%	65	97.0	58	86.6	63	94.0	56	83.6
< 90%	66	98.5	62	92.5	65	97.0	62	92.5
<100%	67	100.0	67	100.0	67	100.0	67	100.0
< 10% > 0%	34	50.7	6	9.0	35	52.2	4	6.0
< 20% >11%	9	13.4	11	16.4	8	11.9	4	6.0
< 30% >21%	5	7.5	10	14.9	7	10.4	9	13.4
< 40% >31%	4	6.0	8	11.9	3	4.5	9	13.4
< 50% >41%	7	10.4	5	7.5	0	.0	6	9.0
< 60% >51%	1	1.5	4	6.0	5	7.5	8	11.9
< 70% >61%	4	6.0	8	11.9	3	4.5	5	7.5
< 80% >71%	1	1.5	6	9.0	2	3.0	11	16.4
< 90% >81%	1	1.5	4	6.0	2	3.0	6	9.0
<100% >91%	1	1.5	5	7.5	2	3.0	5	7.5
PWR LIMITS (DBM)								
< -55	67	100.0	67	100.0	67	100.0	67	100.0
< -60	67	100.0	67	100.0	67	100.0	67	100.0
< -65	67	100.0	67	100.0	67	100.0	67	100.0
< -70	67	100.0	67	100.0	66	98.5	66	98.5
< -75	66	98.5	59	88.1	64	95.5	60	89.6
< -80	60	89.6	53	79.1	58	86.6	44	65.7
< -85	54	80.6	40	59.7	50	74.6	35	52.2
< -90	49	73.1	25	37.3	46	68.7	17	25.4
< -95	40	59.7	11	16.4	34	50.7	8	11.9
<-100	34	50.7	5	7.5	20	29.9	3	4.5
<-105	19	28.4	0	.0	13	19.4	1	1.5
<-110	0	.0	0	.0	2	3.0	0	.0
< -50> -55	0	.0	0	.0	0	.0	0	.0
< -56> -60	0	.0	0	.0	0	.0	0	.0
< -61> -65	0	.0	0	.0	0	.0	0	.0
< -66> -70	0	.0	1	1.5	1	1.5	4	6.0
< -71> -75	1	1.5	9	13.4	5	7.5	6	9.0
< -76> -80	6	9.0	8	11.9	6	9.0	13	19.4
< -81> -85	7	10.4	10	14.9	6	9.0	16	23.9
< -86> -90	8	11.9	15	22.4	5	7.5	13	19.4
< -91> -95	7	10.4	13	19.4	14	20.9	9	13.4
< -96>-100	7	10.4	8	11.9	11	16.4	4	6.0
<-101>-105	18	26.9	3	4.5	9	13.4	1	1.5
<-106>-110	13	19.4	0	.0	10	14.9	1	1.5
<-111>-115	0	.0	0	.0	0	.0	0	.0

TAPE #	2349		2366		2310		2343	
BAND	144-146 MHZ		144-146 MHZ		144-146 MHZ		144-146 MHZ	
DATE	5/22/72		5/29/72		4/18/72		5/16/72	
TIME	1515-1659		1516-1723		1524-1725		2028-2223	
OCC LEVEL	-99		-99		-99		-99	
OCCUPANCY LIMITS	# OF CHAN	% OF TOTAL	# OF CHAN	% OF TOTAL	# OF CHAN	% OF TOTAL	# OF CHAN	% OF TOTAL
< 5%	2	3.0	3	4.5	13	19.4	0	.0
< 10%	2	3.0	13	19.4	21	31.3	3	4.5
< 20%	10	14.9	25	37.3	41	61.2	11	16.4
< 30%	20	29.9	43	64.2	46	68.7	16	23.9
< 40%	31	46.3	48	71.6	50	74.6	28	41.8
< 50%	40	59.7	57	85.1	52	77.6	35	52.2
< 60%	43	64.2	60	89.6	56	83.6	41	61.2
< 70%	54	80.6	66	98.5	60	89.6	45	67.2
< 80%	59	88.1	67	100.0	62	92.5	54	80.6
< 90%	64	95.5	67	100.0	63	94.0	59	88.1
<100%	67	100.0	67	100.0	67	100.0	67	100.0
< 10% > 0%	2	3.0	13	19.4	21	31.3	3	4.5
< 20% >11%	8	11.9	12	17.9	20	29.9	8	11.9
< 30% >21%	10	14.9	18	26.9	5	7.5	5	7.5
< 40% >31%	11	16.4	5	7.5	4	6.0	12	17.9
< 50% >41%	9	13.4	9	13.4	2	3.0	7	10.4
< 60% >51%	3	4.5	3	4.5	4	6.0	6	9.0
< 70% >61%	11	16.4	6	9.0	4	6.0	4	6.0
< 80% >71%	5	7.5	1	1.5	2	3.0	9	13.4
< 90% >81%	5	7.5	0	.0	1	1.5	5	7.5
<100% >91%	3	4.5	0	.0	4	6.0	8	11.9
PWR LIMITS (DBM)								
< -55	67	100.0	67	100.0	67	100.0	67	100.0
< -60	67	100.0	67	100.0	67	100.0	67	100.0
< -65	67	100.0	67	100.0	67	100.0	67	100.0
< -70	67	100.0	67	100.0	67	100.0	63	94.0
< -75	61	91.0	63	94.0	64	95.5	56	83.6
< -80	56	83.6	56	83.6	59	88.1	47	70.1
< -85	38	56.7	49	73.1	50	74.6	30	44.8
< -90	23	34.3	40	59.7	41	61.2	14	20.9
< -95	10	14.9	25	37.3	29	43.3	7	10.4
<-100	5	7.5	11	16.4	19	28.4	3	4.5
<-105	1	1.5	1	1.5	11	16.4	0	.0
<-110	0	.0	0	.0	2	3.0	0	.0
< -50> -55	0	.0	0	.0	0	.0	0	.0
< -56> -60	0	.0	0	.0	0	.0	0	.0
< -61> -65	0	.0	0	.0	0	.0	0	.0
< -66> -70	0	.0	0	.0	0	.0	4	6.0
< -71> -75	7	10.4	5	7.5	5	7.5	9	13.4
< -76> -80	7	10.4	7	10.4	5	7.5	8	11.9
< -81> -85	20	29.9	7	10.4	7	10.4	20	29.9
< -86> -90	12	17.9	11	16.4	12	17.9	13	19.4
< -91> -95	11	16.4	16	23.9	9	13.4	7	10.4
< -96>-100	6	9.0	14	20.9	12	17.9	6	9.0
<-101>-105	3	4.5	7	10.4	8	11.9	0	.0
<-106>-110	1	1.5	0	.0	9	13.4	0	.0
<-111>-115	0	.0	0	.0	0	.0	0	.0

TAPE #	2323		2316		2339		2340	
BAND	146-150 MHZ		146-150 MHZ		146-150 MHZ		146-150 MHZ	
DATE	5/ 3/72		4/24/72		5/10/72		5/14/72	
TIME	858-1126		1726-2013		1253-1511		1255-1512	
OCC LEVEL	-99		-99		-99		-99	
OCCUPANCY LIMITS	# OF CHAN	% OF TOTAL	# OF CHAN	% OF TOTAL	# OF CHAN	% OF TOTAL	# OF CHAN	% OF TOTAL
< 5%	0	.0	13	9.8	2	1.5	28	21.2
< 10%	6	4.5	21	15.9	13	9.8	49	37.1
< 20%	37	28.0	68	51.5	34	25.8	92	69.7
< 30%	48	36.4	91	68.9	51	38.6	107	81.1
< 40%	64	48.5	104	78.8	65	49.2	114	86.4
< 50%	79	59.8	111	84.1	85	64.4	117	88.6
< 60%	93	70.5	115	87.1	94	71.2	120	90.9
< 70%	102	77.3	126	95.5	102	77.3	126	95.5
< 80%	115	87.1	130	98.5	116	87.9	132	100.0
< 90%	121	91.7	132	100.0	125	94.7	132	100.0
<100%	132	100.0	132	100.0	132	100.0	132	100.0
< 10% > 0%	6	4.5	21	15.9	13	9.8	49	37.1
< 20% >11%	31	23.5	47	35.6	21	15.9	43	32.6
< 30% >21%	11	8.3	23	17.4	17	12.9	15	11.4
< 40% >31%	16	12.1	13	9.8	14	10.6	7	5.3
< 50% >41%	15	11.4	7	5.3	20	15.2	3	2.3
< 60% >51%	14	10.6	4	3.0	9	6.8	3	2.3
< 70% >61%	9	6.8	11	8.3	8	6.1	6	4.5
< 80% >71%	13	9.8	4	3.0	14	10.6	6	4.5
< 90% >81%	6	4.5	2	1.5	9	6.8	0	.0
<100% >91%	11	8.3	0	.0	7	5.3	0	.0
PWR LIMITS (DBM)								
< -55	132	100.0	132	100.0	132	100.0	132	100.0
< -60	132	100.0	132	100.0	132	100.0	132	100.0
< -65	132	100.0	132	100.0	132	100.0	132	100.0
< -70	132	100.0	132	100.0	132	100.0	132	100.0
< -75	126	95.5	132	100.0	125	94.7	132	100.0
< -80	98	74.2	125	94.7	98	74.2	125	94.7
< -85	66	50.0	99	75.0	76	57.6	110	83.3
< -90	24	18.2	57	43.2	33	25.0	88	66.7
< -95	6	4.5	28	21.2	12	9.1	57	43.2
<-100	2	1.5	12	9.1	1	.8	27	20.5
<-105	0	.0	5	3.8	0	.0	14	10.6
<-110	0	.0	1	.8	0	.0	6	4.5
< -50> -55	0	.0	0	.0	0	.0	0	.0
< -56> -60	0	.0	0	.0	0	.0	0	.0
< -61> -65	0	.0	0	.0	0	.0	0	.0
< -66> -70	0	.0	0	.0	0	.0	0	.0
< -71> -75	7	5.3	0	.0	9	6.8	0	.0
< -76> -80	32	24.2	16	12.1	29	22.0	12	9.1
< -81> -85	32	24.2	26	19.7	28	21.2	12	9.1
< -86> -90	42	31.8	38	28.8	41	31.1	26	19.7
< -91> -95	14	10.6	30	22.7	16	12.1	30	22.7
< -96>-100	5	3.8	14	10.6	8	6.1	30	22.7
<-101>-105	0	.0	4	3.0	1	.8	10	7.6
<-106>-110	0	.0	4	3.0	0	.0	8	6.1
<-111>-115	0	.0	0	.0	0	.0	4	3.0

TAPE #	2349	2366	2310	2343
BAND	146-150 MHZ	146-150 MHZ	146-150 MHZ	146-150 MHZ
DATE	5/22/72	5/29/72	4/18/72	5/16/72
TIME	1515-1659	1516-1723	1524-1725	2028-2223
OCC LEVEL	-99	-99	-99	-99

OCCUPANCY LIMITS	# OF CHAN	% OF TOTAL	# OF CHAN	% OF TOTAL	# OF CHAN	% OF TOTAL	# OF CHAN	% OF TOTAL
< 5%	29	22.0	1	.8	1	.8	18	13.6
< 10%	57	43.2	7	5.3	11	8.3	39	29.5
< 20%	96	72.7	52	39.4	35	26.5	76	57.6
< 30%	111	84.1	79	59.8	55	41.7	98	74.2
< 40%	113	85.6	91	68.9	68	51.5	107	81.1
< 50%	117	88.6	109	82.6	79	59.8	114	86.4
< 60%	124	93.9	124	93.9	95	72.0	119	90.2
< 70%	132	100.0	128	97.0	102	77.3	126	95.5
< 80%	132	100.0	132	100.0	114	86.4	132	100.0
< 90%	132	100.0	132	100.0	118	89.4	132	100.0
<100%	132	100.0	132	100.0	132	100.0	132	100.0
< 10% > 0%	57	43.2	7	5.3	11	8.3	39	29.5
< 20% >11%	39	29.5	45	34.1	24	18.2	37	28.0
< 30% >21%	15	11.4	27	20.5	20	15.2	22	16.7
< 40% >31%	2	1.5	12	9.1	13	9.8	9	6.8
< 50% >41%	4	3.0	18	13.6	11	8.3	7	5.3
< 60% >51%	7	5.3	15	11.4	16	12.1	5	3.8
< 70% >61%	8	6.1	4	3.0	7	5.3	7	5.3
< 80% >71%	0	.0	4	3.0	12	9.1	6	4.5
< 90% >81%	0	.0	0	.0	4	3.0	0	.0
<100% >91%	0	.0	0	.0	14	10.6	0	.0
PWR LIMITS (DBM)								
< -55	132	100.0	132	100.0	132	100.0	132	100.0
< -60	132	100.0	132	100.0	132	100.0	132	100.0
< -65	131	99.2	132	100.0	132	100.0	131	99.2
< -70	130	98.5	132	100.0	132	100.0	130	98.5
< -75	129	97.7	132	100.0	123	93.2	128	97.0
< -80	123	93.2	122	92.4	97	73.5	110	83.3
< -85	106	80.3	90	68.2	66	50.0	88	66.7
< -90	92	69.7	59	44.7	31	23.5	54	40.9
< -95	58	43.9	18	13.6	12	9.1	34	25.8
<-100	34	25.8	2	1.5	1	.8	19	14.4
<-105	11	8.3	0	.0	0	.0	9	6.8
<-110	0	.0	0	.0	0	.0	0	.0
< -50> -55	0	.0	0	.0	0	.0	0	.0
< -56> -60	0	.0	0	.0	0	.0	0	.0
< -61> -65	1	.8	0	.0	0	.0	1	.8
< -66> -70	2	1.5	0	.0	0	.0	1	.8
< -71> -75	1	.8	0	.0	9	6.8	5	3.8
< -76> -80	10	7.6	13	9.8	31	23.5	17	12.9
< -81> -85	13	9.8	33	25.0	29	22.0	27	20.5
< -86> -90	22	16.7	37	28.0	38	28.8	29	22.0
< -91> -95	31	23.5	37	28.0	15	11.4	23	17.4
< -96>-100	24	19.7	11	8.3	9	6.8	13	9.8
<-101>-105	14	12.1	1	.8	1	.8	12	9.1
<-106>-110	10	7.6	0	.0	0	.0	4	3.0
<-111>-115	0	.0	0	.0	0	.0	0	.0

TAPE #	2324		2306		2322		2314	
BAND	150-174 MHZ		150-174 MHZ		150-174 MHZ		150-174 MHZ	
DATE	5/ 3/72		4/13/72		5/ 2/72		4/21/72	
TIME	1153-1334		1210-1436		1233-1330		1240-1506	
OCC LEVEL	-99		-99		-99		-99	
OCCUPANCY LIMITS	# OF CHAN	% OF TOTAL	# OF CHAN	% OF TOTAL	# OF CHAN	% OF TOTAL	# OF CHAN	% OF TOTAL
< 5%	59	7.4	48	6.0	103	12.9	32	4.0
< 10%	156	19.5	135	16.9	176	22.0	94	11.7
< 20%	309	38.6	287	35.8	271	33.8	245	30.6
< 30%	415	51.8	392	48.9	368	45.9	365	45.6
< 40%	503	62.8	482	60.2	442	55.2	444	55.4
< 50%	557	69.5	554	69.2	495	61.8	525	65.5
< 60%	598	74.7	610	76.2	540	67.4	580	72.4
< 70%	659	82.3	670	83.6	576	71.9	646	80.6
< 80%	705	88.0	708	88.4	615	76.8	697	87.0
< 90%	742	92.6	748	93.4	662	82.6	729	91.0
<100%	801	100.0	801	100.0	801	100.0	801	100.0
< 10% > 0%	156	19.5	135	16.9	176	22.0	94	11.7
< 20% >11%	153	19.1	152	19.0	95	11.9	151	18.9
< 30% >21%	106	13.2	105	13.1	97	12.1	120	15.0
< 40% >31%	88	11.0	90	11.2	74	9.2	79	9.9
< 50% >41%	54	6.7	72	9.0	53	6.6	81	10.1
< 60% >51%	41	5.1	56	7.0	45	5.6	55	6.9
< 70% >61%	61	7.6	60	7.5	36	4.5	66	8.2
< 80% >71%	46	5.7	38	4.7	39	4.9	51	6.4
< 90% >81%	37	4.6	40	5.0	47	5.9	32	4.0
<100% >91%	59	7.4	53	6.6	139	17.4	72	9.0
PWR LIMITS (DBM)								
< -55	801	100.0	801	100.0	801	100.0	801	100.0
< -60	801	100.0	801	100.0	801	100.0	800	99.9
< -65	794	99.1	794	99.1	782	97.6	794	99.1
< -70	759	94.8	762	95.1	761	95.0	761	95.0
< -75	735	91.8	729	91.0	721	90.0	728	90.9
< -80	653	81.5	637	79.5	653	81.5	641	80.0
< -85	526	65.7	485	60.5	520	64.9	482	60.2
< -90	356	44.4	296	37.0	383	47.8	319	39.8
< -95	195	24.3	146	18.2	279	34.8	143	17.9
<-100	76	9.5	43	5.4	176	22.0	44	5.5
<-105	18	2.2	11	1.4	68	8.5	6	.7
<-110	1	.1	0	.0	3	.4	0	.0
< -50> -55	0	.0	0	.0	0	.0	0	.0
< -56> -60	1	.1	1	.1	0	.0	1	.1
< -61> -65	13	1.6	12	1.5	24	3.0	12	1.5
< -66> -70	31	3.9	32	4.0	23	2.9	32	4.0
< -71> -75	33	4.1	37	4.6	43	5.4	37	4.6
< -76> -80	86	10.7	111	13.9	80	10.0	110	13.7
< -81> -85	133	16.6	162	20.2	142	17.7	163	20.3
< -86> -90	177	22.1	185	23.1	128	16.0	158	19.7
< -91> -95	156	19.5	141	17.6	99	12.4	170	21.2
< -96>-100	109	13.6	84	10.5	110	13.7	88	11.0
<-101>-105	47	5.9	28	3.5	105	13.1	26	3.2
<-106>-110	15	1.9	8	1.0	47	5.9	4	.5
<-111>-115	0	.0	0	.0	0	.0	0	.0

TAPE #	2365		2313		2348		2341	
BAND	150-174 MHZ		150-174 MHZ		150-174 MHZ		150-174 MHZ	
DATE	5/29/72		4/11/72		5/22/72		5/14/72	
TIME	1246-1505		1249-1516		1308-1458		1525-1718	
OCC LEVEL	-99		-99		-99		-99	
OCCUPANCY LIMITS	# OF CHAN	% OF TOTAL	# OF CHAN	% OF TOTAL	# OF CHAN	% OF TOTAL	# OF CHAN	% OF TOTAL
< 5%	25	3.1	0	.0	165	20.6	189	23.6
< 10%	61	7.6	0	.0	282	35.2	298	37.2
< 20%	177	22.1	0	.0	428	53.4	415	51.8
< 30%	296	37.0	0	.0	520	64.9	510	63.7
< 40%	408	50.9	140	17.5	580	72.4	563	70.3
< 50%	522	65.2	304	38.0	620	77.4	615	76.8
< 60%	599	74.8	459	57.3	655	81.8	654	81.6
< 70%	669	83.5	568	70.9	687	85.8	689	86.0
< 80%	726	90.6	648	80.9	714	89.1	720	89.9
< 90%	763	95.3	708	88.4	740	92.4	748	93.4
<100%	801	100.0	801	100.0	801	100.0	801	100.0
< 10% > 0%	61	7.6	0	.0	282	35.2	298	37.2
< 20% >11%	116	14.5	0	.0	146	18.2	117	14.6
< 30% >21%	119	14.9	0	.0	92	11.5	95	11.9
< 40% >31%	112	14.0	140	17.5	60	7.5	53	6.6
< 50% >41%	114	14.2	164	20.5	40	5.0	52	6.5
< 60% >51%	77	9.6	155	19.4	35	4.4	39	4.9
< 70% >61%	70	8.7	109	13.6	32	4.0	35	4.4
< 80% >71%	57	7.1	80	10.0	27	3.4	31	3.9
< 90% >81%	37	4.6	60	7.5	26	3.2	28	3.5
<100% >91%	38	4.7	93	11.6	61	7.6	53	6.6
PWR LIMITS (DBM)								
< -55	801	100.0	801	100.0	801	100.0	801	100.0
< -60	797	99.5	801	100.0	801	100.0	800	99.9
< -65	792	98.9	790	98.6	794	99.1	791	98.8
< -70	764	95.4	752	93.9	764	95.4	760	94.9
< -75	710	88.6	704	87.9	746	93.1	741	92.5
< -80	620	77.4	583	72.8	699	87.3	685	85.5
< -85	444	55.4	395	49.3	612	76.4	570	71.2
< -90	248	31.0	212	26.5	463	57.8	447	55.8
< -95	112	14.0	57	7.1	312	39.0	299	37.3
<-100	32	4.0	6	.7	174	21.7	164	20.5
<-105	2	.2	0	.0	74	9.2	68	8.5
<-110	0	.0	0	.0	6	.7	0	.0
< -50> -55	1	.1	0	.0	0	.0	0	.0
< -56> -60	3	.4	0	.0	1	.1	1	.1
< -61> -65	5	.6	19	2.4	11	1.4	17	2.1
< -66> -70	36	4.5	36	4.5	32	4.0	29	3.6
< -71> -75	62	7.7	67	8.4	18	2.2	18	2.2
< -76> -80	103	12.9	128	16.0	47	5.9	69	8.6
< -81> -85	191	23.8	185	23.1	111	13.9	126	15.7
< -86> -90	170	21.2	181	22.6	155	19.4	127	15.9
< -91> -95	144	18.0	146	18.2	136	17.0	143	17.9
< -96>-100	64	8.0	38	4.7	140	17.5	132	16.5
<-101>-105	21	2.6	1	.1	92	11.5	85	10.6
<-106>-110	1	.1	0	.0	58	7.2	54	6.7
<-111>-115	0	.0	0	.0	0	.0	0	.0

TAPE #	2335		2325		2342		2305	
BAND	150-174 MHZ		150-174 MHZ		150-174 MHZ		150-174 MHZ	
DATE	5/10/72		5/ 4/72		5/16/72		6/ 5/72	
TIME	1525-1734		1655-1859		1806-2012		2005-2158	
OCC LEVEL	-99		-99		-99		-99	
OCCUPANCY LIMITS	# OF CHAN	% OF TOTAL	# OF CHAN	% OF TOTAL	# OF CHAN	% OF TOTAL	# OF CHAN	% OF TOTAL
< 5%	38	4.7	801	100.0	71	8.9	103	12.9
< 10%	99	12.4	801	100.0	183	22.8	188	23.5
< 20%	213	26.6	801	100.0	346	43.2	329	41.1
< 30%	327	40.8	801	100.0	443	55.3	406	50.7
< 40%	399	49.8	801	100.0	530	66.2	481	60.0
< 50%	484	60.4	801	100.0	587	73.3	554	69.2
< 60%	552	68.9	801	100.0	641	80.0	617	77.0
< 70%	600	74.9	801	100.0	690	86.1	671	83.8
< 80%	676	84.4	801	100.0	707	88.3	700	87.4
< 90%	737	92.0	801	100.0	738	92.1	738	92.1
<100%	801	100.0	801	100.0	801	100.0	801	100.0
< 10% > 0%	99	12.4	801	100.0	183	22.8	188	23.5
< 20% >11%	114	14.2	0	.0	163	20.3	141	17.6
< 30% >21%	114	14.2	0	.0	97	12.1	77	9.6
< 40% >31%	72	9.0	0	.0	87	10.9	75	9.4
< 50% >41%	85	10.6	0	.0	57	7.1	73	9.1
< 60% >51%	68	8.5	0	.0	54	6.7	63	7.9
< 70% >61%	48	6.0	0	.0	49	6.1	54	6.7
< 80% >71%	76	9.5	0	.0	17	2.1	29	3.6
< 90% >81%	61	7.6	0	.0	31	3.9	38	4.7
<100% >91%	64	8.0	0	.0	63	7.9	63	7.9
PWR LIMITS (DBM)								
< -55	801	100.0	801	100.0	801	100.0	801	100.0
< -60	800	99.9	801	100.0	800	99.9	801	100.0
< -65	791	98.8	801	100.0	795	99.3	799	99.8
< -70	756	94.4	801	100.0	761	95.0	765	95.5
< -75	727	90.8	801	100.0	736	91.9	736	91.9
< -80	622	77.7	801	100.0	660	82.4	683	85.3
< -85	473	59.1	801	100.0	504	62.9	561	70.0
< -90	311	38.8	801	100.0	350	43.7	409	51.1
< -95	158	19.7	801	100.0	174	21.7	244	30.5
<-100	51	6.4	801	100.0	56	7.0	112	14.0
<-105	11	1.4	801	100.0	13	1.6	32	4.0
<-110	0	.0	303	37.8	0	.0	2	.2
< -50> -55	0	.0	0	.0	0	.0	0	.0
< -56> -60	1	.1	0	.0	1	.1	0	.0
< -61> -65	17	2.1	0	.0	12	1.5	8	1.0
< -66> -70	29	3.6	0	.0	31	3.9	33	4.1
< -71> -75	43	5.4	0	.0	33	4.1	30	3.7
< -76> -80	115	14.4	0	.0	85	10.6	67	8.4
< -81> -85	151	18.9	0	.0	163	20.3	136	17.0
< -86> -90	163	20.3	0	.0	161	20.1	144	18.0
< -91> -95	145	18.1	0	.0	178	22.2	166	20.7
< -96>-100	106	13.2	0	.0	100	12.5	118	14.7
<-101>-105	27	3.4	2	.2	29	3.6	78	9.7
<-106>-110	4	.5	772	96.4	8	1.0	21	2.6
<-111>-115	0	.0	27	3.4	0	.0	0	.0

TAPE #	2324		2306		2322		2314	
BAND	174-200 MHZ		174-200 MHZ		174-200 MHZ		174-200 MHZ	
DATE	5/ 3/72		4/13/72		5/ 2/72		4/21/72	
TIME	1153-1334		1210-1436		1233-1330		1240-1506	
OCC LEVEL	-99		-99		-99		-99	
OCCUPANCY LIMITS	# OF CHAN	% OF TOTAL	# OF CHAN	% OF TOTAL	# OF CHAN	% OF TOTAL	# OF CHAN	% OF TOTAL
< 5%	151	17.5	111	12.8	246	28.4	51	5.9
< 10%	222	25.7	200	23.1	310	35.8	171	19.8
< 20%	377	43.6	355	41.0	391	45.2	321	37.1
< 30%	471	54.5	473	54.7	490	56.6	442	51.1
< 40%	574	66.4	562	65.0	574	66.4	527	60.9
< 50%	648	74.9	624	72.1	644	74.5	609	70.4
< 60%	700	80.9	684	79.1	690	79.8	665	76.9
< 70%	753	87.1	725	83.8	723	83.6	718	83.0
< 80%	783	90.5	774	89.5	763	88.2	768	88.8
< 90%	814	94.1	809	93.5	784	90.6	810	93.6
<100%	865	100.0	865	100.0	865	100.0	865	100.0
< 10% > 0%	222	25.7	200	23.1	310	35.8	171	19.8
< 20% >11%	155	17.9	155	17.9	81	9.4	150	17.3
< 30% >21%	94	10.9	118	13.6	99	11.4	121	14.0
< 40% >31%	103	11.9	89	10.3	84	9.7	85	9.8
< 50% >41%	74	8.6	62	7.2	70	8.1	82	9.5
< 60% >51%	52	6.0	60	6.9	46	5.3	56	6.5
< 70% >61%	53	6.1	41	4.7	33	3.8	53	6.1
< 80% >71%	30	3.5	49	5.7	40	4.6	50	5.8
< 90% >81%	31	3.6	35	4.0	21	2.4	42	4.9
<100% >91%	51	5.9	56	6.5	81	9.4	55	6.4
PWR LIMITS (DBM)								
< -55	865	100.0	865	100.0	865	100.0	865	100.0
< -60	861	99.5	860	99.4	863	99.8	860	99.4
< -65	851	98.4	849	98.2	854	98.7	846	97.8
< -70	826	95.5	828	95.7	842	97.3	825	95.4
< -75	810	93.6	808	93.4	828	95.7	806	93.2
< -80	787	91.0	785	90.8	812	93.9	785	90.8
< -85	759	87.7	740	85.5	787	91.0	744	86.0
< -90	697	80.6	676	78.2	743	85.9	676	78.2
< -95	585	67.6	510	59.0	662	76.5	543	62.8
<-100	364	42.1	281	32.5	461	53.3	282	32.6
<-105	143	16.5	89	10.3	244	28.2	53	6.1
<-110	0	.0	0	.0	10	1.2	0	.0
< -50> -55	0	.0	0	.0	1	.1	1	.1
< -56> -60	6	.7	7	.8	4	.5	4	.5
< -61> -65	13	1.5	11	1.3	11	1.3	15	1.7
< -66> -70	22	2.5	25	2.9	11	1.3	23	2.7
< -71> -75	18	2.1	17	2.0	12	1.4	18	2.1
< -76> -80	23	2.7	26	3.0	19	2.2	22	2.5
< -81> -85	33	3.8	47	5.4	21	2.4	42	4.9
< -86> -90	76	8.8	75	8.7	56	6.5	75	8.7
< -91> -95	130	15.0	188	21.7	106	12.3	176	20.3
< -96>-100	229	26.5	223	25.8	212	24.5	250	28.9
<-101>-105	201	23.2	192	22.2	217	25.1	205	23.7
<-106>-110	114	13.2	54	6.2	195	22.5	34	3.9
<-111>-115	0	.0	0	.0	0	.0	0	.0

TAPE #	2365		2313		2348		2341	
BAND	174-200 MHZ		174-200 MHZ		174-200 MHZ		174-200 MHZ	
DATE	5/29/72		6/11/72		5/22/72		5/14/72	
TIME	1246-1505		1249-1516		1308-1458		1525-1718	
OCC LEVEL	-99		-99		-99		-99	
OCCUPANCY LIMITS	# OF CHAN	% OF TOTAL	# OF CHAN	% OF TOTAL	# OF CHAN	% OF TOTAL	# OF CHAN	% OF TOTAL
< 5%	36	4.2	0	.0	277	32.0	222	25.7
< 10%	117	13.5	0	.0	378	43.7	313	36.2
< 20%	296	34.2	0	.0	499	57.7	471	54.5
< 30%	455	52.6	0	.0	571	66.0	541	62.5
< 40%	568	65.7	72	8.3	631	72.9	603	69.7
< 50%	659	76.2	259	29.9	679	78.5	651	75.3
< 60%	716	82.8	466	53.9	719	83.1	695	80.3
< 70%	756	87.4	590	68.2	762	88.1	731	84.5
< 80%	792	91.6	676	78.2	785	90.8	765	88.4
< 90%	821	94.9	769	88.9	810	93.6	802	92.7
<100%	865	100.0	865	100.0	865	100.0	865	100.0
< 10% > 0%	117	13.5	0	.0	378	43.7	313	36.2
< 20% >11%	179	20.7	0	.0	121	14.0	158	18.3
< 30% >21%	159	18.4	0	.0	72	8.3	70	8.1
< 40% >31%	113	13.1	72	8.3	60	6.9	62	7.2
< 50% >41%	91	10.5	187	21.6	48	5.5	48	5.5
< 60% >51%	57	6.6	207	23.9	40	4.6	44	5.1
< 70% >61%	40	4.6	124	14.3	43	5.0	36	4.2
< 80% >71%	36	4.2	86	9.9	23	2.7	34	3.9
< 90% >81%	29	3.4	93	10.8	25	2.9	37	4.3
<100% >91%	44	5.1	96	11.1	55	6.4	63	7.3
PWR LIMITS (DBM)								
< -55	865	100.0	865	100.0	865	100.0	865	100.0
< -60	859	99.3	861	99.5	861	99.5	859	99.3
< -65	840	97.1	846	97.8	851	98.4	847	97.9
< -70	820	94.8	828	95.7	837	96.8	824	95.3
< -75	803	92.8	802	92.7	816	94.3	808	93.4
< -80	770	89.0	765	88.4	796	92.0	781	90.3
< -85	738	85.3	695	80.3	767	88.7	754	87.2
< -90	667	77.1	502	58.0	704	81.4	688	79.5
< -95	538	62.2	256	29.6	623	72.0	595	68.8
<-100	284	32.8	36	4.2	482	55.7	440	50.9
<-105	42	4.9	0	.0	298	34.5	199	23.0
<-110	0	.0	0	.0	2	.2	0	.0
< -50> -55	0	.0	1	.1	1	.1	1	.1
< -56> -60	8	.9	7	.8	5	.6	8	.9
< -61> -65	21	2.4	16	1.8	9	1.0	12	1.4
< -66> -70	24	2.8	18	2.1	17	2.0	23	2.7
< -71> -75	13	1.5	29	3.4	21	2.4	18	2.1
< -76> -80	35	4.0	40	4.6	19	2.2	27	3.1
< -81> -85	37	4.3	87	10.1	35	4.0	35	4.0
< -86> -90	87	10.1	241	27.9	65	7.5	68	7.9
< -91> -95	145	16.8	210	24.3	100	11.6	105	12.1
< -96>-100	261	30.2	216	25.0	145	16.8	167	19.3
<-101>-105	209	24.2	0	.0	203	23.5	261	30.2
<-106>-110	25	2.9	0	.0	245	28.3	140	16.2
<-111>-115	0	.0	0	.0	0	.0	0	.0

TAPE #	2335		2325		2342		2305	
BAND	174-200 MHZ		174-200 MHZ		174-200 MHZ		174-200 MHZ	
DATE	5/10/72		5/ 4/72		5/16/72		6/ 5/72	
TIME	1525-1734		1655-1859		1806-2012		2005-2158	
OCC LEVEL	-99		-99		-99		-99	
OCCUPANCY LIMITS	# OF CHAN	% OF TOTAL	# OF CHAN	% OF TOTAL	# OF CHAN	% OF TOTAL	# OF CHAN	% OF TOTAL
< 5%	74	8.6	865	100.0	89	10.3	260	30.1
< 10%	190	22.0	865	100.0	265	30.6	335	38.7
< 20%	307	35.5	865	100.0	431	49.8	460	53.2
< 30%	419	48.4	865	100.0	528	61.0	527	60.9
< 40%	515	59.5	865	100.0	596	68.9	587	67.9
< 50%	594	68.7	865	100.0	646	74.7	638	73.8
< 60%	650	75.1	865	100.0	691	79.9	682	78.8
< 70%	709	82.0	865	100.0	731	84.5	728	84.2
< 80%	748	86.5	865	100.0	766	88.6	749	86.6
< 90%	796	92.0	865	100.0	805	93.1	788	91.1
<100%	865	100.0	865	100.0	865	100.0	865	100.0
< 10% > 0%	190	22.0	865	100.0	265	30.6	335	38.7
< 20% >11%	117	13.5	0	.0	166	19.2	125	14.5
< 30% >21%	112	12.9	0	.0	97	11.2	67	7.7
< 40% >31%	96	11.1	0	.0	68	7.9	60	6.9
< 50% >41%	79	9.1	0	.0	50	5.8	51	5.9
< 60% >51%	56	6.5	0	.0	45	5.2	44	5.1
< 70% >61%	59	6.8	0	.0	40	4.6	46	5.3
< 80% >71%	39	4.5	0	.0	35	4.0	21	2.4
< 90% >81%	48	5.5	0	.0	39	4.5	39	4.5
<100% >91%	69	8.0	0	.0	60	6.9	77	8.9
PWR LIMITS (DBM)								
< -55	864	99.9	865	100.0	864	99.9	865	100.0
< -60	860	99.4	865	100.0	860	99.4	860	99.4
< -65	846	97.8	865	100.0	847	97.9	847	97.9
< -70	826	95.5	865	100.0	830	96.0	827	95.6
< -75	808	93.4	865	100.0	813	94.0	804	92.9
< -80	782	90.4	865	100.0	784	90.6	782	90.4
< -85	751	86.8	865	100.0	744	86.0	743	85.9
< -90	682	78.8	865	100.0	675	78.0	686	79.3
< -95	551	63.7	865	100.0	559	64.6	598	69.1
<-100	309	35.7	865	100.0	347	40.1	454	52.5
<-105	66	7.6	865	100.0	77	8.9	251	29.0
<-110	0	.0	354	40.9	0	.0	0	.0
< -50> -55	2	.2	0	.0	1	.1	1	.1
< -56> -60	7	.8	0	.0	7	.8	5	.6
< -61> -65	12	1.4	0	.0	13	1.5	16	1.8
< -66> -70	20	2.3	0	.0	19	2.2	19	2.2
< -71> -75	18	2.1	0	.0	16	1.8	22	2.5
< -76> -80	27	3.1	0	.0	34	3.9	25	2.9
< -81> -85	37	4.3	0	.0	42	4.9	48	5.5
< -86> -90	76	8.8	0	.0	71	8.2	53	6.1
< -91> -95	151	17.5	0	.0	137	15.8	98	11.3
< -96>-100	248	28.7	0	.0	235	27.2	156	18.0
<-101>-105	226	26.1	0	.0	269	31.1	222	25.7
<-106>-110	41	4.7	778	89.9	21	2.4	200	23.1
<-111>-115	0	.0	87	10.1	0	.0	0	.0

TAPE #	2350		2321		2367		2307	
BAND	200-216 MHZ		200-216 MHZ		200-216 MHZ		200-216 MHZ	
DATE	5/23/72		5/ 2/72		5/30/72		4/17/72	
TIME	832-1111		1114-1223		1305-1503		1305-1518	
OCC LEVEL	-99		-99		-99		-99	
OCCUPANCY LIMITS	# OF CHAN	% OF TOTAL	# OF CHAN	% OF TOTAL	# OF CHAN	% OF TOTAL	# OF CHAN	% OF TOTAL
< 5%	41	7.7	48	9.0	0	.0	99	18.5
< 10%	114	21.3	78	14.6	18	3.4	166	31.1
< 20%	226	42.3	121	22.7	137	25.7	251	47.0
< 30%	295	55.2	140	26.2	205	38.4	312	58.4
< 40%	357	66.9	154	28.8	300	56.2	356	66.7
< 50%	410	76.8	175	32.8	360	67.4	403	75.5
< 60%	442	82.8	196	36.7	413	77.3	446	83.5
< 70%	472	88.4	209	39.1	460	86.1	466	87.3
< 80%	483	90.4	222	41.6	481	90.1	489	91.6
< 90%	502	94.0	230	43.1	496	92.9	500	93.6
<100%	534	100.0	534	100.0	534	100.0	534	100.0
< 10% > 0%	114	21.3	78	14.6	18	3.4	166	31.1
< 20% >11%	112	21.0	43	8.1	119	22.3	85	15.9
< 30% >21%	69	12.9	19	3.6	68	12.7	61	11.4
< 40% >31%	62	11.6	14	2.6	95	17.8	44	8.2
< 50% >41%	53	9.9	21	3.9	60	11.2	47	8.8
< 60% >51%	32	6.0	21	3.9	53	9.9	43	8.1
< 70% >61%	30	5.6	13	2.4	47	8.8	20	3.7
< 80% >71%	11	2.1	13	2.4	21	3.9	23	4.3
< 90% >81%	19	3.6	8	1.5	15	2.8	11	2.1
<100% >91%	32	6.0	304	56.9	38	7.1	34	6.4
PWR LIMITS (DBM)								
< -55	534	100.0	534	100.0	534	100.0	534	100.0
< -60	532	99.6	531	99.4	532	99.6	531	99.4
< -65	525	98.3	525	98.3	523	97.9	524	98.1
< -70	518	97.0	482	90.3	511	95.7	515	96.4
< -75	502	94.0	457	85.6	501	93.8	506	94.8
< -80	451	84.5	400	74.9	484	90.6	491	91.9
< -85	404	75.7	340	63.7	367	68.7	467	87.5
< -90	347	65.0	293	54.9	256	47.9	437	81.8
< -95	275	51.5	209	39.1	154	28.8	358	67.0
<-100	167	31.3	124	23.2	26	4.9	228	42.7
<-105	35	6.6	37	6.9	0	.0	87	16.3
<-110	0	.0	3	.6	0	.0	5	.9
< -50> -55	0	.0	0	.0	0	.0	0	.0
< -56> -60	3	.6	3	.6	4	.7	4	.7
< -61> -65	9	1.7	14	2.6	7	1.3	8	1.5
< -66> -70	8	1.5	40	7.5	12	2.2	8	1.5
< -71> -75	14	2.6	36	6.7	15	2.8	8	1.5
< -76> -80	57	10.7	46	8.6	23	4.3	18	3.4
< -81> -85	54	10.1	57	10.7	122	22.8	26	4.9
< -86> -90	52	9.7	61	11.4	116	21.7	43	8.1
< -91> -95	84	15.7	93	17.4	106	19.9	83	15.5
< -96>-100	112	21.0	80	15.0	108	20.2	136	25.5
<-101>-105	115	21.5	81	15.2	21	3.9	134	25.1
<-106>-110	26	4.9	23	4.3	0	.0	66	12.4
<-111>-115	0	.0	0	.0	0	.0	0	.0

TAPE #	2339		2337		2344		2319	
BAND	200-216 MHZ		200-216 MHZ		200-216 MHZ		200-216 MHZ	
DATE	5/13/72		5/12/72		5/17/72		4/25/72	
TIME	1516-1711		1524-1710		1803-1851		2018-2207	
OCC LEVEL	-99		-99		-99		-99	
OCCUPANCY LIMITS	# OF CHAN	% OF TOTAL	# OF CHAN	% OF TOTAL	# OF CHAN	% OF TOTAL	# OF CHAN	% OF TOTAL
< 5%	131	24.5	109	20.4	229	42.9	23	4.3
< 10%	208	39.0	155	29.0	268	50.2	41	7.7
< 20%	292	54.7	248	46.4	328	61.4	62	11.6
< 30%	349	65.4	323	60.5	361	67.6	70	13.1
< 40%	382	71.5	371	69.5	387	72.5	92	17.2
< 50%	413	77.3	402	75.3	404	75.7	101	18.9
< 60%	430	80.5	421	78.8	422	79.0	111	20.8
< 70%	459	86.0	450	84.3	444	83.1	119	22.3
< 80%	477	89.3	472	88.4	457	85.6	126	23.6
< 90%	495	92.7	497	93.1	477	89.3	149	27.9
<100%	534	100.0	534	100.0	534	100.0	534	100.0
< 10% > 0%	208	39.0	155	29.0	268	50.2	41	7.7
< 20% >11%	84	15.7	93	17.4	60	11.2	21	3.9
< 30% >21%	57	10.7	75	14.0	33	6.2	8	1.5
< 40% >31%	33	6.2	48	9.0	26	4.9	22	4.1
< 50% >41%	31	5.8	31	5.8	17	3.2	9	1.7
< 60% >51%	17	3.2	19	3.6	18	3.4	10	1.9
< 70% >61%	29	5.4	29	5.4	22	4.1	8	1.5
< 80% >71%	18	3.4	22	4.1	13	2.4	7	1.3
< 90% >81%	18	3.4	25	4.7	20	3.7	23	4.3
<100% >91%	39	7.3	37	6.9	57	10.7	385	72.1
PWR LIMITS (DBM)								
< -55	534	100.0	534	100.0	534	100.0	533	99.8
< -60	531	99.4	530	99.3	528	98.9	529	99.1
< -65	525	98.3	525	98.3	526	98.5	526	98.5
< -70	518	97.0	514	96.3	518	97.0	479	89.7
< -75	505	94.6	507	94.9	506	94.8	456	85.4
< -80	493	92.3	491	91.9	489	91.6	399	74.7
< -85	468	87.6	467	87.5	434	81.3	333	62.4
< -90	449	84.1	434	81.3	398	74.5	234	43.8
< -95	395	74.0	377	70.6	328	61.4	164	30.7
<-100	300	56.2	244	45.7	233	43.6	96	18.0
<-105	133	24.9	103	19.3	124	23.2	4	.7
<-110	2	.4	3	.6	5	.9	0	.0
< -50> -55	0	.0	0	.0	0	.0	2	.4
< -56> -60	4	.7	4	.7	6	1.1	4	.7
< -61> -65	6	1.1	7	1.3	5	.9	4	.7
< -66> -70	11	2.1	11	2.1	8	1.5	50	9.4
< -71> -75	9	1.7	8	1.5	12	2.2	36	6.7
< -76> -80	13	2.4	19	3.6	22	4.1	46	8.6
< -81> -85	27	5.1	24	4.5	52	9.7	73	13.7
< -86> -90	21	3.9	36	6.7	41	7.7	107	20.0
< -91> -95	60	11.2	69	12.9	78	14.6	59	11.0
< -96>-100	106	19.9	150	28.1	99	18.5	83	15.5
<-101>-105	179	33.5	129	24.2	119	22.3	70	13.1
<-106>-110	98	18.4	77	14.4	92	17.2	0	.0
<-111>-115	0	.0	0	.0	0	.0	0	.0

TAPE #	2350		2321		2367		2307	
BAND	216-223 MHZ		216-223 MHZ		216-223 MHZ		216-223 MHZ	
DATE	5/23/72		5/ 2/72		5/30/72		4/17/72	
TIME	832-1111		1114-1223		1305-1503		1305-1518	
OCC LEVEL	-99		-99		-99		-99	
OCCUPANCY LIMITS	# OF CHAN	% OF TOTAL	# OF CHAN	% OF TOTAL	# OF CHAN	% OF TOTAL	# OF CHAN	% OF TOTAL
< 5%	108	46.4	120	51.5	0	.0	14	6.0
< 10%	151	64.8	160	68.7	4	1.7	90	38.6
< 20%	176	75.5	191	82.0	130	55.8	163	70.0
< 30%	195	83.7	199	85.4	175	75.1	185	79.4
< 40%	202	86.7	209	89.7	197	84.5	195	83.7
< 50%	204	87.6	214	91.8	213	91.4	204	87.6
< 60%	211	90.6	217	93.1	218	93.6	211	90.6
< 70%	216	92.7	220	94.4	222	95.3	217	93.1
< 80%	219	94.0	221	94.8	225	96.6	219	94.0
< 90%	225	96.6	223	95.7	226	97.0	224	96.1
<100%	233	100.0	233	100.0	233	100.0	233	100.0
< 10% > 0%	151	64.8	160	68.7	4	1.7	90	38.6
< 20% >11%	25	10.7	31	13.3	126	54.1	73	31.3
< 30% >21%	19	8.2	8	3.4	45	19.3	22	9.4
< 40% >31%	7	3.0	10	4.3	22	9.4	10	4.3
< 50% >41%	2	.9	5	2.1	16	6.9	9	3.9
< 60% >51%	7	3.0	3	1.3	5	2.1	7	3.0
< 70% >61%	5	2.1	3	1.3	4	1.7	6	2.6
< 80% >71%	3	1.3	1	.4	3	1.3	2	.9
< 90% >81%	6	2.6	2	.9	1	.4	5	2.1
<100% >91%	8	3.4	10	4.3	7	3.0	9	3.9
PWR LIMITS (DBM)								
< -55	233	100.0	233	100.0	233	100.0	233	100.0
< -60	233	100.0	233	100.0	233	100.0	233	100.0
< -65	232	99.6	232	99.6	232	99.6	231	99.1
< -70	229	98.3	230	98.7	229	98.3	228	97.9
< -75	227	97.4	228	97.9	227	97.4	227	97.4
< -80	225	96.6	226	97.0	225	96.6	224	96.1
< -85	220	94.4	225	96.6	221	94.8	222	95.3
< -90	212	91.0	221	94.8	156	67.0	213	91.4
< -95	183	78.5	214	91.8	82	35.2	176	75.5
<-100	130	55.8	191	82.0	17	7.3	90	38.6
<-105	71	30.5	118	50.6	0	.0	11	4.7
<-110	0	.0	0	.0	0	.0	0	.0
< -50> -55	0	.0	0	.0	0	.0	0	.0
< -56> -60	0	.0	0	.0	0	.0	0	.0
< -61> -65	2	.9	1	.4	2	.9	3	1.3
< -66> -70	2	.9	3	1.3	2	.9	3	1.3
< -71> -75	3	1.3	1	.4	3	1.3	0	.0
< -76> -80	1	.4	2	.9	1	.4	3	1.3
< -81> -85	7	3.0	1	.4	10	4.3	4	1.7
< -86> -90	13	5.6	6	2.6	66	28.3	12	5.2
< -91> -95	30	12.9	10	4.3	88	37.8	43	18.5
< -96>-100	52	22.3	22	9.4	50	21.5	94	40.3
<-101>-105	76	32.6	82	35.2	11	4.7	64	27.5
<-106>-110	47	20.2	105	45.1	0	.0	7	3.0
<-111>-115	0	.0	0	.0	0	.0	0	.0

TAPE #	2339		2337		2344		2319	
BAND	216-223 MHZ		216-223 MHZ		216-223 MHZ		216-223 MHZ	
DATE	5/13/72		5/12/72		5/17/72		4/25/72	
TIME	1516-1711		1524-1710		1803-1851		2018-2207	
OCC LEVEL	-99		-99		-99		-99	
OCCUPANCY LIMITS	# OF CHAN	% OF TOTAL	# OF CHAN	% OF TOTAL	# OF CHAN	% OF TOTAL	# OF CHAN	% OF TOTAL
< 5%	153	65.7	135	57.9	167	71.7	135	57.9
< 10%	169	72.5	152	65.2	177	76.0	149	63.9
< 20%	183	78.5	177	76.0	187	80.3	159	68.2
< 30%	193	82.8	186	79.8	191	82.0	163	70.0
< 40%	201	86.3	199	85.4	200	85.8	176	75.5
< 50%	205	88.0	203	87.1	204	87.6	181	77.7
< 60%	213	91.4	209	89.7	207	88.8	188	80.7
< 70%	215	92.3	214	91.8	213	91.4	192	82.4
< 80%	218	93.6	218	93.6	215	92.3	198	85.0
< 90%	224	96.1	223	95.7	218	93.6	205	88.0
<100%	233	100.0	233	100.0	233	100.0	233	100.0
< 10% > 0%	169	72.5	152	65.2	177	76.0	149	63.9
< 20% >11%	14	6.0	25	10.7	10	4.3	10	4.3
< 30% >21%	10	4.3	9	3.9	4	1.7	4	1.7
< 40% >31%	8	3.4	13	5.6	9	3.9	13	5.6
< 50% >41%	4	1.7	4	1.7	4	1.7	5	2.1
< 60% >51%	8	3.4	6	2.6	3	1.3	7	3.0
< 70% >61%	2	.9	5	2.1	6	2.6	4	1.7
< 80% >71%	3	1.3	4	1.7	2	.9	6	2.6
< 90% >81%	6	2.6	5	2.1	3	1.3	7	3.0
<100% >91%	9	3.9	10	4.3	15	6.4	28	12.0
PWR LIMITS (DBM)								
< -55	233	100.0	233	100.0	233	100.0	233	100.0
< -60	233	100.0	233	100.0	232	99.6	232	99.6
< -65	232	99.6	232	99.6	232	99.6	231	99.1
< -70	229	98.3	229	98.3	228	97.9	228	97.9
< -75	228	97.9	228	97.9	228	97.9	228	97.9
< -80	226	97.0	225	96.6	225	96.6	224	96.1
< -85	225	96.6	224	96.1	222	95.3	222	95.3
< -90	220	94.4	217	93.1	218	93.6	214	91.8
< -95	211	90.6	203	87.1	212	91.0	193	82.8
<-100	191	82.0	176	75.5	191	82.0	165	70.8
<-105	149	63.9	123	52.8	165	70.8	41	17.6
<-110	0	.0	9	3.9	30	12.9	0	.0
< -50> -55	0	.0	0	.0	0	.0	0	.0
< -56> -60	0	.0	0	.0	1	.4	1	.4
< -61> -65	1	.4	1	.4	0	.0	2	.9
< -66> -70	3	1.3	3	1.3	4	1.7	2	.9
< -71> -75	1	.4	1	.4	0	.0	1	.4
< -76> -80	3	1.3	3	1.3	3	1.3	3	1.3
< -81> -85	1	.4	2	.9	4	1.7	4	1.7
< -86> -90	6	2.6	8	3.4	3	1.3	9	3.9
< -91> -95	10	4.3	16	6.9	10	4.3	23	9.9
< -96>-100	25	10.7	29	12.4	21	9.0	26	11.2
<-101>-105	49	21.0	62	26.6	27	11.6	162	69.5
<-106>-110	134	57.5	108	46.4	160	68.7	0	.0
<-111>-115	0	.0	0	.0	0	.0	0	.0

TAPE #	2350		2321		2367		2307	
BAND	223-235 MHZ		223-235 MHZ		223-235 MHZ		223-235 MHZ	
DATE	5/23/72		5/ 2/72		5/30/72		4/17/72	
TIME	832-1111		1114-1223		1305-1503		1305-1518	
OCC LEVEL	-99		-99		-99		-99	
OCCUPANCY LIMITS	# OF CHAN	% OF TOTAL	# OF CHAN	% OF TOTAL	# OF CHAN	% OF TOTAL	# OF CHAN	% OF TOTAL
< 5%	313	78.2	342	85.5	348	87.0	164	41.0
< 10%	372	93.0	367	91.7	371	92.7	322	80.5
< 20%	384	96.0	384	96.0	383	95.7	378	94.5
< 30%	387	96.7	387	96.7	388	97.0	384	96.0
< 40%	389	97.2	389	97.2	392	98.0	387	96.7
< 50%	391	97.7	391	97.7	396	99.0	389	97.2
< 60%	393	98.2	391	97.7	397	99.2	392	98.0
< 70%	394	98.5	391	97.7	398	99.5	393	98.2
< 80%	398	99.5	392	98.0	400	100.0	396	99.0
< 90%	400	100.0	397	99.2	400	100.0	399	99.7
<100%	400	100.0	400	100.0	400	100.0	400	100.0
< 10% > 0%	372	93.0	367	91.7	371	92.7	322	80.5
< 20% >11%	12	3.0	17	4.2	12	3.0	56	14.0
< 30% >21%	3	.8	3	.8	5	1.3	6	1.5
< 40% >31%	2	.5	2	.5	4	1.0	3	.8
< 50% >41%	2	.5	2	.5	4	1.0	2	.5
< 60% >51%	2	.5	0	.0	1	.3	3	.8
< 70% >61%	1	.3	0	.0	1	.3	1	.3
< 80% >71%	4	1.0	1	.3	2	.5	3	.8
< 90% >81%	2	.5	5	1.3	0	.0	3	.8
<100% >91%	0	.0	3	.8	0	.0	1	.3
PWR LIMITS (DBM)								
< -55	400	100.0	400	100.0	400	100.0	400	100.0
< -60	400	100.0	400	100.0	400	100.0	400	100.0
< -65	400	100.0	400	100.0	400	100.0	400	100.0
< -70	400	100.0	400	100.0	400	100.0	400	100.0
< -75	399	99.7	399	99.7	400	100.0	397	99.2
< -80	396	99.0	395	98.7	399	99.7	368	92.0
< -85	392	98.0	390	97.5	396	99.0	282	70.5
< -90	383	95.7	385	96.2	393	98.2	193	48.2
< -95	369	92.2	376	94.0	381	95.2	164	41.0
<-100	355	88.7	361	90.2	361	90.2	160	40.0
<-105	287	71.7	322	80.5	322	80.5	153	38.2
<-110	172	43.0	131	32.7	190	47.5	87	21.7
< -50> -55	0	.0	0	.0	0	.0	0	.0
< -56> -60	0	.0	0	.0	0	.0	0	.0
< -61> -65	0	.0	0	.0	0	.0	0	.0
< -66> -70	1	.3	1	.3	0	.0	0	.0
< -71> -75	0	.0	1	.3	0	.0	6	1.5
< -76> -80	4	1.0	4	1.0	1	.3	45	11.2
< -81> -85	4	1.0	5	1.3	3	.8	80	20.0
< -86> -90	14	3.5	4	1.0	6	1.5	87	21.7
< -91> -95	12	3.0	13	3.2	13	3.2	19	4.7
< -96>-100	17	4.2	16	4.0	19	4.7	6	1.5
<-101>-105	73	18.2	48	12.0	49	12.2	10	2.5
<-106>-110	187	46.7	230	57.5	169	42.2	147	36.7
<-111>-115	88	22.0	78	19.5	140	35.0	0	.0

TAPE #	2339		2337		2344		2319	
BAND	223-235 MHZ		223-235 MHZ		223-235 MHZ		223-235 MHZ	
DATE	5/13/72		5/12/72		5/17/72		4/25/72	
TIME	1516-1711		1524-1710		1803-1851		2018-2207	
OCC LEVEL	-99		-99		-99		-99	
OCCUPANCY LIMITS	# OF CHAN	% OF TOTAL	# OF CHAN	% OF TOTAL	# OF CHAN	% OF TOTAL	# OF CHAN	% OF TOTAL
< 5%	359	89.7	349	87.2	369	92.2	361	90.2
< 10%	379	94.7	373	93.2	381	95.2	364	91.0
< 20%	382	95.5	383	95.7	387	96.7	374	93.5
< 30%	388	97.0	386	96.5	389	97.2	379	94.7
< 40%	389	97.2	388	97.0	390	97.5	380	95.0
< 50%	391	97.7	390	97.5	392	98.0	385	96.2
< 60%	391	97.7	391	97.7	394	98.5	386	96.5
< 70%	392	98.0	392	98.0	397	99.2	389	97.2
< 80%	396	99.0	394	98.5	398	99.5	389	97.2
< 90%	398	99.5	400	100.0	400	100.0	392	98.0
<100%	400	100.0	400	100.0	400	100.0	400	100.0
< 10% > 0%	379	94.7	373	93.2	381	95.2	364	91.0
< 20% >11%	3	.8	10	2.5	6	1.5	10	2.5
< 30% >21%	6	1.5	3	.8	2	.5	5	1.3
< 40% >31%	1	.3	2	.5	1	.3	1	.3
< 50% >41%	2	.5	2	.5	2	.5	5	1.3
< 60% >51%	0	.0	1	.3	2	.5	1	.3
< 70% >61%	1	.3	1	.3	3	.8	3	.8
< 80% >71%	4	1.0	2	.5	1	.3	0	.0
< 90% >81%	2	.5	6	1.5	2	.5	3	.8
<100% >91%	2	.5	0	.0	0	.0	8	2.0
PWR LIMITS (DBM)								
< -55	400	100.0	400	100.0	400	100.0	400	100.0
< -60	400	100.0	400	100.0	400	100.0	400	100.0
< -65	400	100.0	400	100.0	400	100.0	400	100.0
< -70	400	100.0	399	99.7	400	100.0	400	100.0
< -75	399	99.7	398	99.5	400	100.0	397	99.2
< -80	395	98.7	395	98.7	398	99.5	396	99.0
< -85	393	98.2	391	97.7	398	99.5	394	98.5
< -90	390	97.5	387	96.7	395	98.7	386	96.5
< -95	385	96.2	379	94.7	393	98.2	378	94.5
<-100	367	91.7	366	91.5	389	97.2	364	91.0
<-105	331	82.7	338	84.5	375	93.8	236	59.0
<-110	164	41.0	202	50.5	217	54.2	0	.0
< -50> -55	0	.0	0	.0	0	.0	0	.0
< -56> -60	0	.0	0	.0	0	.0	0	.0
< -61> -65	0	.0	0	.0	0	.0	0	.0
< -66> -70	0	.0	1	.3	0	.0	0	.0
< -71> -75	1	.3	2	.5	0	.0	3	.8
< -76> -80	4	1.0	2	.5	2	.5	1	.3
< -81> -85	2	.5	4	1.0	1	.3	3	.8
< -86> -90	3	.8	6	1.5	2	.5	10	2.5
< -91> -95	5	1.3	7	1.7	2	.5	6	1.5
< -96>-100	26	6.5	13	3.2	6	1.5	14	3.5
<-101>-105	50	12.5	36	9.0	19	4.7	218	54.5
<-106>-110	233	58.2	158	39.5	197	49.2	145	36.2
<-111>-115	76	19.0	171	42.7	171	42.7	0	.0

TAPE #	2350		2321		2367		2307	
BAND	235-250 MHZ		235-250 MHZ		235-250 MHZ		235-250 MHZ	
DATE	5/23/72		5/ 2/72		5/30/72		4/17/72	
TIME	832-1111		1114-1223		1305-1503		1305-1518	
OCC LEVEL	-99		-99		-99		-99	
OCCUPANCY LIMITS	# OF CHAN	% OF TOTAL	# OF CHAN	% OF TOTAL	# OF CHAN	% OF TOTAL	# OF CHAN	% OF TOTAL
< 5%	437	87.6	436	87.4	474	95.0	452	90.6
< 10%	470	94.2	460	92.2	492	98.6	483	96.8
< 20%	491	98.4	492	98.6	497	99.6	492	98.6
< 30%	495	99.2	496	99.4	499	100.0	499	100.0
< 40%	499	100.0	499	100.0	499	100.0	499	100.0
< 50%	499	100.0	499	100.0	499	100.0	499	100.0
< 60%	499	100.0	499	100.0	499	100.0	499	100.0
< 70%	499	100.0	499	100.0	499	100.0	499	100.0
< 80%	499	100.0	499	100.0	499	100.0	499	100.0
< 90%	499	100.0	499	100.0	499	100.0	499	100.0
<100%	499	100.0	499	100.0	499	100.0	499	100.0
< 10% > 0%	470	94.2	460	92.2	492	98.6	483	96.8
< 20% >11%	21	4.2	32	6.4	5	1.0	9	1.8
< 30% >21%	4	.8	4	.8	2	.4	7	1.4
< 40% >31%	4	.8	3	.6	0	.0	0	.0
< 50% >41%	0	.0	0	.0	0	.0	0	.0
< 60% >51%	0	.0	0	.0	0	.0	0	.0
< 70% >61%	0	.0	0	.0	0	.0	0	.0
< 80% >71%	0	.0	0	.0	0	.0	0	.0
< 90% >81%	0	.0	0	.0	0	.0	0	.0
<100% >91%	0	.0	0	.0	0	.0	0	.0
PWR LIMITS (DBM)								
< -55	499	100.0	499	100.0	499	100.0	499	100.0
< -60	499	100.0	499	100.0	499	100.0	499	100.0
< -65	499	100.0	499	100.0	499	100.0	499	100.0
< -70	499	100.0	499	100.0	499	100.0	499	100.0
< -75	493	98.8	499	100.0	499	100.0	491	98.4
< -80	489	98.0	493	98.8	496	99.4	479	96.0
< -85	482	96.6	488	97.8	491	98.4	468	93.8
< -90	471	94.4	478	95.8	476	95.4	457	91.6
< -95	431	86.4	463	92.8	464	93.0	408	81.8
<-100	366	73.3	419	84.0	428	85.8	291	58.3
<-105	298	59.7	323	64.7	388	77.8	192	38.5
<-110	67	13.4	19	3.8	97	19.4	2	.4
< -50> -55	0	.0	0	.0	0	.0	0	.0
< -56> -60	0	.0	0	.0	0	.0	0	.0
< -61> -65	0	.0	0	.0	0	.0	0	.0
< -66> -70	0	.0	0	.0	0	.0	0	.0
< -71> -75	8	1.6	0	.0	0	.0	0	.0
< -76> -80	3	.6	6	1.2	5	1.0	9	1.8
< -81> -85	9	1.8	7	1.4	5	1.0	13	2.6
< -86> -90	10	2.0	12	2.4	16	3.2	11	2.2
< -91> -95	53	10.6	15	3.0	14	2.8	12	2.4
< -96>-100	64	12.8	61	12.2	38	7.6	67	13.4
<-101>-105	72	14.4	87	17.4	44	8.8	112	22.4
<-106>-110	262	52.5	309	61.9	314	62.9	95	19.0
<-111>-115	18	3.6	2	.4	63	12.6	180	36.1
							0	.0

TAPE #	2339	2337	2344	2319
BAND	235-250 MHZ	235-250 MHZ	235-250 MHZ	235-250 MHZ
DATE	5/13/72	5/12/72	5/17/72	4/25/72
TIME	1516-1711	1524-1710	1803-1851	2018-2207
OCC LEVEL	-99	-99	-99	-99

OCCUPANCY LIMITS	# OF CHAN	% OF TOTAL	# OF CHAN	% OF TOTAL	# OF CHAN	% OF TOTAL	# OF CHAN	% OF TOTAL
< 5%	474	95.0	432	86.6	450	90.2	430	86.2
< 10%	481	96.4	448	89.8	460	92.2	445	89.2
< 20%	491	98.4	475	95.2	474	95.0	485	97.2
< 30%	495	99.2	489	98.0	492	98.6	491	98.4
< 40%	496	99.4	493	98.8	493	98.8	492	98.6
< 50%	499	100.0	498	99.8	493	98.8	493	98.8
< 60%	499	100.0	499	100.0	493	98.8	493	98.8
< 70%	499	100.0	499	100.0	493	98.8	495	99.2
< 80%	499	100.0	499	100.0	493	98.8	496	99.4
< 90%	499	100.0	499	100.0	493	98.8	498	99.8
<100%	499	100.0	499	100.0	493	98.8	499	100.0
< 10% > 0%	481	96.4	448	89.8	460	92.2	445	89.2
< 20% >11%	10	2.0	27	5.4	14	2.8	40	8.0
< 30% >21%	4	.8	14	2.8	18	3.6	6	1.2
< 40% >31%	1	.2	4	.8	1	.2	1	.2
< 50% >41%	3	.6	5	1.0	0	.0	1	.2
< 60% >51%	0	.0	1	.2	0	.0	0	.0
< 70% >61%	0	.0	0	.0	0	.0	2	.4
< 80% >71%	0	.0	0	.0	0	.0	1	.2
< 90% >81%	0	.0	0	.0	0	.0	2	.4
<100% >91%	0	.0	0	.0	0	.0	1	.2
PWR LIMITS (DBM)								
< -55	499	100.0	499	100.0	493	98.8	499	100.0
< -60	499	100.0	499	100.0	493	98.8	499	100.0
< -65	499	100.0	499	100.0	493	98.8	499	100.0
< -70	499	100.0	499	100.0	493	98.8	499	100.0
< -75	499	100.0	493	98.8	493	98.8	499	100.0
< -80	491	98.4	487	97.6	492	98.6	499	100.0
< -85	488	97.8	480	96.2	490	98.2	492	98.6
< -90	483	96.8	465	93.2	487	97.6	485	97.2
< -95	475	95.2	441	88.4	479	96.0	465	93.2
<-100	434	87.0	331	66.3	462	92.6	445	89.2
<-105	362	72.5	277	55.5	432	86.6	180	36.1
<-110	16	3.2	109	21.8	360	72.1	0	.0
< -50> -55	0	.0	0	.0	1	.2	0	.0
< -56> -60	0	.0	0	.0	0	.0	0	.0
< -61> -65	0	.0	0	.0	0	.0	0	.0
< -66> -70	0	.0	0	.0	0	.0	0	.0
< -71> -75	5	1.0	6	1.2	0	.0	0	.0
< -76> -80	4	.8	8	1.6	1	.2	0	.0
< -81> -85	2	.4	8	1.6	3	.6	7	1.4
< -86> -90	6	1.2	14	2.8	4	.8	14	2.8
< -91> -95	10	2.0	41	8.2	7	1.4	16	3.2
< -96>-100	63	12.6	109	21.8	22	4.4	21	4.2
<-101>-105	51	10.2	48	9.6	27	5.4	362	72.5
<-106>-110	357	71.5	241	48.3	331	66.3	79	15.8
<-111>-115	1	.2	24	4.8	98	19.6	0	.0

TAPE #	2329		2309	
BAND	250-276 MHZ		250-276 MHZ	
DATE	5/ 5/72		4/18/72	
TIME	1113-1318		1211-1518	
OCC LEVEL	-99		-99	
OCCUPANCY LIMITS	# OF CHAN	% OF TOTAL	# OF CHAN	% OF TOTAL
< 5%	619	71.4	703	81.1
< 10%	693	79.9	762	87.9
< 20%	798	92.0	826	95.3
< 30%	840	96.9	844	97.3
< 40%	848	97.8	858	99.0
< 50%	854	98.5	863	99.5
< 60%	860	99.2	866	99.9
< 70%	861	99.3	867	100.0
< 80%	865	99.8	867	100.0
< 90%	867	100.0	867	100.0
<100%	867	100.0	867	100.0
< 10% > 0%	693	79.9	762	87.9
< 20% >11%	105	12.1	64	7.4
< 30% >21%	42	4.8	18	2.1
< 40% >31%	8	.9	14	1.6
< 50% >41%	6	.7	5	.6
< 60% >51%	6	.7	3	.3
< 70% >61%	1	.1	1	.1
< 80% >71%	4	.5	0	.0
< 90% >81%	2	.2	0	.0
<100% >91%	0	.0	0	.0
PWR LIMITS (DBM)				
< -55	867	100.0	867	100.0
< -60	867	100.0	867	100.0
< -65	867	100.0	867	100.0
< -70	866	99.9	867	100.0
< -75	860	99.2	861	99.3
< -80	853	98.4	859	99.1
< -85	841	97.0	846	97.6
< -90	796	91.8	826	95.3
< -95	682	78.7	727	83.9
<-100	570	65.7	627	72.3
<-105	386	44.5	495	57.1
<-110	0	.0	0	.0
< -50> -55	0	.0	0	.0
< -56> -60	0	.0	0	.0
< -61> -65	0	.0	0	.0
< -66> -70	1	.1	0	.0
< -71> -75	7	.8	6	.7
< -76> -80	7	.8	4	.5
< -81> -85	16	1.8	15	1.7
< -86> -90	52	6.0	26	3.0
< -91> -95	117	13.5	125	14.4
< -96>-100	116	13.4	80	9.2
<-101>-105	292	33.7	214	24.7
<-106>-110	259	29.9	397	45.8
<-111>-115	0	.0	0	.0

TAPE #	2352		2360		2362		2331	
BAND	250-276 MHZ		250-276 MHZ		250-276 MHZ		250-276 MHZ	
DATE	5/24/72		6/ 4/72		6/ 1/72		5/ 8/72	
TIME	1221-1455		1235-1502		1305-1505		1537-1726	
OCC LEVEL	-99		-99		-99		-99	
OCCUPANCY LIMITS	# OF CHAN	% OF TOTAL	# OF CHAN	% OF TOTAL	# OF CHAN	% OF TOTAL	# OF CHAN	% OF TOTAL
< 5%	54	6.2	764	88.1	720	83.0	636	73.4
< 10%	68	7.8	797	91.9	795	91.7	698	80.5
< 20%	82	9.5	827	95.4	828	95.5	786	90.7
< 30%	109	12.6	842	97.1	858	99.0	821	94.7
< 40%	114	13.1	860	99.2	866	99.9	839	96.8
< 50%	126	14.5	865	99.8	867	100.0	849	97.9
< 60%	134	15.5	867	100.0	867	100.0	858	99.0
< 70%	137	15.8	867	100.0	867	100.0	867	100.0
< 80%	141	16.3	867	100.0	867	100.0	867	100.0
< 90%	147	17.0	867	100.0	867	100.0	867	100.0
<100%	867	100.0	867	100.0	867	100.0	867	100.0
< 10% > 0%	68	7.8	797	91.9	795	91.7	698	80.5
< 20% >11%	14	1.6	30	3.5	33	3.8	88	10.1
< 30% >21%	27	3.1	15	1.7	30	3.5	35	4.0
< 40% >31%	5	.6	18	2.1	8	.9	18	2.1
< 50% >41%	12	1.4	5	.6	1	.1	10	1.2
< 60% >51%	8	.9	2	.2	0	.0	9	1.0
< 70% >61%	3	.3	0	.0	0	.0	9	1.0
< 80% >71%	4	.5	0	.0	0	.0	0	.0
< 90% >81%	6	.7	0	.0	0	.0	0	.0
<100% >91%	720	83.0	0	.0	0	.0	0	.0
PWR LIMITS (DBM)								
< -55	855	98.6	867	100.0	867	100.0	867	100.0
< -60	733	84.5	867	100.0	867	100.0	867	100.0
< -65	547	63.1	867	100.0	867	100.0	867	100.0
< -70	414	47.8	867	100.0	867	100.0	867	100.0
< -75	349	40.3	865	99.8	866	99.9	867	100.0
< -80	296	34.1	857	98.8	863	99.5	865	99.8
< -85	227	26.2	851	98.2	858	99.0	855	98.6
< -90	151	17.4	844	97.3	846	97.6	820	94.6
< -95	100	11.5	813	93.8	809	93.3	753	86.9
<-100	76	8.8	708	81.7	727	83.9	652	75.2
<-105	35	4.0	640	73.8	619	71.4	548	63.2
<-110	0	.0	168	19.4	90	10.4	331	38.2
< -50> -55	25	2.9	0	.0	0	.0	0	.0
< -56> -60	162	18.7	0	.0	0	.0	0	.0
< -61> -65	166	19.1	0	.0	0	.0	0	.0
< -66> -70	118	13.6	0	.0	0	.0	0	.0
< -71> -75	58	6.7	7	.8	1	.1	0	.0
< -76> -80	52	6.0	3	.3	5	.6	2	.2
< -81> -85	70	8.1	7	.8	5	.6	11	1.3
< -86> -90	74	8.5	11	1.3	16	1.8	50	5.8
< -91> -95	47	5.4	46	5.3	53	6.1	72	8.3
< -96>-100	30	3.5	99	11.4	80	9.2	102	11.8
<-101>-105	39	4.5	65	7.5	115	13.3	97	11.2
<-106>-110	26	3.0	629	72.5	592	68.3	399	46.0
<-111>-115	0	.0	0	.0	0	.0	134	15.5

TAPE #	2346	2317	2329	2309
BAND	250-276 MHZ	250-276 MHZ	276-286 MHZ	276-286 MHZ
DATE	5/18/72	4/24/72	5/ 5/72	4/18/72
TIME	1757-2005	2046-2222	1113-1318	1211-151[illegible]
OCC LEVEL	-99	-99	-99	-9[illegible]

OCCUPANCY LIMITS	# OF CHAN	% OF TOTAL	# OF CHAN	% OF TOTAL	# OF CHAN	% OF TOTAL	# OF CHAN	% OF TOTAL
< 5%	702	81.0	637	73.5	302	90.7	310	93.1
< 10%	766	88.4	684	78.9	319	95.8	328	98.5
< 20%	831	95.8	750	86.5	327	98.2	333	100.0
< 30%	844	97.3	808	93.2	329	98.8	333	100.0
< 40%	857	98.8	835	96.3	331	99.4	333	100.0
< 50%	864	99.7	852	98.3	333	100.0	333	100.0
< 60%	864	99.7	860	99.2	333	100.0	333	100.0
< 70%	867	100.0	864	99.7	333	100.0	333	100.0
< 80%	867	100.0	864	99.7	333	100.0	333	100.0
< 90%	867	100.0	867	100.0	333	100.0	333	100.0
<100%	867	100.0	867	100.0	333	100.0	333	100.0
< 10% > 0%	766	88.4	684	78.9	319	95.8	328	98.5
< 20% >11%	65	7.5	66	7.6	8	2.4	5	1.5
< 30% >21%	13	1.5	58	6.7	2	.6	0	.0
< 40% >31%	13	1.5	27	3.1	2	.6	0	.0
< 50% >41%	7	.8	17	2.0	2	.6	0	.0
< 60% >51%	0	.0	8	.9	0	.0	0	.0
< 70% >61%	3	.3	4	.5	0	.0	0	.0
< 80% >71%	0	.0	0	.0	0	.0	0	.0
< 90% >81%	0	.0	3	.3	0	.0	0	.0
<100% >91%	0	.0	0	.0	0	.0	0	.0
PWR LIMITS (DBM)								
< -55	867	100.0	867	100.0	333	100.0	333	100.0
< -60	867	100.0	867	100.0	333	100.0	333	100.0
< -65	867	100.0	866	99.9	333	100.0	333	100.0
< -70	867	100.0	864	99.7	333	100.0	333	100.0
< -75	867	100.0	862	99.4	333	100.0	333	100.0
< -80	859	99.1	858	99.0	331	99.4	332	99.7
< -85	855	98.6	852	98.3	327	98.2	329	98.8
< -90	843	97.2	837	96.5	318	95.5	322	96.7
< -95	826	95.3	756	87.2	303	91.0	307	92.2
<-100	715	82.5	676	78.0	277	83.2	285	85.6
<-105	592	68.3	599	69.1	140	42.0	146	43.8
<-110	34	3.9	2	.2	0	.0	15	4.5
< -50> -55	0	.0	0	.0	0	.0	0	.0
< -56> -60	0	.0	0	.0	0	.0	0	.0
< -61> -65	0	.0	2	.2	0	.0	0	.0
< -66> -70	0	.0	1	.1	0	.0	0	.0
< -71> -75	0	.0	2	.2	1	.3	0	.0
< -76> -80	8	.9	5	.6	1	.3	1	.3
< -81> -85	5	.6	8	.9	4	1.2	3	.9
< -86> -90	13	1.5	24	2.8	10	3.0	13	3.9
< -91> -95	27	3.1	85	9.8	15	4.5	10	3.0
< -96>-100	132	15.2	80	9.2	35	10.5	32	9.6
<-101>-105	105	12.1	82	9.5	135	40.5	137	41.1
<-106>-110	577	66.6	578	66.7	132	39.6	137	41.1
<-111>-115	0	.0	0	.0	0	.0	0	.0

TAPE #	2352		2360		2362		2331	
BAND	276-286 MHZ		276-286 MHZ		276-286 MHZ		276-286 MHZ	
DATE	5/24/72		6/ 4/72		6/ 1/72		5/ 8/72	
TIME	1221-1455		1235-1502		1305-1505		1537-1726	
OCC LEVEL	-99		-99		-99		-99	
OCCUPANCY LIMITS	# OF CHAN	% OF TOTAL	# OF CHAN	% OF TOTAL	# OF CHAN	% OF TOTAL	# OF CHAN	% OF TOTAL
< 5%	286	85.9	320	96.1	312	93.7	303	91.0
< 10%	312	93.7	323	97.0	319	95.8	318	95.5
< 20%	326	97.9	327	98.2	327	98.2	326	97.9
< 30%	333	100.0	330	99.1	331	99.4	327	98.2
< 40%	333	100.0	333	100.0	333	100.0	330	99.1
< 50%	333	100.0	333	100.0	333	100.0	333	100.0
< 60%	333	100.0	333	100.0	333	100.0	333	100.0
< 70%	333	100.0	333	100.0	333	100.0	333	100.0
< 80%	333	100.0	333	100.0	333	100.0	333	100.0
< 90%	333	100.0	333	100.0	333	100.0	333	100.0
<100%	333	100.0	333	100.0	333	100.0	333	100.0
< 10% > 0%	312	93.7	323	97.0	319	95.8	318	95.5
< 20% >11%	14	4.2	4	1.2	8	2.4	8	2.4
< 30% >21%	7	2.1	3	.9	4	1.2	1	.3
< 40% >31%	0	.0	3	.9	2	.6	3	.9
< 50% >41%	0	.0	0	.0	0	.0	3	.9
< 60% >51%	0	.0	0	.0	0	.0	0	.0
< 70% >61%	0	.0	0	.0	0	.0	0	.0
< 80% >71%	0	.0	0	.0	0	.0	0	.0
< 90% >81%	0	.0	0	.0	0	.0	0	.0
<100% >91%	0	.0	0	.0	0	.0	0	.0
PWR LIMITS (DBM)								
< -55	333	100.0	333	100.0	333	100.0	333	100.0
< -60	333	100.0	333	100.0	333	100.0	333	100.0
< -65	333	100.0	333	100.0	333	100.0	333	100.0
< -70	333	100.0	333	100.0	333	100.0	333	100.0
< -75	333	100.0	333	100.0	333	100.0	333	100.0
< -80	330	99.1	333	100.0	333	100.0	333	100.0
< -85	325	97.6	332	99.7	331	99.4	330	99.1
< -90	311	93.4	329	98.8	326	97.9	322	96.7
< -95	295	88.6	323	97.0	313	94.0	311	93.4
<-100	272	81.7	317	95.2	298	89.5	293	88.0
<-105	211	63.4	309	92.8	231	69.4	250	75.1
<-110	7	2.1	163	48.9	109	32.7	119	35.7
< -50> -55	0	.0	0	.0	0	.0	0	.0
< -56> -60	0	.0	0	.0	0	.0	0	.0
< -61> -65	0	.0	0	.0	0	.0	0	.0
< -66> -70	0	.0	0	.0	0	.0	0	.0
< -71> -75	2	.6	0	.0	0	.0	0	.0
< -76> -80	3	.9	0	.0	0	.0	0	.0
< -81> -85	5	1.5	1	.3	3	.9	4	1.2
< -86> -90	17	5.1	4	1.2	6	1.8	7	2.1
< -91> -95	13	3.9	6	1.8	15	4.5	14	4.2
< -96>-100	25	7.5	6	1.8	18	5.4	23	6.9
<-101>-105	94	28.2	24	7.2	104	31.2	72	21.6
<-106>-110	174	52.3	176	52.9	187	56.2	126	37.8
<-111>-115	0	.0	116	34.8	0	.0	87	26.1

TAPE #	2346		2317		2329		2300	
BAND	276-286 MHZ		276-286 MHZ		286-300 MHZ		286-300 MHZ	
DATE	5/18/72		4/24/72		5/ 5/72		4/18/72	
TIME	1757-2005		2046-2222		1113-1318		1211-1518	
OCC LEVEL	-99		-99		-99		-99	
OCCUPANCY LIMITS	# OF CHAN	% OF TOTAL	# OF CHAN	% OF TOTAL	# OF CHAN	% OF TOTAL	# OF CHAN	% OF TOTAL
< 5%	310	93.1	301	90.4	394	84.5	425	91.2
< 10%	321	96.4	317	95.2	444	95.3	445	95.5
< 20%	327	98.2	321	96.4	459	98.5	454	97.4
< 30%	330	99.1	328	98.5	462	99.1	461	98.9
< 40%	333	100.0	333	100.0	463	99.4	463	99.4
< 50%	333	100.0	333	100.0	464	99.6	463	99.4
< 60%	333	100.0	333	100.0	466	100.0	465	99.8
< 70%	333	100.0	333	100.0	466	100.0	466	100.0
< 80%	333	100.0	333	100.0	466	100.0	466	100.0
< 90%	333	100.0	333	100.0	466	100.0	466	100.0
<100%	333	100.0	333	100.0	466	100.0	466	100.0
< 10% > 0%	321	96.4	317	95.2	444	95.3	445	95.5
< 20% >11%	6	1.8	4	1.2	15	3.2	9	1.9
< 30% >21%	3	.9	7	2.1	3	.6	7	1.5
< 40% >31%	3	.9	5	1.5	1	.2	2	.4
< 50% >41%	0	.0	0	.0	1	.2	0	.0
< 60% >51%	0	.0	0	.0	2	.4	2	.4
< 70% >61%	0	.0	0	.0	0	.0	1	.2
< 80% >71%	0	.0	0	.0	0	.0	0	.0
< 90% >81%	0	.0	0	.0	0	.0	0	.0
<100% >91%	0	.0	0	.0	0	.0	0	.0
PWR LIMITS (DBM)								
< -55	333	100.0	333	100.0	466	100.0	466	100.0
< -60	333	100.0	333	100.0	466	100.0	466	100.0
< -65	333	100.0	333	100.0	466	100.0	466	100.0
< -70	333	100.0	333	100.0	466	100.0	466	100.0
< -75	333	100.0	333	100.0	466	100.0	466	100.0
< -80	332	99.7	333	100.0	463	99.4	464	99.6
< -85	330	99.1	332	99.7	460	98.7	461	98.9
< -90	328	98.5	325	97.6	445	95.5	447	95.9
< -95	318	95.5	318	95.5	433	92.9	431	92.5
<-100	310	93.1	306	91.9	400	85.8	401	86.1
<-105	262	78.7	223	67.0	279	59.9	341	73.2
<-110	141	42.3	7	2.1	0	.0	5	1.1
< -50> -55	0	.0	0	.0	0	.0	0	.0
< -56> -60	0	.0	0	.0	0	.0	0	.0
< -61> -65	0	.0	0	.0	0	.0	0	.0
< -66> -70	0	.0	0	.0	0	.0	0	.0
< -71> -75	0	.0	0	.0	0	.0	0	.0
< -76> -80	1	.3	0	.0	3	.6	2	.4
< -81> -85	2	.6	1	.3	6	1.3	3	.6
< -86> -90	3	.9	7	2.1	14	3.0	17	3.6
< -91> -95	11	3.3	11	3.3	20	4.3	17	3.6
< -96>-100	9	2.7	10	3.0	37	7.9	41	8.8
<-101>-105	107	32.1	121	36.3	162	34.8	80	17.2
<-106>-110	98	29.4	183	55.0	224	48.1	306	65.7
<-111>-115	102	30.6	0	.0	0	.0	0	.0

TAPE #	2352		2360		2362		2351	
BAND	286-300 MHZ		286-300 MHZ		286-300 MHZ		286-300 MHZ	
DATE	5/24/72		6/ 4/72		6/ 1/72		5/ 8/72	
TIME	1221-1455		1235-1502		1305-1505		1537-1726	
OCC LEVEL	-99		-99		-99		-99	
OCCUPANCY LIMITS	# OF CHAN	% OF TOTAL	# OF CHAN	% OF TOTAL	# OF CHAN	% OF TOTAL	# OF CHAN	% OF TOTAL
< 5%	47	10.1	447	95.9	419	89.9	406	87.1
< 10%	54	11.6	453	97.2	440	94.4	441	94.6
< 20%	62	13.3	460	98.7	453	97.2	458	98.3
< 30%	70	15.0	464	99.6	460	98.7	461	98.9
< 40%	72	15.5	465	99.8	463	99.4	461	98.9
< 50%	81	17.4	465	99.8	465	99.8	463	99.4
< 60%	81	17.4	466	100.0	465	99.8	465	99.8
< 70%	82	17.6	466	100.0	466	100.0	466	100.0
< 80%	91	19.5	466	100.0	466	100.0	466	100.0
< 90%	97	20.8	466	100.0	466	100.0	466	100.0
<100%	466	100.0	466	100.0	466	100.0	466	100.0
< 10% > 0%	54	11.6	453	97.2	440	94.4	441	94.6
< 20% >11%	8	1.7	7	1.5	13	2.8	17	3.6
< 30% >21%	8	1.7	4	.9	7	1.5	3	.6
< 40% >31%	2	.4	1	.2	3	.6	0	.0
< 50% >41%	9	1.9	0	.0	2	.4	2	.4
< 60% >51%	0	.0	1	.2	0	.0	2	.4
< 70% >61%	1	.2	0	.0	1	.2	1	.2
< 80% >71%	9	1.9	0	.0	0	.0	0	.0
< 90% >81%	6	1.3	0	.0	0	.0	0	.0
<100% >91%	369	79.2	0	.0	0	.0	0	.0
PWR LIMITS (DBM)								
< -55	466	100.0	466	100.0	466	100.0	466	100.0
< -60	463	99.4	466	100.0	466	100.0	466	100.0
< -65	440	94.4	466	100.0	466	100.0	466	100.0
< -70	381	81.8	466	100.0	466	100.0	466	100.0
< -75	298	63.9	466	100.0	466	100.0	466	100.0
< -80	253	54.3	465	99.8	464	99.6	465	99.8
< -85	224	48.1	465	99.8	459	98.5	463	99.4
< -90	191	41.0	461	98.9	453	97.2	455	97.6
< -95	155	33.3	460	98.7	440	94.4	440	94.4
<-100	51	10.9	453	97.2	417	89.5	416	89.3
<-105	16	3.4	437	93.8	374	80.3	359	77.0
<-110	0	.0	313	67.2	97	20.8	175	37.6
< -50> -55	1	.2	0	.0	0	.0	0	.0
< -56> -60	3	.6	0	.0	0	.0	0	.0
< -61> -65	32	6.9	0	.0	0	.0	0	.0
< -66> -70	60	12.9	0	.0	0	.0	0	.0
< -71> -75	84	18.0	0	.0	0	.0	0	.0
< -76> -80	42	9.0	1	.2	2	.4	1	.2
< -81> -85	22	4.7	1	.2	5	1.1	5	1.1
< -86> -90	36	7.7	3	.6	9	1.9	8	1.7
< -91> -95	44	9.4	2	.4	18	3.9	18	3.9
< -96>-100	97	20.8	13	2.8	21	4.5	26	5.6
<-101>-105	38	8.2	10	2.1	52	11.2	80	17.2
<-106>-110	7	1.5	238	51.1	359	77.0	242	51.9
<-111>-115	0	.0	198	42.5	0	.0	86	18.5

TAPE #	2346		2317		2354		2327	
BAND	286-300 MHZ		286-300 MHZ		300-329 MHZ		300-329 MHZ	
DATE	5/18/72		4/24/72		5/25/72		5/ 4/72	
TIME	1757-2005		2046-2222		830-1055		1115-1313	
OCC LEVEL	-99		-99		-99		-99	
OCCUPANCY LIMITS	# OF CHAN	% OF TOTAL	# OF CHAN	% OF TOTAL	# OF CHAN	% OF TOTAL	# OF CHAN	% OF TOTAL
< 5%	437	93.8	434	93.1	723	74.8	687	71.1
< 10%	452	97.0	451	96.8	793	82.1	765	79.2
< 20%	459	98.5	462	99.1	913	94.5	877	90.8
< 30%	464	99.6	464	99.6	940	97.3	925	95.8
< 40%	465	99.8	465	99.8	955	98.9	955	98.9
< 50%	465	99.8	465	99.8	960	99.4	964	99.8
< 60%	466	100.0	466	100.0	964	99.8	965	99.9
< 70%	466	100.0	466	100.0	966	100.0	966	100.0
< 80%	466	100.0	466	100.0	966	100.0	966	100.0
< 90%	466	100.0	466	100.0	966	100.0	966	100.0
<100%	466	100.0	466	100.0	966	100.0	966	100.0
< 10% > 0%	452	97.0	451	96.8	793	82.1	765	79.2
< 20% >11%	7	1.5	11	2.4	120	12.4	112	11.6
< 30% >21%	5	1.1	2	.4	27	2.8	48	5.0
< 40% >31%	1	.2	1	.2	15	1.6	30	3.1
< 50% >41%	0	.0	0	.0	5	.5	9	.9
< 60% >51%	1	.2	1	.2	4	.4	1	.1
< 70% >61%	0	.0	0	.0	2	.2	1	.1
< 80% >71%	0	.0	0	.0	0	.0	0	.0
< 90% >81%	0	.0	0	.0	0	.0	0	.0
<100% >91%	0	.0	0	.0	0	.0	0	.0
PWR LIMITS (DBM)								
< -55	466	100.0	466	100.0	966	100.0	966	100.0
< -60	466	100.0	466	100.0	966	100.0	966	100.0
< -65	466	100.0	466	100.0	966	100.0	966	100.0
< -70	466	100.0	466	100.0	966	100.0	966	100.0
< -75	466	100.0	466	100.0	959	99.3	961	99.5
< -80	465	99.8	466	100.0	945	97.8	941	97.4
< -85	464	99.6	465	99.8	930	96.3	927	96.0
< -90	459	98.5	459	98.5	907	93.9	897	92.9
< -95	457	98.1	453	97.2	826	85.5	793	82.1
<-100	450	96.6	438	94.0	688	71.2	633	65.5
<-105	405	86.9	408	87.6	161	16.7	216	22.4
<-110	217	46.6	0	.0	0	.0	0	.0
< -50> -55	0	.0	0	.0	0	.0	0	.0
< -56> -60	0	.0	0	.0	0	.0	0	.0
< -61> -65	0	.0	0	.0	0	.0	0	.0
< -66> -70	0	.0	0	.0	0	.0	0	.0
< -71> -75	0	.0	0	.0	7	.7	12	1.2
< -76> -80	1	.2	0	.0	17	1.8	15	1.6
< -81> -85	1	.2	1	.2	13	1.3	17	1.8
< -86> -90	5	1.1	6	1.3	29	3.0	39	4.0
< -91> -95	3	.6	9	1.9	99	10.2	129	13.4
< -96>-100	10	2.1	20	4.3	160	16.6	177	18.3
<-101>-105	42	9.0	56	12.0	548	56.7	473	49.0
<-106>-110	335	71.9	374	80.3	93	9.6	104	10.8
<-111>-115	69	14.8	0	.0	0	.0	0	.0

TAPE #	2311		2358		2333		2363	
BAND	300-329 MHZ		300-329 MHZ		300-329 MHZ		300-329 MHZ	
DATE	4/20/72		6/ 3/72		5/ 9/72		5/26/72	
TIME	1223-1519		1241-1506		1514-1710		1757-2007	
OCC LEVEL	-99		-99		-99		-99	
OCCUPANCY LIMITS	# OF CHAN	% OF TOTAL	# OF CHAN	% OF TOTAL	# OF CHAN	% OF TOTAL	# OF CHAN	% OF TOTAL
< 5%	732	75.8	862	89.2	679	70.3	856	88.6
< 10%	846	87.6	883	91.4	765	79.2	897	92.9
< 20%	906	93.8	927	96.0	883	91.4	938	97.1
< 30%	941	97.4	943	97.6	937	97.0	950	98.3
< 40%	958	99.2	954	98.8	958	99.2	961	99.5
< 50%	964	99.8	963	99.7	964	99.8	964	99.8
< 60%	964	99.8	966	100.0	966	100.0	965	99.9
< 70%	966	100.0	966	100.0	966	100.0	966	100.0
< 80%	966	100.0	966	100.0	966	100.0	966	100.0
< 90%	966	100.0	966	100.0	966	100.0	966	100.0
<100%	966	100.0	966	100.0	966	100.0	966	100.0
< 10% > 0%	846	87.6	883	91.4	765	79.2	897	92.9
< 20% >11%	60	6.2	44	4.6	118	12.2	41	4.2
< 30% >21%	35	3.6	16	1.7	54	5.6	12	1.2
< 40% >31%	17	1.8	11	1.1	21	2.2	11	1.1
< 50% >41%	6	.6	9	.9	6	.6	3	.3
< 60% >51%	0	.0	3	.3	2	.2	1	.1
< 70% >61%	2	.2	0	.0	0	.0	1	.1
< 80% >71%	0	.0	0	.0	0	.0	0	.0
< 90% >81%	0	.0	0	.0	0	.0	0	.0
<100% >91%	0	.0	0	.0	0	.0	0	.0
PWR LIMITS (DBM)								
< -55	966	100.0	966	100.0	966	100.0	966	100.0
< -60	966	100.0	966	100.0	966	100.0	966	100.0
< -65	966	100.0	966	100.0	966	100.0	966	100.0
< -70	965	99.9	966	100.0	966	100.0	966	100.0
< -75	960	99.4	953	98.7	963	99.7	954	98.8
< -80	940	97.3	939	97.2	943	97.6	945	97.8
< -85	918	95.0	925	95.8	924	95.7	934	96.7
< -90	852	88.2	912	94.4	896	92.8	919	95.1
< -95	705	73.0	821	85.0	804	83.2	826	85.5
<-100	516	53.4	676	70.0	633	65.5	723	74.8
<-105	104	10.8	484	50.1	194	20.1	524	54.2
<-110	0	.0	0	.0	0	.0	33	3.4
< -50> -55	0	.0	0	.0	0	.0	0	.0
< -56> -60	0	.0	0	.0	0	.0	0	.0
< -61> -65	0	.0	0	.0	0	.0	0	.0
< -66> -70	6	.6	0	.0	1	.1	1	.1
< -71> -75	8	.8	13	1.3	7	.7	13	1.3
< -76> -80	14	1.4	15	1.6	20	2.1	8	.8
< -81> -85	29	3.0	14	1.4	16	1.7	10	1.0
< -86> -90	103	10.7	14	1.4	35	3.6	32	3.3
< -91> -95	128	13.3	112	11.6	113	11.7	93	9.6
< -96>-100	229	23.7	155	16.0	190	19.7	122	12.6
<-101>-105	425	44.0	294	30.4	482	49.9	240	24.8
<-106>-110	24	2.5	349	36.1	102	10.6	447	46.3
<-111>-115	0	.0	0	.0	0	.0	0	.0

TAPE #	2357		2354		2327		2311	
BAND	300-329 MHZ		329-335 MHZ		329-335 MHZ		329-335 MHZ	
DATE	6/ 6/72		5/25/72		5/ 4/72		4/20/72	
TIME	2006-2207		830-1055		1115-1313		1223-1519	
OCC LEVEL	-99		-99		-99		-99	
OCCUPANCY LIMITS	# OF CHAN	% OF TOTAL	# OF CHAN	% OF TOTAL	# OF CHAN	% OF TOTAL	# OF CHAN	% OF TOTAL
< 5%	835	86.4	100	49.8	118	58.7	104	51.7
< 10%	878	90.9	108	53.7	123	61.2	137	68.2
< 20%	919	95.1	128	63.7	142	70.6	150	74.6
< 30%	941	97.4	138	68.7	157	78.1	154	76.6
< 40%	954	98.8	146	72.6	167	83.1	160	79.6
< 50%	961	99.5	154	76.6	170	84.6	161	80.1
< 60%	965	99.9	161	80.1	171	85.1	161	80.1
< 70%	966	100.0	163	81.1	174	86.6	161	80.1
< 80%	966	100.0	169	84.1	183	91.0	168	83.6
< 90%	966	100.0	173	86.1	184	91.5	170	84.6
<100%	966	100.0	201	100.0	201	100.0	201	100.0
< 10% > 0%	878	90.9	108	53.7	123	61.2	137	68.2
< 20% >11%	41	4.2	20	10.0	19	9.5	13	6.5
< 30% >21%	22	2.3	10	5.0	15	7.5	4	2.0
< 40% >31%	13	1.3	8	4.0	10	5.0	6	3.0
< 50% >41%	7	.7	8	4.0	3	1.5	1	.5
< 60% >51%	4	.4	7	3.5	1	.5	0	.0
< 70% >61%	1	.1	2	1.0	3	1.5	0	.0
< 80% >71%	0	.0	6	3.0	9	4.5	7	3.5
< 90% >81%	0	.0	4	2.0	1	.5	2	1.0
<100% >91%	0	.0	28	13.9	17	8.5	31	15.4
PWR LIMITS (DBM)								
< -55	966	100.0	201	100.0	201	100.0	201	100.0
< -60	966	100.0	201	100.0	201	100.0	201	100.0
< -65	966	100.0	201	100.0	201	100.0	201	100.0
< -70	966	100.0	201	100.0	201	100.0	201	100.0
< -75	960	99.4	200	99.5	201	100.0	201	100.0
< -80	946	97.9	200	99.5	201	100.0	201	100.0
< -85	938	97.1	198	98.5	201	100.0	200	99.5
< -90	922	95.4	195	97.0	200	99.5	197	98.0
< -95	835	86.4	178	88.6	191	95.0	193	96.0
<-100	760	78.7	130	64.7	143	71.1	115	57.2
<-105	295	30.5	49	24.4	62	30.8	52	25.9
<-110	0	.0	0	.0	0	.0	0	.0
< -50> -55	0	.0	0	.0	0	.0	0	.0
< -56> -60	0	.0	0	.0	0	.0	0	.0
< -61> -65	0	.0	0	.0	0	.0	0	.0
< -66> -70	0	.0	0	.0	0	.0	0	.0
< -71> -75	12	1.2	1	.5	0	.0	0	.0
< -76> -80	10	1.0	0	.0	0	.0	0	.0
< -81> -85	7	.7	2	1.0	0	.0	1	.5
< -86> -90	32	3.3	6	3.0	2	1.0	4	2.0
< -91> -95	84	8.7	22	10.9	8	4.0	6	3.0
< -96>-100	90	9.3	53	26.4	70	34.8	86	42.8
<-101>-105	620	64.2	78	38.8	73	36.3	59	29.4
<-106>-110	111	11.5	39	19.4	48	23.9	45	22.4
<-111>-115	0	.0	0	.0	0	.0	0	.0

TAPE #	2358		2333		2363		2357	
BAND	329-335 MHZ		329-335 MHZ		329-335 MHZ		329-335 MHZ	
DATE	6/ 3/72		5/ 9/72		5/26/72		6/ 6/72	
TIME	1241-1506		1514-1710		1757-2007		2006-2207	
OCC LEVEL	-99		-99		-99		-99	
OCCUPANCY LIMITS	# OF CHAN	% OF TOTAL	# OF CHAN	% OF TOTAL	# OF CHAN	% OF TOTAL	# OF CHAN	% OF TOTAL
< 5%	123	61.2	119	59.2	132	65.7	113	56.2
< 10%	136	67.7	126	62.7	146	72.6	135	67.2
< 20%	145	72.1	132	65.7	160	79.6	154	76.6
< 30%	161	80.1	143	71.1	174	86.6	174	86.6
< 40%	163	81.1	159	79.1	185	92.0	179	89.1
< 50%	168	83.6	171	85.1	187	93.0	181	90.0
< 60%	174	86.6	175	87.1	188	93.5	189	94.0
< 70%	174	86.6	176	87.6	196	97.5	190	94.5
< 80%	177	88.1	176	87.6	200	99.5	191	95.0
< 90%	186	92.5	187	93.0	201	100.0	195	97.0
<100%	201	100.0	201	100.0	201	100.0	201	100.0
< 10% > 0%	136	67.7	126	62.7	146	72.6	135	67.2
< 20% >11%	9	4.5	6	3.0	14	7.0	19	9.5
< 30% >21%	16	8.0	11	5.5	14	7.0	20	10.0
< 40% >31%	2	1.0	16	8.0	11	5.5	5	2.5
< 50% >41%	5	2.5	12	6.0	2	1.0	2	1.0
< 60% >51%	6	3.0	4	2.0	1	.5	8	4.0
< 70% >61%	0	.0	1	.5	8	4.0	1	.5
< 80% >71%	3	1.5	0	.0	4	2.0	1	.5
< 90% >81%	9	4.5	11	5.5	1	.5	4	2.0
<100% >91%	15	7.5	14	7.0	0	.0	6	3.0
PWR LIMITS (DBM)								
< -55	201	100.0	201	100.0	201	100.0	201	100.0
< -60	201	100.0	201	100.0	201	100.0	201	100.0
< -65	201	100.0	201	100.0	201	100.0	201	100.0
< -70	201	100.0	201	100.0	201	100.0	201	100.0
< -75	201	100.0	201	100.0	201	100.0	201	100.0
< -80	201	100.0	201	100.0	201	100.0	201	100.0
< -85	201	100.0	201	100.0	199	99.0	200	99.5
< -90	198	98.5	199	99.0	199	99.0	200	99.5
< -95	193	96.0	186	92.5	197	98.0	198	98.5
<-100	152	75.6	141	70.1	192	95.5	193	96.0
<-105	84	41.8	68	33.8	168	83.6	156	77.6
<-110	7	3.5	0	.0	89	44.3	76	37.8
< -50> -55	0	.0	0	.0	17	8.5	0	.0
< -56> -60	0	.0	0	.0	0	.0	0	.0
< -61> -65	0	.0	0	.0	0	.0	0	.0
< -66> -70	0	.0	0	.0	0	.0	0	.0
< -71> -75	0	.0	0	.0	0	.0	0	.0
< -76> -80	0	.0	0	.0	2	1.0	1	.5
< -81> -85	0	.0	0	.0	0	.0	0	.0
< -86> -90	4	2.0	4	2.0	2	1.0	4	2.0
< -91> -95	8	4.0	11	5.5	6	3.0	6	3.0
< -96>-100	53	26.4	68	33.8	44	21.9	47	23.4
<-101>-105	74	36.8	61	30.3	80	39.8	73	36.3
<-106>-110	62	30.8	57	28.4	67	33.3	70	34.8
<-111>-115	0	.0	0	.0	0	.0	0	.0

TAPE #	2354		2327		2311		2358	
BAND	335-350 MHZ		335-350 MHZ		335-350 MHZ		335-350 MHZ	
DATE	5/25/72		5/ 4/72		4/20/72		6/ 3/72	
TIME	830-1055		1115-1313		1223-1519		1241-1506	
OCC LEVEL	-99		-99		-99		-99	
OCCUPANCY LIMITS	# OF CHAN	% OF TOTAL	# OF CHAN	% OF TOTAL	# OF CHAN	% OF TOTAL	# OF CHAN	% OF TOTAL
< 5%	452	90.6	433	86.8	425	85.2	453	90.8
< 10%	474	95.0	466	93.4	458	91.8	465	93.2
< 20%	494	99.0	491	98.4	485	97.2	491	98.4
< 30%	494	99.0	496	99.4	492	98.6	496	99.4
< 40%	497	99.6	498	99.8	498	99.8	498	99.8
< 50%	499	100.0	499	100.0	499	100.0	499	100.0
< 60%	499	100.0	499	100.0	499	100.0	499	100.0
< 70%	499	100.0	499	100.0	499	100.0	499	100.0
< 80%	499	100.0	499	100.0	499	100.0	499	100.0
< 90%	499	100.0	499	100.0	499	100.0	499	100.0
<100%	499	100.0	499	100.0	499	100.0	499	100.0
< 10% > 0%*	474	95.0	466	93.4	458	91.8	465	93.2
< 20% >11%*	20	4.0	25	5.0	27	5.4	26	5.2
< 30% >21%*	0	.0	5	1.0	7	1.4	5	1.0
< 40% >31%*	3	.6	2	.4	6	1.2	2	.4
< 50% >41%*	2	.4	1	.2	1	.2	1	.2
< 60% >51%*	0	.0	0	.0	0	.0	0	.0
< 70% >61%*	0	.0	0	.0	0	.0	0	.0
< 80% >71%*	0	.0	0	.0	0	.0	0	.0
< 90% >81%*	0	.0	0	.0	0	.0	0	.0
<100% >91%*	0	.0	0	.0	0	.0	0	.0
PWR LIMITS (DBM)								
< -55	499	100.0	499	100.0	499	100.0	499	100.0
< -60	499	100.0	499	100.0	499	100.0	499	100.0
< -65	499	100.0	499	100.0	499	100.0	499	100.0
< -70	499	100.0	499	100.0	499	100.0	499	100.0
< -75	499	100.0	499	100.0	499	100.0	499	100.0
< -80	496	99.4	499	100.0	498	99.8	499	100.0
< -85	492	98.6	497	99.6	496	99.4	498	99.8
< -90	486	97.4	491	98.4	481	96.4	495	99.2
< -95	477	95.6	479	96.0	463	92.8	482	96.6
<-100	463	92.8	462	92.6	419	84.0	465	93.2
<-105	405	81.2	409	82.0	354	70.9	450	90.2
<-110	0	.0	0	.0	0	.0	344	68.9
< -50> -55*	0	.0	0	.0	0	.0	0	.0
< -56> -60*	0	.0	0	.0	0	.0	0	.0
< -61> -65*	0	.0	0	.0	0	.0	0	.0
< -66> -70*	0	.0	0	.0	0	.0	0	.0
< -71> -75*	0	.0	0	.0	0	.0	0	.0
< -76> -80*	3	.6	0	.0	1	.2	0	.0
< -81> -85*	4	.8	4	.8	3	.6	1	.2
< -86> -90*	6	1.2	5	1.0	18	3.6	9	1.8
< -91> -95*	11	2.2	14	2.8	21	4.2	9	1.8
< -96>-100*	24	4.8	21	4.2	44	8.8	17	3.4
<-101>-105*	63	12.6	81	16.2	117	23.4	20	4.0
<-106>-110*	388	77.8	374	74.9	295	59.1	233	46.7
<-111>-115*	0	.0	0	.0	0	.0	210	42.1

TAPE #	2333		2363		2357		2328	
BAND	335-350 MHZ		335-350 MHZ		335-350 MHZ		350-365 MHZ	
DATE	5/ 9/72		5/26/72		6/ 6/72		5/ 5/72	
TIME	1514-1710		1757-2007		2006-2207		851-1105	
OCC LEVEL	-99		-99		-99		-99	
OCCUPANCY LIMITS	# OF CHAN	% OF TOTAL	# OF CHAN	% OF TOTAL	# OF CHAN	% OF TOTAL	# OF CHAN	% OF TOTAL
< 5%	390	78.2	483	96.8	478	95.8	488	97.4
< 10%	422	84.6	487	97.6	483	96.8	493	98.4
< 20%	463	92.8	494	99.0	494	99.0	497	99.2
< 30%	488	97.8	494	99.0	495	99.2	500	99.8
< 40%	496	99.4	497	99.6	496	99.4	501	100.0
< 50%	497	99.6	499	100.0	499	100.0	501	100.0
< 60%	499	100.0	499	100.0	499	100.0	501	100.0
< 70%	499	100.0	499	100.0	499	100.0	501	100.0
< 80%	499	100.0	499	100.0	499	100.0	501	100.0
< 90%	499	100.0	499	100.0	499	100.0	501	100.0
<100%	499	100.0	499	100.0	499	100.0	501	100.0
< 10% > 0%	422	84.6	487	97.6	483	96.8	493	98.4
< 20% >11%	41	8.2	7	1.4	11	2.2	4	.8
< 30% >21%	25	5.0	0	.0	1	.2	3	.6
< 40% >31%	8	1.6	3	.6	1	.2	1	.2
< 50% >41%	1	.2	2	.4	3	.6	0	.0
< 60% >51%	2	.4	0	.0	0	.0	0	.0
< 70% >61%	0	.0	0	.0	0	.0	0	.0
< 80% >71%	0	.0	0	.0	0	.0	0	.0
< 90% >81%	0	.0	0	.0	0	.0	0	.0
<100% >91%	0	.0	0	.0	0	.0	0	.0
PWR LIMITS (DBM)								
< -55	499	100.0	499	100.0	499	100.0	501	100.0
< -60	499	100.0	499	100.0	499	100.0	501	100.0
< -65	499	100.0	499	100.0	499	100.0	501	100.0
< -70	499	100.0	499	100.0	499	100.0	501	100.0
< -75	499	100.0	499	100.0	499	100.0	501	100.0
< -80	498	99.8	499	100.0	499	100.0	501	100.0
< -85	496	99.4	497	99.6	498	99.8	501	100.0
< -90	485	97.2	497	99.6	495	99.2	501	100.0
< -95	443	88.8	492	98.6	490	98.2	499	99.6
<-100	406	81.4	488	97.8	486	97.4	498	99.4
<-105	326	65.3	476	95.4	458	91.8	485	96.8
<-110	0	.0	415	83.2	0	.0	444	88.6
< -50> -55	0	.0	0	.0	0	.0	0	.0
< -56> -60	0	.0	0	.0	0	.0	0	.0
< -61> -65	0	.0	0	.0	0	.0	0	.0
< -66> -70	0	.0	0	.0	0	.0	0	.0
< -71> -75	0	.0	0	.0	0	.0	0	.0
< -76> -80	1	.2	1	.2	1	.2	0	.0
< -81> -85	3	.6	1	.2	0	.0	0	.0
< -86> -90	14	2.8	1	.2	5	1.0	1	.2
< -91> -95	42	8.4	5	1.0	4	.8	1	.2
< -96>-100	46	9.2	3	.6	8	1.6	4	.8
<-101>-105	118	23.6	14	2.8	38	7.6	12	2.4
<-106>-110	275	55.1	153	30.7	443	88.8	184	36.7
<-111>-115	0	.0	321	64.3	0	.0	299	59.7

TAPE #	2350	2369	2312	2332
BAND	350-365 MHZ	350-365 MHZ	350-365 MHZ	350-365 MHZ
DATE	5/25/72	5/31/72	4/20/72	5/ 9/72
TIME	1103-1304	1245-1503	1249-1515	1301-1502
OCC LEVEL	-99	-99	-99	-99

OCCUPANCY LIMITS	# OF CHAN	% OF TOTAL	# OF CHAN	% OF TOTAL	# OF CHAN	% OF TOTAL	# OF CHAN	% OF TOTAL
< 5%	460	91.8	473	94.4	472	94.2	431	86.0
< 10%	475	94.8	482	96.2	484	96.6	458	91.4
< 20%	487	97.2	491	98.0	492	98.2	484	96.6
< 30%	497	99.2	501	100.0	496	99.0	498	99.4
< 40%	500	99.8	501	100.0	497	99.2	500	99.8
< 50%	501	100.0	501	100.0	500	99.8	501	100.0
< 60%	501	100.0	501	100.0	500	99.8	501	100.0
< 70%	501	100.0	501	100.0	501	100.0	501	100.0
< 80%	501	100.0	501	100.0	501	100.0	501	100.0
< 90%	501	100.0	501	100.0	501	100.0	501	100.0
<100%	501	100.0	501	100.0	501	100.0	501	100.0
< 10% > 0%	475	94.8	482	96.2	484	96.6	458	91.4
< 20% >11%	12	2.4	9	1.8	8	1.6	26	5.2
< 30% >21%	10	2.0	10	2.0	4	.8	14	2.8
< 40% >31%	3	.6	0	.0	1	.2	2	.4
< 50% >41%	1	.2	0	.0	3	.6	1	.2
< 60% >51%	0	.0	0	.0	0	.0	0	.0
< 70% >61%	0	.0	0	.0	1	.2	0	.0
< 80% >71%	0	.0	0	.0	0	.0	0	.0
< 90% >81%	0	.0	0	.0	0	.0	0	.0
<100% >91%	0	.0	0	.0	0	.0	0	.0
PWR LIMITS (DBM)								
< -55	501	100.0	501	100.0	501	100.0	501	100.0
< -60	501	100.0	501	100.0	501	100.0	501	100.0
< -65	501	100.0	501	100.0	501	100.0	501	100.0
< -70	501	100.0	501	100.0	501	100.0	501	100.0
< -75	500	99.8	501	100.0	501	100.0	501	100.0
< -80	493	98.4	500	99.8	501	100.0	495	98.8
< -85	490	97.8	499	99.6	500	99.8	493	98.4
< -90	483	96.4	495	98.8	499	99.6	481	96.0
< -95	446	89.0	491	98.0	496	99.0	463	92.4
<-100	382	76.2	468	93.4	487	97.2	396	79.0
<-105	332	66.3	441	88.0	476	95.0	322	64.3
<-110	95	19.0	314	62.7	383	76.4	30	6.0
< -50> -55	0	.0	0	.0	0	.0	0	.0
< -56> -60	0	.0	0	.0	0	.0	0	.0
< -61> -65	0	.0	0	.0	0	.0	0	.0
< -66> -70	0	.0	0	.0	0	.0	0	.0
< -71> -75	2	.4	0	.0	0	.0	0	.0
< -76> -80	7	1.4	2	.4	0	.0	6	1.2
< -81> -85	4	.8	0	.0	1	.2	2	.4
< -86> -90	7	1.4	4	.8	2	.4	13	2.6
< -91> -95	55	11.0	8	1.6	2	.4	21	4.2
< -96>-100	51	10.2	26	5.2	10	2.0	80	16.0
<-101>-105	66	13.2	34	6.8	12	2.4	84	16.8
<-106>-110	302	60.3	280	55.9	231	46.1	295	58.9
<-111>-115	7	1.4	147	29.3	243	48.5	0	.0

TAPE #	2361		2304		2328		2355	
BAND	350-365 MHZ		350-365 MHZ		365-375 MHZ		365-375 MHZ	
DATE	6/ 4/72		6/ 5/72		5/ 5/72		5/25/72	
TIME	1512-1717		1721-1958		851-1105		1103-1304	
OCC LEVEL	-99		-99		-99		-99	
OCCUPANCY LIMITS	# OF CHAN	% OF TOTAL	# OF CHAN	% OF TOTAL	# OF CHAN	% OF TOTAL	# OF CHAN	% OF TOTAL
< 5%	460	91.8	488	97.4	320	96.1	325	97.6
< 10%	478	95.4	495	98.8	328	98.5	328	98.5
< 20%	496	99.0	497	99.2	332	99.7	332	99.7
< 30%	499	99.6	499	99.6	333	100.0	333	100.0
< 40%	500	99.8	499	99.6	333	100.0	333	100.0
< 50%	501	100.0	500	99.8	333	100.0	333	100.0
< 60%	501	100.0	501	100.0	333	100.0	333	100.0
< 70%	501	100.0	501	100.0	333	100.0	333	100.0
< 80%	501	100.0	501	100.0	333	100.0	333	100.0
< 90%	501	100.0	501	100.0	333	100.0	333	100.0
<100%	501	100.0	501	100.0	333	100.0	333	100.0
< 10% > 0%	478	95.4	495	98.8	328	98.5	328	98.5
< 20% >11%	18	3.6	2	.4	4	1.2	4	1.2
< 30% >21%	3	.6	2	.4	1	.3	1	.3
< 40% >31%	1	.2	0	.0	0	.0	0	.0
< 50% >41%	1	.2	1	.2	0	.0	0	.0
< 60% >51%	0	.0	1	.2	0	.0	0	.0
< 70% >61%	0	.0	0	.0	0	.0	0	.0
< 80% >71%	0	.0	0	.0	0	.0	0	.0
< 90% >81%	0	.0	0	.0	0	.0	0	.0
<100% >91%	0	.0	0	.0	0	.0	0	.0
PWR LIMITS (DBM)								
< -55	501	100.0	501	100.0	333	100.0	333	100.0
< -60	501	100.0	501	100.0	333	100.0	333	100.0
< -65	501	100.0	501	100.0	333	100.0	333	100.0
< -70	501	100.0	501	100.0	333	100.0	333	100.0
< -75	500	99.8	494	98.6	333	100.0	333	100.0
< -80	494	98.6	493	98.4	333	100.0	333	100.0
< -85	492	98.2	493	98.4	333	100.0	333	100.0
< -90	488	97.4	488	97.4	332	99.7	333	100.0
< -95	442	88.2	421	84.0	328	98.5	333	100.0
<-100	394	78.6	397	79.2	324	97.3	326	97.9
<-105	344	68.7	341	68.1	318	95.5	314	94.3
<-110	36	7.2	3	.6	308	92.5	289	86.8
< -50> -55	0	.0	0	.0	0	.0	0	.0
< -56> -60	0	.0	0	.0	0	.0	0	.0
< -61> -65	0	.0	0	.0	0	.0	0	.0
< -66> -70	0	.0	0	.0	0	.0	0	.0
< -71> -75	6	1.2	7	1.4	0	.0	0	.0
< -76> -80	1	.2	1	.2	0	.0	0	.0
< -81> -85	2	.4	0	.0	0	.0	0	.0
< -86> -90	5	1.0	14	2.8	2	.6	0	.0
< -91> -95	61	12.2	66	13.2	3	.9	3	.9
< -96>-100	41	8.2	22	4.4	7	2.1	7	2.1
<-101>-105	59	11.8	71	14.2	3	.9	12	3.6
<-106>-110	325	64.9	319	63.7	17	5.1	55	16.5
<-111>-115	1	.2	1	.2	301	90.4	256	76.9

TAPE #	2369	2312	2332	2361
BAND	365-375 MHZ	365-375 MHZ	365-375 MHZ	365-375 MHZ
DATE	5/31/72	4/20/72	5/ 9/72	6/ 4/72
TIME	1245-1503	1249-1515	1301-1502	1512-1717
OCC LEVEL	-99	-99	-99	-99

OCCUPANCY LIMITS	# OF CHAN	% OF TOTAL	# OF CHAN	% OF TOTAL	# OF CHAN	% OF TOTAL	# OF CHAN	% OF TOTAL
< 5%	322	96.7	323	97.0	323	97.0	328	98.5
< 10%	333	100.0	327	98.2	331	99.4	328	98.5
< 20%	333	100.0	328	98.5	333	100.0	332	99.7
< 30%	333	100.0	332	99.7	333	100.0	333	100.0
< 40%	333	100.0	332	99.7	333	100.0	333	100.0
< 50%	333	100.0	332	99.7	333	100.0	333	100.0
< 60%	333	100.0	333	100.0	333	100.0	333	100.0
< 70%	333	100.0	333	100.0	333	100.0	333	100.0
< 80%	333	100.0	333	100.0	333	100.0	333	100.0
< 90%	333	100.0	333	100.0	333	100.0	333	100.0
<100%	333	100.0	333	100.0	333	100.0	333	100.0
< 10% > 0%	333	100.0	327	98.2	331	99.4	328	98.5
< 20% >11%	0	.0	1	.3	2	.6	4	1.2
< 30% >21%	0	.0	4	1.2	0	.0	1	.3
< 40% >31%	0	.0	0	.0	0	.0	0	.0
< 50% >41%	0	.0	0	.0	0	.0	0	.0
< 60% >51%	0	.0	1	.3	0	.0	0	.0
< 70% >61%	0	.0	0	.0	0	.0	0	.0
< 80% >71%	0	.0	0	.0	0	.0	0	.0
< 90% >81%	0	.0	0	.0	0	.0	0	.0
<100% >91%	0	.0	0	.0	0	.0	0	.0
PWR LIMITS (DBM)								
< -55	333	100.0	333	100.0	333	100.0	333	100.0
< -60	333	100.0	333	100.0	333	100.0	333	100.0
< -65	333	100.0	333	100.0	333	100.0	333	100.0
< -70	333	100.0	333	100.0	333	100.0	333	100.0
< -75	333	100.0	333	100.0	333	100.0	333	100.0
< -80	333	100.0	333	100.0	333	100.0	333	100.0
< -85	332	99.7	333	100.0	333	100.0	333	100.0
< -90	330	99.1	333	100.0	331	99.4	333	100.0
< -95	327	98.2	331	99.4	327	98.2	332	99.7
<-100	318	95.5	328	98.5	319	95.8	332	99.7
<-105	306	91.9	325	97.6	311	93.4	326	97.9
<-110	280	84.1	316	94.9	275	82.6	310	93.1
< -50> -55	0	.0	0	.0	0	.0	0	.0
< -56> -60	0	.0	0	.0	0	.0	0	.0
< -61> -65	0	.0	0	.0	0	.0	0	.0
< -66> -70	0	.0	0	.0	0	.0	0	.0
< -71> -75	0	.0	0	.0	0	.0	0	.0
< -76> -80	0	.0	0	.0	0	.0	0	.0
< -81> -85	1	.3	0	.0	1	.3	0	.0
< -86> -90	3	.9	0	.0	2	.6	0	.0
< -91> -95	4	1.2	2	.6	5	1.5	1	.3
< -96>-100	8	2.4	3	.9	8	2.4	0	.0
<-101>-105	13	3.9	4	1.2	8	2.4	8	2.4
<-106>-110	61	18.3	28	8.4	309	92.8	29	8.7
<-111>-115	243	73.0	296	88.9	0	.0	295	88.6

TAPE #	2304		2328		2355		2369	
BAND	365-375 MHZ		375-385 MHZ		375-385 MHZ		375-385 MHZ	
DATE	6/ 5/72		5/ 5/72		5/25/72		5/31/72	
TIME	1721-1958		851-1105		1103-1304		1245-1503	
OCC LEVEL	-99		-99		-99		-99	
OCCUPANCY LIMITS	# OF CHAN	% OF TOTAL	# OF CHAN	% OF TOTAL	# OF CHAN	% OF TOTAL	# OF CHAN	% OF TOTAL
< 5%	328	98.5	314	94.3	301	90.4	323	97.0
< 10%	329	98.8	320	96.1	327	98.2	330	99.1
< 20%	332	99.7	326	97.9	333	100.0	333	100.0
< 30%	332	99.7	330	99.1	333	100.0	333	100.0
< 40%	333	100.0	330	99.1	333	100.0	333	100.0
< 50%	333	100.0	333	100.0	333	100.0	333	100.0
< 60%	333	100.0	333	100.0	333	100.0	333	100.0
< 70%	333	100.0	333	100.0	333	100.0	333	100.0
< 80%	333	100.0	333	100.0	333	100.0	333	100.0
< 90%	333	100.0	333	100.0	333	100.0	333	100.0
<100%	333	100.0	333	100.0	333	100.0	333	100.0
< 10% > 0%	329	98.8	320	96.1	327	98.2	330	99.1
< 20% >11%	3	.9	6	1.8	6	1.8	3	.9
< 30% >21%	0	.0	4	1.2	0	.0	0	.0
< 40% >31%	1	.3	0	.0	0	.0	0	.0
< 50% >41%	0	.0	3	.9	0	.0	0	.0
< 60% >51%	0	.0	0	.0	0	.0	0	.0
< 70% >61%	0	.0	0	.0	0	.0	0	.0
< 80% >71%	0	.0	0	.0	0	.0	0	.0
< 90% >81%	0	.0	0	.0	0	.0	0	.0
<100% >91%	0	.0	0	.0	0	.0	0	.0
PWR LIMITS (DBM)								
< -55	333	100.0	333	100.0	333	100.0	333	100.0
< -60	333	100.0	333	100.0	333	100.0	333	100.0
< -65	333	100.0	333	100.0	333	100.0	333	100.0
< -70	333	100.0	333	100.0	333	100.0	333	100.0
< -75	333	100.0	333	100.0	333	100.0	333	100.0
< -80	333	100.0	333	100.0	333	100.0	333	100.0
< -85	333	100.0	333	100.0	332	99.7	333	100.0
< -90	333	100.0	330	99.1	330	99.1	331	99.4
< -95	332	99.7	328	98.5	326	97.9	326	97.9
<-100	329	98.8	326	97.9	313	94.0	315	94.6
<-105	321	96.4	306	91.9	277	83.2	294	88.3
<-110	221	66.4	169	50.8	114	34.2	110	33.0
< -50> -55	0	.0	0	.0	0	.0	0	.0
< -56> -60	0	.0	0	.0	0	.0	0	.0
< -61> -65	0	.0	0	.0	0	.0	0	.0
< -66> -70	0	.0	0	.0	0	.0	0	.0
< -71> -75	0	.0	0	.0	0	.0	0	.0
< -76> -80	0	.0	0	.0	0	.0	0	.0
< -81> -85	0	.0	0	.0	1	.3	1	.3
< -86> -90	0	.0	4	1.2	3	.9	2	.6
< -91> -95	1	.3	1	.3	6	1.8	4	1.2
< -96>-100	5	1.5	9	2.7	15	4.5	13	3.9
<-101>-105	11	3.3	16	4.8	44	13.2	31	9.3
<-106>-110	188	56.5	225	67.6	241	72.4	255	76.6
<-111>-115	128	38.4	78	23.4	23	6.9	27	8.1

TAPE #	2312		2332		2361		2304	
BAND	375-385 MHZ		375-385 MHZ		375-385 MHZ		375-385 MHZ	
DATE	4/20/72		5/ 9/72		6/ 4/72		6/ 5/72	
TIME	1249-1515		1301-1502		1512-1717		1721-1958	
OCC LEVEL	-99		-99		-99		-99	
OCCUPANCY LIMITS	# OF CHAN	% OF TOTAL	# OF CHAN	% OF TOTAL	# OF CHAN	% OF TOTAL	# OF CHAN	% OF TOTAL
< 5%	328	98.5	297	89.2	329	98.8	291	87.4
< 10%	329	98.8	327	98.2	332	99.7	300	90.1
< 20%	329	98.8	333	100.0	333	100.0	311	93.4
< 30%	330	99.1	333	100.0	333	100.0	319	95.8
< 40%	331	99.4	333	100.0	333	100.0	322	96.7
< 50%	333	100.0	333	100.0	333	100.0	330	99.1
< 60%	333	100.0	333	100.0	333	100.0	333	100.0
< 70%	333	100.0	333	100.0	333	100.0	333	100.0
< 80%	333	100.0	333	100.0	333	100.0	333	100.0
< 90%	333	100.0	333	100.0	333	100.0	333	100.0
<100%	333	100.0	333	100.0	333	100.0	333	100.0
< 10% > 0%	329	98.8	327	98.2	332	99.7	300	90.1
< 20% >11%	0	.0	6	1.8	1	.3	11	3.3
< 30% >21%	1	.3	0	.0	0	.0	8	2.4
< 40% >31%	1	.3	0	.0	0	.0	3	.9
< 50% >41%	2	.6	0	.0	0	.0	8	2.4
< 60% >51%	0	.0	0	.0	0	.0	3	.9
< 70% >61%	0	.0	0	.0	0	.0	0	.0
< 80% >71%	0	.0	0	.0	0	.0	0	.0
< 90% >81%	0	.0	0	.0	0	.0	0	.0
<100% >91%	0	.0	0	.0	0	.0	0	.0
PWR LIMITS (DBM)								
< -55	333	100.0	333	100.0	333	100.0	333	100.0
< -60	333	100.0	333	100.0	333	100.0	333	100.0
< -65	333	100.0	333	100.0	333	100.0	333	100.0
< -70	333	100.0	333	100.0	333	100.0	333	100.0
< -75	333	100.0	333	100.0	333	100.0	333	100.0
< -80	333	100.0	333	100.0	333	100.0	333	100.0
< -85	333	100.0	333	100.0	333	100.0	332	99.7
< -90	333	100.0	332	99.7	333	100.0	332	99.7
< -95	332	99.7	328	98.5	332	99.7	330	99.1
<-100	332	99.7	320	96.1	330	99.1	319	95.8
<-105	329	98.8	270	81.1	321	96.4	276	82.9
<-110	128	38.4	8	2.4	105	31.5	15	4.5
< -50> -55	0	.0	0	.0	0	.0	0	.0
< -56> -60	0	.0	0	.0	0	.0	0	.0
< -61> -65	0	.0	0	.0	0	.0	0	.0
< -66> -70	0	.0	0	.0	0	.0	0	.0
< -71> -75	0	.0	0	.0	0	.0	0	.0
< -76> -80	0	.0	0	.0	0	.0	0	.0
< -81> -85	0	.0	0	.0	0	.0	1	.3
< -86> -90	0	.0	2	.6	0	.0	0	.0
< -91> -95	1	.3	3	.9	2	.6	2	.6
< -96>-100	1	.3	11	3.3	1	.3	18	5.4
<-101>-105	3	.9	60	18.0	10	3.0	72	21.6
<-106>-110	268	80.5	257	77.2	312	93.7	240	72.1
<-111>-115	60	18.0	0	.0	8	2.4	0	.0

TAPE #	2328		2355		2369		2312	
BAND	385-400 MHZ		385-400 MHZ		385-400 MHZ		385-400 MHZ	
DATE	5/ 5/72		5/25/72		5/31/72		4/20/72	
TIME	851-1105		1103-1304		1245-1503		1249-1515	
OCC LEVEL	-99		-99		-99		-99	
OCCUPANCY LIMITS	# OF CHAN	% OF TOTAL	# OF CHAN	% OF TOTAL	# OF CHAN	% OF TOTAL	# OF CHAN	% OF TOTAL
< 5%	481	96.4	356	71.3	387	77.6	447	89.6
< 10%	490	98.2	398	79.8	428	85.8	462	92.6
< 20%	492	98.6	452	90.6	455	91.2	471	94.4
< 30%	492	98.6	469	94.0	492	98.6	478	95.8
< 40%	494	99.0	486	97.4	498	99.8	482	96.6
< 50%	497	99.6	494	99.0	499	100.0	483	96.8
< 60%	498	99.8	498	99.8	499	100.0	484	97.0
< 70%	499	100.0	499	100.0	499	100.0	487	97.6
< 80%	499	100.0	499	100.0	499	100.0	487	97.6
< 90%	499	100.0	499	100.0	499	100.0	489	98.0
<100%	499	100.0	499	100.0	499	100.0	499	100.0
< 10% > 0%	490	98.2	398	79.8	428	85.8	462	92.6
< 20% >11%	2	.4	54	10.8	27	5.4	9	1.8
< 30% >21%	0	.0	17	3.4	37	7.4	7	1.4
< 40% >31%	2	.4	17	3.4	6	1.2	4	.8
< 50% >41%	3	.6	8	1.6	1	.2	1	.2
< 60% >51%	1	.2	4	.8	0	.0	1	.2
< 70% >61%	1	.2	1	.2	0	.0	3	.6
< 80% >71%	0	.0	0	.0	0	.0	0	.0
< 90% >81%	0	.0	0	.0	0	.0	2	.4
<100% >91%	0	.0	0	.0	0	.0	10	2.0
PWR LIMITS (DBM)								
< -55	499	100.0	499	100.0	499	100.0	499	100.0
< -60	499	100.0	499	100.0	499	100.0	499	100.0
< -65	499	100.0	499	100.0	499	100.0	499	100.0
< -70	499	100.0	499	100.0	499	100.0	499	100.0
< -75	498	99.8	499	100.0	499	100.0	499	100.0
< -80	498	99.8	499	100.0	499	100.0	499	100.0
< -85	497	99.6	495	99.2	494	99.0	498	99.8
< -90	496	99.4	485	97.2	489	98.0	497	99.6
< -95	496	99.4	458	91.8	482	96.6	490	98.2
<-100	489	98.0	417	83.6	463	92.8	483	96.8
<-105	353	70.7	208	41.7	230	46.1	286	57.3
<-110	114	22.8	72	14.4	62	12.4	103	20.6
< -50> -55	0	.0	0	.0	0	.0	0	.0
< -56> -60	0	.0	0	.0	0	.0	0	.0
< -61> -65	0	.0	0	.0	0	.0	0	.0
< -66> -70	0	.0	0	.0	0	.0	0	.0
< -71> -75	1	.2	0	.0	0	.0	0	.0
< -76> -80	0	.0	1	.2	1	.2	0	.0
< -81> -85	2	.4	5	1.0	4	.8	1	.2
< -86> -90	0	.0	10	2.0	5	1.0	2	.4
< -91> -95	0	.0	26	5.2	11	2.2	7	1.4
< -96>-100	10	2.0	59	11.8	22	4.4	19	3.8
<-101>-105	195	39.1	218	43.7	241	48.3	241	48.3
<-106>-110	291	58.3	180	36.1	215	43.1	227	45.5
<-111>-115	0	.0	0	.0	0	.0	2	.4

TAPE #	2332		2361		2304		2326	
BAND	385-400 MHZ		385-400 MHZ		385-400 MHZ		400-406 MHZ	
DATE	5/ 9/72		6/ 4/72		6/ 5/72		5/ 4/72	
TIME	1301-1502		1512-1717		1721-1958		831-1106	
OCC LEVEL	-99		-99		-99		-99	
OCCUPANCY LIMITS	# OF CHAN	% OF TOTAL	# OF CHAN	% OF TOTAL	# OF CHAN	% OF TOTAL	# OF CHAN	% OF TOTAL
< 5%	353	70.7	403	80.8	153	30.7	98	49.0
< 10%	374	74.9	422	84.6	167	33.5	98	49.0
< 20%	402	80.6	459	92.0	178	35.7	98	49.0
< 30%	430	86.2	475	95.2	208	41.7	98	49.0
< 40%	459	92.0	485	97.2	232	46.5	100	50.0
< 50%	476	95.4	495	99.2	264	52.9	128	64.0
< 60%	490	98.2	497	99.6	309	61.9	171	85.5
< 70%	494	99.0	499	100.0	364	72.9	193	96.5
< 80%	495	99.2	499	100.0	398	79.8	199	99.5
< 90%	499	100.0	499	100.0	436	87.4	200	100.0
<100%	499	100.0	499	100.0	499	100.0	200	100.0
< 10% > 0%	374	74.9	422	84.6	167	33.5	98	49.0
< 20% >11%	28	5.6	37	7.4	11	2.2	0	.0
< 30% >21%	28	5.6	16	3.2	30	6.0	0	.0
< 40% >31%	29	5.8	10	2.0	24	4.8	2	1.0
< 50% >41%	17	3.4	10	2.0	32	6.4	28	14.0
< 60% >51%	14	2.8	2	.4	45	9.0	43	21.5
< 70% >61%	4	.8	2	.4	55	11.0	22	11.0
< 80% >71%	1	.2	0	.0	34	6.8	6	3.0
< 90% >81%	4	.8	0	.0	38	7.6	1	.5
<100% >91%	0	.0	0	.0	63	12.6	0	.0
PWR LIMITS (DBM)								
< -55	499	100.0	499	100.0	499	100.0	200	100.0
< -60	499	100.0	499	100.0	499	100.0	200	100.0
< -65	499	100.0	499	100.0	499	100.0	147	73.5
< -70	499	100.0	499	100.0	499	100.0	98	49.0
< -75	497	99.6	499	100.0	499	100.0	98	49.0
< -80	477	95.6	499	100.0	498	99.8	98	49.0
< -85	407	81.6	496	99.4	492	98.6	98	49.0
< -90	323	64.7	491	98.4	486	97.4	98	49.0
< -95	284	56.9	479	96.0	421	84.4	98	49.0
<-100	239	47.9	464	93.0	229	45.9	98	49.0
<-105	41	8.2	255	51.1	132	26.5	98	49.0
<-110	0	.0	77	15.4	0	.0	98	49.0
< -50> -55	0	.0	0	.0	0	.0	0	.0
< -56> -60	0	.0	0	.0	0	.0	0	.0
< -61> -65	0	.0	0	.0	0	.0	99	49.5
< -66> -70	0	.0	0	.0	0	.0	3	1.5
< -71> -75	6	1.2	0	.0	0	.0	0	.0
< -76> -80	26	5.2	0	.0	3	.6	0	.0
< -81> -85	79	15.8	5	1.0	5	1.0	0	.0
< -86> -90	75	15.0	4	.8	8	1.6	0	.0
< -91> -95	35	7.0	12	2.4	94	18.8	0	.0
< -96>-100	64	12.8	19	3.8	210	42.1	0	.0
<-101>-105	202	40.5	274	54.9	62	12.4	0	.0
<-106>-110	12	2.4	185	37.1	117	23.4	0	.0
<-111>-115	0	.0	0	.0	0	.0	33	16.5

TAPE #	2351		2338		2336		2368	
BAND	400-406 MHZ		400-406 MHZ		400-406 MHZ		400-406 MHZ	
DATE	5/23/72		5/13/72		5/12/72		5/30/72	
TIME	1123-1310		1303-1507		1316-1511		1527-1712	
OCC LEVEL	-99		-99		-99		-99	
OCCUPANCY LIMITS	# OF CHAN	% OF TOTAL	# OF CHAN	% OF TOTAL	# OF CHAN	% OF TOTAL	# OF CHAN	% OF TOTAL
< 5%	197	98.5	193	96.5	172	86.0	193	96.5
< 10%	199	99.5	199	99.5	187	93.5	193	96.5
< 20%	200	100.0	200	100.0	200	100.0	196	98.0
< 30%	200	100.0	200	100.0	200	100.0	198	99.0
< 40%	200	100.0	200	100.0	200	100.0	200	100.0
< 50%	200	100.0	200	100.0	200	100.0	200	100.0
< 60%	200	100.0	200	100.0	200	100.0	200	100.0
< 70%	200	100.0	200	100.0	200	100.0	200	100.0
< 80%	200	100.0	200	100.0	200	100.0	200	100.0
< 90%	200	100.0	200	100.0	200	100.0	200	100.0
<100%	200	100.0	200	100.0	200	100.0	200	100.0
< 10% > 0%	199	99.5	199	99.5	187	93.5	193	96.5
< 20% >11%	1	.5	1	.5	13	6.5	3	1.5
< 30% >21%	0	.0	0	.0	0	.0	2	1.0
< 40% >31%	0	.0	0	.0	0	.0	2	1.0
< 50% >41%	0	.0	0	.0	0	.0	0	.0
< 60% >51%	0	.0	0	.0	0	.0	0	.0
< 70% >61%	0	.0	0	.0	0	.0	0	.0
< 80% >71%	0	.0	0	.0	0	.0	0	.0
< 90% >81%	0	.0	0	.0	0	.0	0	.0
<100% >91%	0	.0	0	.0	0	.0	0	.0
PWR LIMITS (DBM)								
< -55	200	100.0	200	100.0	200	100.0	200	100.0
< -60	200	100.0	200	100.0	200	100.0	200	100.0
< -65	200	100.0	200	100.0	200	100.0	200	100.0
< -70	200	100.0	200	100.0	200	100.0	0	.0
< -75	200	100.0	200	100.0	200	100.0	0	.0
< -80	200	100.0	200	100.0	200	100.0	0	.0
< -85	200	100.0	200	100.0	200	100.0	0	.0
< -90	200	100.0	200	100.0	200	100.0	0	.0
< -95	199	99.5	199	99.5	199	99.5	0	.0
<-100	198	99.0	197	98.5	198	99.0	0	.0
<-105	195	97.5	191	95.5	179	89.5	0	.0
<-110	91	45.5	0	.0	138	69.0	0	.0
< -50> -55	0	.0	0	.0	0	.0	0	.0
< -56> -60	0	.0	0	.0	0	.0	0	.0
< -61> -65	0	.0	0	.0	0	.0	0	.0
< -66> -70	0	.0	0	.0	0	.0	200	100.0
< -71> -75	0	.0	0	.0	0	.0	0	.0
< -76> -80	0	.0	0	.0	0	.0	0	.0
< -81> -85	0	.0	0	.0	0	.0	0	.0
< -86> -90	0	.0	0	.0	0	.0	0	.0
< -91> -95	1	.5	1	.5	1	.5	0	.0
< -96>-100	1	.5	2	1.0	3	1.5	0	.0
<-101>-105	5	2.5	11	5.5	22	11.0	0	.0
<-106>-110	193	96.5	186	93.0	122	61.0	0	.0
<-111>-115	0	.0	0	.0	52	26.0	0	.0

TAPE #	2308		2318		2345		2326	
BAND	400-406 MHZ		400-406 MHZ		400-406 MHZ		406-430 MHZ	
DATE	4/17/72		4/25/72		5/17/72		5/ 4/72	
TIME	1532-1734		1801-2006		2024-2226		831-1106	
OCC LEVEL	-99		-99		-99		-99	
OCCUPANCY LIMITS	# OF CHAN	% OF TOTAL	# OF CHAN	% OF TOTAL	# OF CHAN	% OF TOTAL	# OF CHAN	% OF TOTAL
< 5%	198	99.0	0	.0	197	98.5	800	100.0
< 10%	200	100.0	0	.0	200	100.0	800	100.0
< 20%	200	100.0	0	.0	200	100.0	800	100.0
< 30%	200	100.0	0	.0	200	100.0	800	100.0
< 40%	200	100.0	0	.0	200	100.0	800	100.0
< 50%	200	100.0	0	.0	200	100.0	800	100.0
< 60%	200	100.0	53	26.5	200	100.0	800	100.0
< 70%	200	100.0	184	92.0	200	100.0	800	100.0
< 80%	200	100.0	200	100.0	200	100.0	800	100.0
< 90%	200	100.0	200	100.0	200	100.0	800	100.0
<100%	200	100.0	200	100.0	200	100.0	800	100.0
< 10% > 0%	200	100.0	0	.0	200	100.0	800	100.0
< 20% >11%	0	.0	0	.0	0	.0	0	.0
< 30% >21%	0	.0	0	.0	0	.0	0	.0
< 40% >31%	0	.0	0	.0	0	.0	0	.0
< 50% >41%	0	.0	0	.0	0	.0	0	.0
< 60% >51%	0	.0	53	26.5	0	.0	0	.0
< 70% >61%	0	.0	131	65.5	0	.0	0	.0
< 80% >71%	0	.0	16	8.0	0	.0	0	.0
< 90% >81%	0	.0	0	.0	0	.0	0	.0
<100% >91%	0	.0	0	.0	0	.0	0	.0
PWR LIMITS (DBM)								
< -55	200	100.0	200	100.0	200	100.0	800	100.0
< -60	200	100.0	200	100.0	200	100.0	800	100.0
< -65	200	100.0	200	100.0	200	100.0	800	100.0
< -70	200	100.0	200	100.0	200	100.0	800	100.0
< -75	200	100.0	200	100.0	200	100.0	800	100.0
< -80	200	100.0	200	100.0	200	100.0	800	100.0
< -85	200	100.0	200	100.0	200	100.0	800	100.0
< -90	200	100.0	200	100.0	200	100.0	800	100.0
< -95	200	100.0	200	100.0	200	100.0	799	99.9
<-100	199	99.5	97	48.5	199	99.5	791	98.9
<-105	195	97.5	0	.0	196	98.0	776	97.0
<-110	144	72.0	0	.0	94	47.0	734	91.7
< -50> -55	0	.0	0	.0	0	.0	0	.0
< -56> -60	0	.0	0	.0	0	.0	0	.0
< -61> -65	0	.0	0	.0	0	.0	0	.0
< -66> -70	0	.0	0	.0	0	.0	0	.0
< -71> -75	0	.0	0	.0	0	.0	0	.0
< -76> -80	0	.0	0	.0	0	.0	0	.0
< -81> -85	0	.0	0	.0	0	.0	0	.0
< -86> -90	0	.0	0	.0	0	.0	0	.0
< -91> -95	0	.0	1	.5	1	.5	1	.1
< -96>-100	1	.5	199	99.5	1	.5	10	1.3
<-101>-105	7	3.5	0	.0	2	1.0	18	2.2
<-106>-110	158	79.0	0	.0	196	98.0	49	6.1
<-111>-115	34	17.0	0	.0	0	.0	134	16.7

TAPE #	2351		2338		2336		2368	
BAND	406-430 MHZ		406-430 MHZ		406-430 MHZ		406-430 MHZ	
DATE	5/23/72		5/13/72		5/12/72		5/30/72	
TIME	1123-1310		1303-1507		1316-1511		1527-1712	
OCC LEVEL	-99		-99		-99		-99	
OCCUPANCY LIMITS	# OF CHAN	% OF TOTAL	# OF CHAN	% OF TOTAL	# OF CHAN	% OF TOTAL	# OF CHAN	% OF TOTAL
< 5%	440	55.0	440	55.0	447	55.9	356	44.5
< 10%	536	67.0	545	68.1	556	69.5	481	60.1
< 20%	626	78.2	647	80.9	668	83.5	613	76.6
< 30%	694	86.7	688	86.0	717	89.6	708	88.5
< 40%	739	92.4	728	91.0	758	94.7	768	96.0
< 50%	771	96.4	762	95.2	782	97.7	790	98.7
< 60%	790	98.7	783	97.9	793	99.1	798	99.7
< 70%	798	99.7	794	99.2	798	99.7	800	100.0
< 80%	800	100.0	799	99.9	800	100.0	800	100.0
< 90%	800	100.0	800	100.0	800	100.0	800	100.0
<100%	800	100.0	800	100.0	800	100.0	800	100.0
< 10% > 0%	536	67.0	545	68.1	556	69.5	481	60.1
< 20% >11%	90	11.2	102	12.7	112	14.0	132	16.5
< 30% >21%	68	8.5	41	5.1	49	6.1	95	11.9
< 40% >31%	45	5.6	40	5.0	41	5.1	60	7.5
< 50% >41%	32	4.0	34	4.2	24	3.0	22	2.7
< 60% >51%	19	2.4	21	2.6	11	1.4	8	1.0
< 70% >61%	8	1.0	11	1.4	5	.6	2	.3
< 80% >71%	2	.3	5	.6	2	.3	0	.0
< 90% >81%	0	.0	1	.1	0	.0	0	.0
<100% >91%	0	.0	0	.0	0	.0	0	.0
PWR LIMITS (DBM)								
< -55	800	100.0	800	100.0	800	100.0	800	100.0
< -60	800	100.0	800	100.0	800	100.0	800	100.0
< -65	800	100.0	800	100.0	800	100.0	800	100.0
< -70	800	100.0	800	100.0	800	100.0	0	.0
< -75	799	99.9	799	99.9	799	99.9	0	.0
< -80	796	99.5	793	99.1	797	99.6	0	.0
< -85	789	98.6	775	96.9	789	98.6	0	.0
< -90	756	94.5	732	91.5	762	95.2	0	.0
< -95	689	86.1	667	83.4	716	89.5	0	.0
<-100	582	72.7	566	70.7	602	75.2	0	.0
<-105	314	39.2	270	33.7	339	42.4	0	.0
<-110	61	7.6	0	.0	22	2.7	0	.0
< -50> -55	0	.0	0	.0	0	.0	0	.0
< -56> -60	0	.0	0	.0	0	.0	0	.0
< -61> -65	0	.0	0	.0	0	.0	0	.0
< -66> -70	0	.0	0	.0	0	.0	800	100.0
< -71> -75	1	.1	1	.1	1	.1	0	.0
< -76> -80	3	.4	7	.9	3	.4	0	.0
< -81> -85	8	1.0	23	2.9	11	1.4	0	.0
< -86> -90	43	5.4	47	5.9	34	4.2	0	.0
< -91> -95	85	10.6	70	8.8	56	7.0	0	.0
< -96>-100	117	14.6	107	13.4	133	16.6	0	.0
<-101>-105	280	35.0	373	46.6	294	36.7	0	.0
<-106>-110	263	32.9	172	21.5	268	33.5	0	.0
<-111>-115	0	.0	0	.0	0	.0	0	.0

TAPE #	2308	2318	2345	2326
BAND	406-430 MHZ	406-430 MHZ	406-430 MHZ	430-440 MHZ
DATE	4/17/72	4/25/72	5/17/72	5/ 4/72
TIME	1532-1734	1801-2006	2024-2226	831-1106
OCC LEVEL	-99	-99	-99	-99

OCCUPANCY LIMITS	# OF CHAN	% OF TOTAL	# OF CHAN	% OF TOTAL	# OF CHAN	% OF TOTAL	# OF CHAN	% OF TOTAL
< 5%	457	57.1	0	.0	449	56.1	333	100.0
< 10%	549	68.6	0	.0	545	68.1	333	100.0
< 20%	643	80.4	0	.0	651	81.4	333	100.0
< 30%	699	87.4	0	.0	701	87.6	333	100.0
< 40%	742	92.7	0	.0	744	93.0	333	100.0
< 50%	772	96.5	7	.9	782	97.7	333	100.0
< 60%	794	99.2	92	11.5	795	99.4	333	100.0
< 70%	800	100.0	149	18.6	799	99.9	333	100.0
< 80%	800	100.0	159	19.9	800	100.0	333	100.0
< 90%	800	100.0	171	21.4	800	100.0	333	100.0
<100%	800	100.0	800	100.0	800	100.0	333	100.0
< 10% > 0%	549	68.6	0	.0	545	68.1	333	100.0
< 20% >11%	94	11.7	0	.0	106	13.2	0	.0
< 30% >21%	56	7.0	0	.0	50	6.3	0	.0
< 40% >31%	43	5.4	0	.0	43	5.4	0	.0
< 50% >41%	30	3.8	7	.9	38	4.7	0	.0
< 60% >51%	22	2.7	85	10.6	13	1.6	0	.0
< 70% >61%	6	.8	57	7.1	4	.5	0	.0
< 80% >71%	0	.0	10	1.3	1	.1	0	.0
< 90% >81%	0	.0	12	1.5	0	.0	0	.0
<100% >91%	0	.0	629	78.6	0	.0	0	.0
PWR LIMITS (DBM)								
< -55	800	100.0	800	100.0	800	100.0	333	100.0
< -60	800	100.0	800	100.0	800	100.0	333	100.0
< -65	800	100.0	800	100.0	800	100.0	333	100.0
< -70	800	100.0	799	99.9	800	100.0	333	100.0
< -75	800	100.0	796	99.5	799	99.9	333	100.0
< -80	797	99.6	785	98.1	794	99.2	333	100.0
< -85	789	98.6	760	95.0	788	98.5	333	100.0
< -90	752	94.0	699	87.4	761	95.1	333	100.0
< -95	688	86.0	451	56.4	707	88.4	333	100.0
<-100	589	73.6	101	12.6	612	76.5	333	100.0
<-105	326	40.7	0	.0	326	40.7	315	94.6
<-110	57	7.1	0	.0	12	1.5	295	88.6
< -50> -55	0	.0	0	.0	0	.0	0	.0
< -56> -60	0	.0	0	.0	0	.0	0	.0
< -61> -65	0	.0	0	.0	0	.0	0	.0
< -66> -70	0	.0	1	.1	0	.0	0	.0
< -71> -75	0	.0	5	.6	1	.1	0	.0
< -76> -80	3	.4	11	1.4	5	.6	0	.0
< -81> -85	13	1.6	38	4.7	11	1.4	0	.0
< -86> -90	46	5.7	75	9.4	29	3.6	0	.0
< -91> -95	63	7.9	289	36.1	71	8.9	0	.0
< -96>-100	110	13.7	381	47.6	102	12.7	0	.0
<-101>-105	295	36.9	0	.0	309	38.6	20	6.0
<-106>-110	270	33.7	0	.0	272	34.0	24	7.2
<-111>-115	0	.0	0	.0	0	.0	32	9.6

TAPE #	2351		2338		2336		2368	
BAND	430-440 MHZ		430-440 MHZ		430-440 MHZ		430-440 MHZ	
DATE	5/23/72		5/13/72		5/12/72		5/30/72	
TIME	1123-1310		1303-1507		1316-1511		1527-1712	
OCC LEVEL	-99		-99		-99		-99	
OCCUPANCY LIMITS	# OF CHAN	% OF TOTAL	# OF CHAN	% OF TOTAL	# OF CHAN	% OF TOTAL	# OF CHAN	% OF TOTAL
< 5%	256	76.9	314	94.3	286	85.9	223	67.0
< 10%	284	85.3	319	95.8	301	90.4	272	81.7
< 20%	303	91.0	331	99.4	314	94.3	301	90.4
< 30%	307	92.2	332	99.7	324	97.3	309	92.8
< 40%	314	94.3	333	100.0	331	99.4	326	97.9
< 50%	326	97.9	333	100.0	333	100.0	331	99.4
< 60%	332	99.7	333	100.0	333	100.0	333	100.0
< 70%	333	100.0	333	100.0	333	100.0	333	100.0
< 80%	333	100.0	333	100.0	333	100.0	333	100.0
< 90%	333	100.0	333	100.0	333	100.0	333	100.0
<100%	333	100.0	333	100.0	333	100.0	333	100.0
< 10% > 0%	284	85.3	319	95.8	301	90.4	272	81.7
< 20% >11%	19	5.7	12	3.6	13	3.9	29	8.7
< 30% >21%	4	1.2	1	.3	10	3.0	8	2.4
< 40% >31%	7	2.1	1	.3	7	2.1	17	5.1
< 50% >41%	12	3.6	0	.0	2	.6	5	1.5
< 60% >51%	6	1.8	0	.0	0	.0	2	.6
< 70% >61%	1	.3	0	.0	0	.0	0	.0
< 80% >71%	0	.0	0	.0	0	.0	0	.0
< 90% >81%	0	.0	0	.0	0	.0	0	.0
<100% >91%	0	.0	0	.0	0	.0	0	.0
PWR LIMITS (DBM)								
< -55	333	100.0	333	100.0	333	100.0	333	100.0
< -60	333	100.0	333	100.0	333	100.0	333	100.0
< -65	333	100.0	333	100.0	333	100.0	333	100.0
< -70	333	100.0	333	100.0	333	100.0	0	.0
< -75	333	100.0	333	100.0	333	100.0	0	.0
< -80	333	100.0	333	100.0	333	100.0	0	.0
< -85	333	100.0	333	100.0	333	100.0	0	.0
< -90	321	96.4	332	99.7	327	98.2	0	.0
< -95	296	88.9	332	99.7	307	92.2	0	.0
<-100	268	80.5	323	97.0	291	87.4	0	.0
<-105	233	70.0	294	88.3	267	80.2	0	.0
<-110	0	.0	0	.0	38	11.4	0	.0
< -50> -55	0	.0	0	.0	0	.0	0	.0
< -56> -60	0	.0	0	.0	0	.0	0	.0
< -61> -65	0	.0	0	.0	0	.0	0	.0
< -66> -70	0	.0	0	.0	0	.0	333	100.0
< -71> -75	0	.0	0	.0	0	.0	0	.0
< -76> -80	0	.0	0	.0	0	.0	0	.0
< -81> -85	0	.0	0	.0	0	.0	0	.0
< -86> -90	17	5.1	1	.3	7	2.1	0	.0
< -91> -95	24	7.2	3	.9	21	6.3	0	.0
< -96>-100	32	9.6	7	2.1	15	4.5	0	.0
<-101>-105	47	14.1	105	31.5	32	9.6	0	.0
<-106>-110	213	64.0	217	65.2	256	76.9	0	.0
<-111>-115	0	.0	0	.0	2	.6	0	.0

TAPE #	2308		2318		2345		2326	
BAND	430-440 MHZ		430-440 MHZ		430-440 MHZ		440-450 MHZ	
DATE	4/17/72		4/25/72		5/17/72		5/ 4/72	
TIME	1532-1734		1801-2006		2024-2226		851-1106	
OCC LEVEL	-99		-99		-99		-99	
OCCUPANCY LIMITS	# OF CHAN	% OF TOTAL	# OF CHAN	% OF TOTAL	# OF CHAN	% OF TOTAL	# OF CHAN	% OF TOTAL
< 5%	243	73.0	0	.0	311	93.4	333	100.0
< 10%	263	79.0	0	.0	325	97.6	333	100.0
< 20%	294	88.3	0	.0	332	99.7	333	100.0
< 30%	303	91.0	0	.0	332	99.7	333	100.0
< 40%	310	93.1	0	.0	333	100.0	333	100.0
< 50%	313	94.0	0	.0	333	100.0	333	100.0
< 60%	320	96.1	0	.0	333	100.0	333	100.0
< 70%	332	99.7	0	.0	333	100.0	333	100.0
< 80%	333	100.0	0	.0	333	100.0	333	100.0
< 90%	333	100.0	4	1.2	333	100.0	333	100.0
<100%	333	100.0	333	100.0	333	100.0	333	100.0
< 10% > 0%	263	79.0	0	.0	325	97.6	333	100.0
< 20% >11%	31	9.3	0	.0	7	2.1	0	.0
< 30% >21%	9	2.7	0	.0	0	.0	0	.0
< 40% >31%	7	2.1	0	.0	1	.3	0	.0
< 50% >41%	3	.9	0	.0	0	.0	0	.0
< 60% >51%	7	2.1	0	.0	0	.0	0	.0
< 70% >61%	12	3.6	0	.0	0	.0	0	.0
< 80% >71%	1	.3	0	.0	0	.0	0	.0
< 90% >81%	0	.0	4	1.2	0	.0	0	.0
<100% >91%	0	.0	329	98.8	0	.0	0	.0
PWR LIMITS (DBM)								
< -55	333	100.0	333	100.0	333	100.0	333	100.0
< -60	333	100.0	333	100.0	333	100.0	333	100.0
< -65	333	100.0	333	100.0	333	100.0	333	100.0
< -70	332	99.7	333	100.0	333	100.0	333	100.0
< -75	332	99.7	333	100.0	333	100.0	333	100.0
< -80	332	99.7	330	99.1	333	100.0	333	100.0
< -85	330	99.1	318	95.5	333	100.0	333	100.0
< -90	307	92.2	297	89.2	333	100.0	333	100.0
< -95	283	85.0	264	79.3	332	99.7	333	100.0
<-100	253	76.0	0	.0	322	96.7	333	100.0
<-105	210	63.1	0	.0	301	90.4	333	100.0
<-110	0	.0	0	.0	0	.0	326	97.9
< -50> -55	0	.0	0	.0	0	.0	0	.0
< -56> -60	0	.0	0	.0	0	.0	0	.0
< -61> -65	0	.0	0	.0	0	.0	0	.0
< -66> -70	1	.3	0	.0	0	.0	0	.0
< -71> -75	0	.0	0	.0	0	.0	0	.0
< -76> -80	0	.0	5	1.5	0	.0	0	.0
< -81> -85	4	1.2	14	4.2	0	.0	0	.0
< -86> -90	26	7.8	17	5.1	1	.3	0	.0
< -91> -95	24	7.2	41	12.3	0	.0	0	.0
< -96>-100	37	11.1	256	76.9	12	3.6	0	.0
<-101>-105	41	12.3	0	.0	29	8.7	0	.0
<-106>-110	200	60.1	0	.0	291	87.4	9	2.7
<-111>-115	0	.0	0	.0	0	.0	12	3.6

TAPE #	2351		2338		2336		2368	
BAND	440-450 MHZ		440-450 MHZ		440-450 MHZ		440-450 MHZ	
DATE	5/23/72		5/13/72		5/12/72		5/30/72	
TIME	1123-1310		1303-1507		1316-1511		1527-1712	
OCC LEVEL	-99		-99		-99		-99	
OCCUPANCY LIMITS	# OF CHAN	% OF TOTAL	# OF CHAN	% OF TOTAL	# OF CHAN	% OF TOTAL	# OF CHAN	% OF TOTAL
< 5%	298	89.5	305	91.6	305	91.6	212	63.7
< 10%	309	92.8	317	95.2	318	95.5	272	81.7
< 20%	321	96.4	326	97.9	328	98.5	307	92.2
< 30%	329	98.8	331	99.4	330	99.1	324	97.3
< 40%	331	99.4	332	99.7	333	100.0	331	99.4
< 50%	333	100.0	333	100.0	333	100.0	331	99.4
< 60%	333	100.0	333	100.0	333	100.0	332	99.7
< 70%	333	100.0	333	100.0	333	100.0	333	100.0
< 80%	333	100.0	333	100.0	333	100.0	333	100.0
< 90%	333	100.0	333	100.0	333	100.0	333	100.0
<100%	333	100.0	333	100.0	333	100.0	333	100.0
< 10% > 0%	309	92.8	317	95.2	318	95.5	272	81.7
< 20% >11%	12	3.6	9	2.7	10	3.0	35	10.5
< 30% >21%	8	2.4	5	1.5	2	.6	17	5.1
< 40% >31%	2	.6	1	.3	3	.9	7	2.1
< 50% >41%	2	.6	1	.3	0	.0	0	.0
< 60% >51%	0	.0	0	.0	0	.0	1	.3
< 70% >61%	0	.0	0	.0	0	.0	1	.3
< 80% >71%	0	.0	0	.0	0	.0	0	.0
< 90% >81%	0	.0	0	.0	0	.0	0	.0
<100% >91%	0	.0	0	.0	0	.0	0	.0
PWR LIMITS (DBM)								
< -55	333	100.0	333	100.0	333	100.0	333	100.0
< -60	333	100.0	333	100.0	333	100.0	333	100.0
< -65	333	100.0	333	100.0	333	100.0	333	100.0
< -70	333	100.0	333	100.0	333	100.0	0	.0
< -75	333	100.0	333	100.0	333	100.0	0	.0
< -80	333	100.0	333	100.0	333	100.0	0	.0
< -85	332	99.7	333	100.0	333	100.0	0	.0
< -90	331	99.4	330	99.1	331	99.4	0	.0
< -95	327	98.2	322	96.7	323	97.0	0	.0
<-100	314	94.3	313	94.0	311	93.4	0	.0
<-105	215	64.6	219	65.8	241	72.4	0	.0
<-110	0	.0	0	.0	0	.0	0	.0
< -50> -55	0	.0	0	.0	0	.0	0	.0
< -56> -60	0	.0	0	.0	0	.0	0	.0
< -61> -65	0	.0	0	.0	0	.0	0	.0
< -66> -70	0	.0	0	.0	0	.0	333	100.0
< -71> -75	0	.0	0	.0	0	.0	0	.0
< -76> -80	0	.0	0	.0	0	.0	0	.0
< -81> -85	2	.6	2	.6	0	.0	0	.0
< -86> -90	1	.3	1	.3	3	.9	0	.0
< -91> -95	6	1.8	8	2.4	12	3.6	0	.0
< -96>-100	13	3.9	13	3.9	14	4.2	0	.0
<-101>-105	179	53.8	302	90.7	138	41.4	0	.0
<-106>-110	132	39.6	7	2.1	166	49.8	0	.0
<-111>-115	0	.0	0	.0	0	.0	0	.0

TAPE #	2308		2318		2345		2320	
BAND	440-450 MHZ		440-450 MHZ		440-450 MHZ		450-470 MHZ	
DATE	4/17/72		4/25/72		5/17/72		5/ 2/72	
TIME	1532-1734		1801-2006		2024-2226		817-1106	
OCC LEVEL	-99		-99		-99		-99	
OCCUPANCY LIMITS	# OF CHAN	% OF TOTAL	# OF CHAN	% OF TOTAL	# OF CHAN	% OF TOTAL	# OF CHAN	% OF TOTAL
< 5%	286	85.9	0	.0	299	89.8	469	70.3
< 10%	301	90.4	0	.0	311	93.4	559	83.8
< 20%	316	94.9	0	.0	327	98.2	647	97.0
< 30%	321	96.4	0	.0	332	99.7	662	99.3
< 40%	325	97.6	0	.0	333	100.0	664	99.6
< 50%	329	98.8	0	.0	333	100.0	667	100.0
< 60%	331	99.4	0	.0	333	100.0	667	100.0
< 70%	332	99.7	0	.0	333	100.0	667	100.0
< 80%	332	99.7	0	.0	333	100.0	667	100.0
< 90%	332	99.7	0	.0	333	100.0	667	100.0
<100%	332	99.7	333	100.0	333	100.0	667	100.0
< 10% > 0%	301	90.4	0	.0	311	93.4	559	83.8
< 20% >11%	15	4.5	0	.0	16	4.8	88	13.2
< 30% >21%	5	1.5	0	.0	5	1.5	15	2.2
< 40% >31%	4	1.2	0	.0	1	.3	2	.3
< 50% >41%	4	1.2	0	.0	0	.0	3	.4
< 60% >51%	2	.6	0	.0	0	.0	0	.0
< 70% >61%	1	.3	0	.0	0	.0	0	.0
< 80% >71%	0	.0	0	.0	0	.0	0	.0
< 90% >81%	0	.0	0	.0	0	.0	0	.0
<100% >91%	0	.0	333	100.0	0	.0	0	.0
PWR LIMITS (DBM)								
< -55	333	100.0	333	100.0	333	100.0	667	100.0
< -60	332	99.7	333	100.0	333	100.0	667	100.0
< -65	332	99.7	333	100.0	333	100.0	667	100.0
< -70	332	99.7	333	100.0	333	100.0	667	100.0
< -75	331	99.4	333	100.0	333	100.0	667	100.0
< -80	329	98.8	331	99.4	333	100.0	667	100.0
< -85	328	98.5	329	98.8	333	100.0	667	100.0
< -90	321	96.4	326	97.9	331	99.4	664	99.6
< -95	311	93.4	259	77.8	322	96.7	624	93.6
<-100	298	89.5	0	.0	309	92.8	546	81.9
<-105	219	65.8	0	.0	208	62.5	401	60.1
<-110	0	.0	0	.0	0	.0	194	29.1
< -50> -55	0	.0	0	.0	0	.0	0	.0
< -56> -60	1	.3	0	.0	0	.0	0	.0
< -61> -65	0	.0	0	.0	0	.0	0	.0
< -66> -70	0	.0	0	.0	0	.0	0	.0
< -71> -75	1	.3	0	.0	0	.0	0	.0
< -76> -80	2	.6	3	.9	0	.0	0	.0
< -81> -85	1	.3	1	.3	0	.0	0	.0
< -86> -90	8	2.4	3	.9	3	.9	8	1.2
< -91> -95	9	2.7	169	50.8	10	3.0	43	6.4
< -96>-100	19	5.7	157	47.1	14	4.2	101	15.1
<-101>-105	141	42.3	0	.0	181	54.4	145	21.7
<-106>-110	151	45.3	0	.0	125	37.5	203	30.4
<-111>-115	0	.0	0	.0	0	.0	167	25.0

TAPE #	2330		2359		2353		2315	
BAND	450-470 MHZ		450-470 MHZ		450-470 MHZ		450-470 MHZ	
DATE	5/ 8/72		6/ 3/72		5/24/72		4/21/72	
TIME	1259-1523		1513-1708		1521-1656		1530-1631	
OCC LEVEL	-99		-99		-99		-99	
OCCUPANCY LIMITS	# OF CHAN	% OF TOTAL	# OF CHAN	% OF TOTAL	# OF CHAN	% OF TOTAL	# OF CHAN	% OF TOTAL
< 5%	335	50.2	401	60.1	371	55.6	550	82.5
< 10%	438	65.7	473	70.9	463	69.4	583	87.4
< 20%	548	82.2	569	85.3	571	85.6	612	91.8
< 30%	610	91.5	615	92.2	618	92.7	624	93.6
< 40%	640	96.0	644	96.6	642	96.3	636	95.4
< 50%	654	98.1	654	98.1	652	97.8	643	96.4
< 60%	659	98.8	660	99.0	658	98.7	644	96.6
< 70%	661	99.1	663	99.4	660	99.0	651	97.6
< 80%	663	99.4	664	99.6	663	99.4	663	99.4
< 90%	666	99.9	666	99.9	667	100.0	667	100.0
<100%	667	100.0	667	100.0	667	100.0	667	100.0
< 10% > 0%	438	65.7	473	70.9	463	69.4	583	87.4
< 20% >11%	110	16.5	96	14.4	108	16.2	29	4.3
< 30% >21%	62	9.3	46	6.9	47	7.0	12	1.8
< 40% >31%	30	4.5	29	4.3	24	3.6	12	1.8
< 50% >41%	14	2.1	10	1.5	10	1.5	7	1.0
< 60% >51%	5	.7	6	.9	6	.9	1	.1
< 70% >61%	2	.3	3	.4	2	.3	7	1.0
< 80% >71%	2	.3	1	.1	3	.4	12	1.8
< 90% >81%	3	.4	2	.3	4	.6	4	.6
<100% >91%	1	.1	1	.1	0	.0	0	.0
PWR LIMITS (DBM)								
< -55	667	100.0	667	100.0	667	100.0	667	100.0
< -60	667	100.0	667	100.0	667	100.0	667	100.0
< -65	667	100.0	667	100.0	667	100.0	667	100.0
< -70	667	100.0	667	100.0	667	100.0	667	100.0
< -75	667	100.0	667	100.0	667	100.0	667	100.0
< -80	667	100.0	667	100.0	667	100.0	667	100.0
< -85	664	99.6	665	99.7	661	99.1	660	99.0
< -90	642	96.3	643	96.4	638	95.7	648	97.2
< -95	549	82.3	594	89.1	595	89.2	632	94.8
<-100	414	62.1	496	74.4	499	74.8	575	86.2
<-105	214	32.1	304	45.6	307	46.0	417	62.5
<-110	0	.0	1	.1	25	3.7	0	.0
< -50> -55	0	.0	0	.0	0	.0	0	.0
< -56> -60	0	.0	0	.0	0	.0	0	.0
< -61> -65	0	.0	0	.0	0	.0	0	.0
< -66> -70	0	.0	0	.0	0	.0	0	.0
< -71> -75	0	.0	0	.0	0	.0	0	.0
< -76> -80	0	.0	0	.0	1	.1	1	.1
< -81> -85	8	1.2	2	.3	5	.7	7	1.0
< -86> -90	32	4.8	30	4.5	26	3.9	14	2.1
< -91> -95	98	14.7	57	8.5	59	8.8	18	2.7
< -96>-100	150	22.5	110	16.5	108	16.2	79	11.8
<-101>-105	207	31.0	213	31.9	209	31.3	178	26.7
<-106>-110	172	25.8	255	38.2	251	37.6	370	55.5
<-111>-115	0	.0	0	.0	8	1.2	0	.0

TAPE #	2356		2364		2347		2329	
BAND	450-470 MHZ		450-470 MHZ		450-470 MHZ		470-500 MHZ	
DATE	6/ 6/72		5/26/72		5/18/72		5/ 2/72	
TIME	1725-2000		2016-2130		2022-2213		817-1106	
OCC LEVEL	-99		-99		-99		-99	
OCCUPANCY LIMITS	# OF CHAN	% OF TOTAL	# OF CHAN	% OF TOTAL	# OF CHAN	% OF TOTAL	# OF CHAN	% OF TOTAL
< 5%	475	71.2	405	60.7	422	63.3	445	44.5
< 10%	539	80.8	471	70.6	507	76.0	520	52.0
< 20%	596	89.4	573	85.9	598	89.7	637	63.7
< 30%	635	95.2	621	93.1	630	94.5	744	74.4
< 40%	654	98.1	641	96.1	651	97.6	789	78.9
< 50%	662	99.3	656	98.4	657	98.5	857	85.7
< 60%	662	99.3	662	99.3	663	99.4	1000	100.0
< 70%	663	99.4	663	99.4	664	99.6	1000	100.0
< 80%	665	99.7	665	99.7	666	99.9	1000	100.0
< 90%	667	100.0	666	99.9	667	100.0	1000	100.0
<100%	667	100.0	667	100.0	667	100.0	1000	100.0
< 10% > 0%	539	80.8	471	70.6	507	76.0	520	52.0
< 20% >11%	57	8.5	102	15.3	91	13.6	117	11.7
< 30% >21%	39	5.8	48	7.2	32	4.8	107	10.7
< 40% >31%	19	2.8	20	3.0	21	3.1	45	4.5
< 50% >41%	8	1.2	15	2.2	6	.9	68	6.8
< 60% >51%	0	.0	6	.9	6	.9	143	14.3
< 70% >61%	1	.1	1	.1	1	.1	0	.0
< 80% >71%	2	.3	2	.3	2	.3	0	.0
< 90% >81%	2	.3	1	.1	1	.1	0	.0
<100% >91%	0	.0	1	.1	0	.0	0	.0
PWR LIMITS (DBM)								
< -55	667	100.0	667	100.0	667	100.0	967	96.7
< -60	667	100.0	667	100.0	667	100.0	966	96.6
< -65	667	100.0	667	100.0	667	100.0	963	96.3
< -70	667	100.0	667	100.0	667	100.0	959	95.9
< -75	667	100.0	667	100.0	667	100.0	948	94.8
< -80	667	100.0	667	100.0	667	100.0	937	93.7
< -85	666	99.9	666	99.9	663	99.4	924	92.4
< -90	648	97.2	647	97.0	645	96.7	890	89.0
< -95	613	91.9	605	90.7	607	91.0	792	79.2
<-100	557	83.5	521	78.1	522	78.3	667	66.7
<-105	424	63.6	322	48.3	342	51.3	409	40.9
<-110	115	17.2	21	3.1	25	3.7	117	11.7
< -50> -55	0	.0	0	.0	0	.0	0	.0
< -56> -60	0	.0	0	.0	0	.0	1	.1
< -61> -65	0	.0	0	.0	0	.0	4	.4
< -66> -70	0	.0	0	.0	0	.0	5	.5
< -71> -75	0	.0	0	.0	0	.0	10	1.0
< -76> -80	0	.0	0	.0	0	.0	13	1.3
< -81> -85	3	.4	3	.4	6	.9	14	1.4
< -86> -90	22	3.3	24	3.6	20	3.0	54	5.4
< -91> -95	41	6.1	46	6.9	44	6.6	113	11.3
< -96>-100	55	8.2	104	15.6	95	14.2	118	11.8
<-101>-105	166	24.9	224	33.6	199	29.8	253	25.3
<-106>-110	346	51.9	266	39.9	296	44.4	339	33.9
<-111>-115	34	5.1	0	.0	7	1.0	43	4.3

TAPE #	2330		2359		2353		2315	
BAND	470-500 MHZ		470-500 MHZ		470-500 MHZ		470-500 MHZ	
DATE	5/ 8/72		6/ 3/72		5/24/72		4/21/72	
TIME	1259-1523		1513-1708		1521-1656		1530-1631	
OCC LEVEL	-99		-99		-99		-99	
OCCUPANCY LIMITS	# OF CHAN	% OF TOTAL	# OF CHAN	% OF TOTAL	# OF CHAN	% OF TOTAL	# OF CHAN	% OF TOTAL
< 5%	306	30.6	383	38.3	333	33.3	290	29.0
< 10%	360	36.0	424	42.4	381	38.1	347	34.7
< 20%	420	42.0	461	46.1	434	43.4	406	40.6
< 30%	464	46.4	477	47.7	473	47.3	437	43.7
< 40%	493	49.3	505	50.5	501	50.1	475	47.5
< 50%	514	51.4	518	51.8	524	52.4	490	49.0
< 60%	537	53.7	617	61.7	590	59.0	511	51.1
< 70%	566	56.6	679	67.9	642	64.2	528	52.8
< 80%	618	61.8	713	71.3	685	68.5	545	54.5
< 90%	709	70.9	754	75.4	742	74.2	574	57.4
<100%	1000	100.0	1000	100.0	1000	100.0	1000	100.0
< 10% > 0%	360	36.0	424	42.4	381	38.1	347	34.7
< 20% >11%	60	6.0	37	3.7	53	5.3	59	5.9
< 30% >21%	44	4.4	16	1.6	39	3.9	31	3.1
< 40% >31%	29	2.9	28	2.8	28	2.8	38	3.8
< 50% >41%	21	2.1	13	1.3	23	2.3	15	1.5
< 60% >51%	23	2.3	99	9.9	66	6.6	21	2.1
< 70% >61%	29	2.9	62	6.2	52	5.2	17	1.7
< 80% >71%	52	5.2	34	3.4	43	4.3	17	1.7
< 90% >81%	91	9.1	41	4.1	57	5.7	29	2.9
<100% >91%	291	29.1	246	24.6	258	25.8	426	42.6
PWR LIMITS (DBM)								
< -55	967	96.7	967	96.7	967	96.7	967	96.7
< -60	965	96.5	964	96.4	964	96.4	962	96.2
< -65	959	95.9	956	95.6	957	95.7	958	95.8
< -70	948	94.8	944	94.4	946	94.6	950	95.0
< -75	938	93.8	935	93.5	934	93.4	941	94.1
< -80	926	92.6	918	91.8	921	92.1	931	93.1
< -85	903	90.3	902	90.2	895	89.5	892	89.2
< -90	830	83.0	827	82.7	795	79.5	796	79.6
< -95	697	69.7	711	71.1	678	67.8	684	68.4
<-100	423	42.3	441	44.1	461	46.1	401	40.1
<-105	107	10.7	127	12.7	147	14.7	60	6.0
<-110	0	.0	0	.0	0	.0	0	.0
< -50> -55	0	.0	1	.1	0	.0	1	.1
< -56> -60	2	.2	4	.4	4	.4	4	.4
< -61> -65	10	1.0	9	.9	9	.9	5	.5
< -66> -70	8	.8	10	1.0	10	1.0	10	1.0
< -71> -75	10	1.0	11	1.1	13	1.3	6	.6
< -76> -80	15	1.5	17	1.7	15	1.5	11	1.1
< -81> -85	33	3.3	22	2.2	37	3.7	58	5.8
< -86> -90	81	8.1	79	7.9	112	11.2	109	10.9
< -91> -95	139	13.9	127	12.7	116	11.6	109	10.9
< -96>-100	288	28.8	265	26.5	256	25.6	298	29.8
<-101>-105	350	35.0	344	34.4	297	29.7	354	35.4
<-106>-110	31	3.1	78	7.8	98	9.8	2	.2
<-111>-115	0	.0	0	.0	0	.0	0	.0

TAPE #	2356	2364	2347
BAND	470-500 MHZ	470-500 MHZ	470-500 MHZ
DATE	6/ 6/72	5/26/72	5/18/72
TIME	1725-2000	2016-2130	2022-2213
OCC LEVEL	-9[illegible]	-99	-99

OCCUPANCY LIMITS	# OF CHAN	% OF TOTAL	# OF CHAN	% OF TOTAL	# OF CHAN	% OF TOTAL
< 5%	357	35.7	392	39.2	413	41.3
< 10%	432	43.2	430	43.0	446	44.6
< 20%	503	50.3	458	45.8	478	47.8
< 30%	551	55.1	497	49.7	506	50.6
< 40%	599	59.9	509	50.9	540	54.0
< 50%	655	65.5	559	55.9	573	57.3
< 60%	691	69.1	579	57.9	658	65.8
< 70%	726	72.6	611	61.1	691	69.1
< 80%	755	75.5	704	70.4	714	71.4
< 90%	784	78.4	732	73.2	759	75.9
<100%	1000	100.0	1000	100.0	1000	100.0
< 10% > 0%	432	43.2	430	43.0	446	44.6
< 20% >11%	71	7.1	28	2.8	32	3.2
< 30% >21%	48	4.8	39	3.9	28	2.8
< 40% >31%	48	4.8	12	1.2	34	3.4
< 50% >41%	56	5.6	50	5.0	33	3.3
< 60% >51%	36	3.6	20	2.0	85	8.5
< 70% >61%	35	3.5	32	3.2	33	3.3
< 80% >71%	29	2.9	93	9.3	23	2.3
< 90% >81%	29	2.9	28	2.8	45	4.5
<100% >91%	216	21.6	268	26.8	241	24.1
PWR LIMITS (DBM)						
< -55	966	96.6	966	96.6	966	96.6
< -60	963	96.3	963	96.3	964	96.4
< -65	958	95.8	958	95.8	958	95.8
< -70	946	94.6	945	94.5	947	94.7
< -75	938	93.8	935	93.5	937	93.7
< -80	929	92.9	926	92.6	923	92.3
< -85	894	89.4	895	89.5	904	90.4
< -90	811	81.1	810	81.0	823	82.3
< -95	714	71.4	719	71.9	713	71.3
<-100	571	57.1	485	48.5	539	53.9
<-105	173	17.3	185	18.5	232	23.2
<-110	0	.0	0	.0	0	.0
< -50> -55	1	.1	1	.1	1	.1
< -56> -60	5	.5	3	.3	2	.2
< -61> -65	4	.4	6	.6	9	.9
< -66> -70	13	1.3	12	1.2	11	1.1
< -71> -75	7	.7	10	1.0	10	1.0
< -76> -80	17	1.7	16	1.6	16	1.6
< -81> -85	35	3.5	40	4.0	29	2.9
< -86> -90	92	9.2	82	8.2	86	8.6
< -91> -95	98	9.8	93	9.3	105	10.5
< -96>-100	215	21.5	272	27.2	263	26.3
<-101>-105	352	35.2	319	31.9	290	29.0
<-106>-110	128	12.8	113	11.3	145	14.5
<-111>-115	0	.0	0	.0	0	.0

TAPE #	2298		2289		2294		2297	
BAND	138-153 MHZ		138-153 MHZ		138-153 MHZ		138-153 MHZ	
DATE	3/21/72		3/18/72		3/19/72		3/21/72	
TIME	955-1148		1016-1109		1020-1214		1351-1536	
OCC LEVEL	-99		-99		-99		-99	
OCCUPANCY LIMITS	# OF CHAN	% OF TOTAL	# OF CHAN	% OF TOTAL	# OF CHAN	% OF TOTAL	# OF CHAN	% OF TOTAL
< 5%	249	48.8	257	51.4	249	49.8	242	48.4
< 10%	295	59.0	291	58.2	283	56.6	308	61.6
< 20%	353	70.6	333	66.6	323	64.6	361	72.2
< 30%	372	74.4	353	70.6	358	71.6	379	75.8
< 40%	390	78.0	375	75.0	387	77.4	391	78.2
< 50%	402	80.4	390	78.0	413	82.6	398	79.6
< 60%	424	84.8	411	82.2	437	87.4	417	83.4
< 70%	437	87.4	431	86.2	454	90.8	432	86.4
< 80%	443	88.6	446	89.2	465	93.0	441	88.2
< 90%	454	90.8	460	92.0	470	94.0	452	90.4
<100%	500	100.0	500	100.0	500	100.0	500	100.0
< 10% > 0%	295	59.0	291	58.2	283	56.6	308	61.6
< 20% >11%	58	11.6	42	8.4	40	8.0	53	10.6
< 30% >21%	19	3.8	20	4.0	35	7.0	18	3.6
< 40% >31%	18	3.6	22	4.4	29	5.8	12	2.4
< 50% >41%	12	2.4	15	3.0	26	5.2	7	1.4
< 60% >51%	22	4.4	21	4.2	24	4.8	19	3.8
< 70% >61%	13	2.6	20	4.0	17	3.4	15	3.0
< 80% >71%	6	1.2	15	3.0	11	2.2	9	1.8
< 90% >81%	11	2.2	14	2.8	5	1.0	11	2.2
<100% >91%	46	9.2	40	8.0	30	6.0	48	9.6
PWR LIMITS (DBM)								
< -55	500	100.0	500	100.0	500	100.0	500	100.0
< -60	500	100.0	500	100.0	500	100.0	500	100.0
< -65	500	100.0	499	99.8	500	100.0	497	99.4
< -70	480	96.0	476	95.2	492	98.4	473	94.6
< -75	431	86.2	448	89.6	466	93.2	434	86.8
< -80	394	78.8	402	80.4	434	86.8	400	80.0
< -85	362	72.4	355	71.0	375	75.0	374	74.8
< -90	312	62.4	331	66.2	337	67.4	320	64.0
< -95	271	54.2	298	59.6	301	60.2	279	55.8
<-100	207	41.4	262	52.4	250	50.0	214	42.8
<-105	145	29.0	208	41.6	127	25.4	147	29.4
<-110	89	17.8	107	21.4	0	.0	50	10.0
< -50> -55	0	.0	0	.0	0	.0	0	.0
< -56> -60	0	.0	0	.0	0	.0	0	.0
< -61> -65	1	.2	2	.4	0	.0	4	.8
< -66> -70	27	5.4	27	5.4	11	2.2	30	6.0
< -71> -75	49	9.8	31	6.2	33	6.6	42	8.4
< -76> -80	34	6.8	47	9.4	32	6.4	29	5.8
< -81> -85	34	6.8	43	8.6	60	12.0	25	5.0
< -86> -90	50	10.0	27	5.4	35	7.0	53	10.6
< -91> -95	40	8.0	32	6.4	37	7.4	48	9.6
< -96>-100	67	13.4	37	7.4	58	11.6	68	13.6
<-101>-105	62	12.4	55	11.0	147	29.4	66	13.2
<-106>-110	74	14.8	132	26.4	87	17.4	109	21.8
<-111>-115	62	12.4	67	13.4	0	.0	26	5.2

TAPE #	2290		2298		2289		2294	
BAND	138-153 MHZ		164-176 MHZ		164-176 MHZ		164-176 MHZ	
DATE	3/18/72		3/21/72		3/18/72		3/19/72	
TIME	1418-1605		955-1148		1016-1109		1020-1214	
OCC LEVEL	-99		-99		-99		-99	
OCCUPANCY LIMITS	# OF CHAN	% OF TOTAL	# OF CHAN	% OF TOTAL	# OF CHAN	% OF TOTAL	# OF CHAN	% OF TOTAL
< 5%	282	56.4	159	39.7	248	62.0	192	48.0
< 10%	322	64.4	212	53.0	282	70.5	238	59.5
< 20%	353	70.6	290	72.5	313	78.2	286	71.5
< 30%	375	75.0	318	79.5	318	79.5	306	76.5
< 40%	389	77.8	325	81.3	326	81.5	317	79.2
< 50%	406	81.2	330	82.5	333	83.2	324	81.0
< 60%	428	85.6	340	85.0	335	83.7	328	82.0
< 70%	447	89.4	341	85.2	341	85.2	334	83.5
< 80%	460	92.0	347	86.7	347	86.7	337	84.2
< 90%	465	93.0	350	87.5	348	87.0	342	85.5
<100%	500	100.0	400	100.0	400	100.0	400	100.0
< 10% > 0%	322	64.4	212	53.0	282	70.5	238	59.5
< 20% >11%	31	6.2	78	19.5	31	7.7	48	12.0
< 30% >21%	22	4.4	28	7.0	5	1.3	20	5.0
< 40% >31%	14	2.8	7	1.7	8	2.0	11	2.7
< 50% >41%	17	3.4	5	1.3	7	1.7	7	1.7
< 60% >51%	22	4.4	10	2.5	2	.5	4	1.0
< 70% >61%	19	3.8	1	.3	6	1.5	6	1.5
< 80% >71%	13	2.6	6	1.5	6	1.5	3	.8
< 90% >81%	5	1.0	3	.8	1	.3	5	1.3
<100% >91%	35	7.0	50	12.5	52	13.0	58	14.5
PWR LIMITS (DBM)								
< -55	500	100.0	397	99.2	397	99.2	397	99.2
< -60	500	100.0	397	99.2	397	99.2	397	99.2
< -65	500	100.0	395	98.7	395	98.7	395	98.7
< -70	484	96.8	393	98.2	394	98.5	394	98.5
< -75	464	92.8	385	96.2	386	96.5	387	96.7
< -80	421	84.2	372	93.0	375	93.8	373	93.2
< -85	384	76.8	326	81.5	346	86.5	343	85.7
< -90	356	71.2	268	67.0	318	79.5	299	74.7
< -95	311	62.2	202	50.5	289	72.2	270	67.5
<-100	271	54.2	142	35.5	265	66.2	217	54.2
<-105	218	43.6	83	20.7	202	50.5	25	6.3
<-110	126	25.2	19	4.7	71	17.7	0	.0
< -50> -55	0	.0	3	.8	3	.8	3	.8
< -56> -60	0	.0	0	.0	0	.0	0	.0
< -61> -65	1	.2	2	.5	2	.5	2	.5
< -66> -70	15	3.0	3	.8	2	.5	2	.5
< -71> -75	29	5.8	10	2.5	8	2.0	9	2.2
< -76> -80	45	9.0	16	4.0	12	3.0	16	4.0
< -81> -85	33	6.6	57	14.2	34	8.5	38	9.5
< -86> -90	31	6.2	55	13.7	27	6.7	33	8.2
< -91> -95	41	8.2	60	15.0	28	7.0	34	8.5
< -96>-100	41	8.2	65	16.2	31	7.7	59	14.7
<-101>-105	63	12.6	65	16.2	68	17.0	203	50.7
<-106>-110	127	25.4	57	14.2	140	40.0	1	.3
<-111>-115	79	19.8	7	1.7	25	6.3	0	.0

TAPE #	2297	2290	2298	7289
BAND	164-176 MHZ	164-176 MHZ	238-250 MHZ	238-250 MHZ
DATE	3/21/72	3/18/72	3/21/72	3/18/72
TIME	1351-1536	1418-1605	955-1148	1016-1109
OCC LEVEL	-99	-99	-99	-99

OCCUPANCY LIMITS	# OF CHAN	% OF TOTAL	# OF CHAN	% OF TOTAL	# OF CHAN	% OF TOTAL	# OF CHAN	% OF TOTAL
< 5%	138	34.5	254	63.5	391	97.7	308	77.0
< 10%	199	49.7	287	71.7	397	99.2	377	94.2
< 20%	282	70.5	309	77.2	400	100.0	398	99.5
< 30%	311	77.7	318	79.5	400	100.0	400	100.0
< 40%	324	81.0	327	81.7	400	100.0	400	100.0
< 50%	332	83.0	334	83.5	400	100.0	400	100.0
< 60%	339	84.7	339	84.7	400	100.0	400	100.0
< 70%	344	86.0	342	85.5	400	100.0	400	100.0
< 80%	347	86.7	348	87.0	400	100.0	400	100.0
< 90%	351	87.7	350	87.5	400	100.0	400	100.0
<100%	400	100.0	400	100.0	400	100.0	400	100.0
< 10% > 0%	199	49.7	287	71.7	397	99.2	377	94.2
< 20% >11%	83	20.7	22	5.5	3	.8	21	5.2
< 30% >21%	29	7.2	9	2.2	0	.0	2	.5
< 40% >31%	13	3.2	9	2.2	0	.0	0	.0
< 50% >41%	8	2.0	7	1.7	0	.0	0	.0
< 60% >51%	7	1.7	5	1.3	0	.0	0	.0
< 70% >61%	5	1.3	3	.8	0	.0	0	.0
< 80% >71%	3	.8	6	1.5	0	.0	0	.0
< 90% >81%	4	1.0	2	.5	0	.0	0	.0
<100% >91%	49	12.2	50	12.5	0	.0	0	.0
PWR LIMITS (DBM)								
< -55	397	99.2	397	99.2	400	100.0	400	100.0
< -60	397	99.2	397	99.2	400	100.0	400	100.0
< -65	395	98.7	395	98.7	400	100.0	400	100.0
< -70	393	98.2	394	98.5	400	100.0	400	100.0
< -75	379	94.7	389	97.2	400	100.0	400	100.0
< -80	345	86.2	375	93.8	400	100.0	400	100.0
< -85	298	74.5	345	86.2	400	100.0	400	100.0
< -90	246	61.5	312	78.0	399	99.7	397	99.2
< -95	196	49.0	282	70.5	396	99.0	392	98.0
<-100	132	33.0	243	60.7	392	98.0	382	95.5
<-105	52	13.0	193	48.2	376	94.0	339	84.7
<-110	8	2.0	51	12.7	0	.0	0	.0
< -50> -55	3	.8	3	.8	0	.0	0	.0
< -56> -60	0	.0	0	.0	0	.0	0	.0
< -61> -65	2	.5	2	.5	0	.0	0	.0
< -66> -70	3	.8	2	.5	0	.0	0	.0
< -71> -75	15	3.8	7	1.7	0	.0	0	.0
< -76> -80	40	10.0	12	3.0	0	.0	0	.0
< -81> -85	53	13.2	39	9.7	0	.0	0	.0
< -86> -90	47	11.7	30	7.5	1	.3	5	1.3
< -91> -95	54	13.5	32	8.0	3	.8	4	1.0
< -96>-100	63	15.7	37	9.2	6	1.5	14	3.5
<-101>-105	84	21.0	53	13.2	25	6.3	178	44.5
<-106>-110	35	8.8	174	43.5	365	91.2	199	49.7
<-111>-115	1	.3	9	2.2	0	.0	0	.0

TAPE #	2294	2297	2290	2298
BAND	238-250 MHZ	238-250 MHZ	238-250 MHZ	438-450 MHZ
DATE	3/19/72	3/21/72	3/18/72	3/21/72
TIME	1020-1219	1351-1636	1418-1605	955-1148
OCC LEVEL	-99	-99	-99	-99

OCCUPANCY LIMITS	# OF CHAN	% OF TOTAL	# OF CHAN	% OF TOTAL	# OF CHAN	% OF TOTAL	# OF CHAN	% OF TOTAL
< 5%	1	.3	374	93.5	384	96.0	372	93.0
< 10%	83	20.7	395	98.7	397	99.2	386	96.5
< 20%	373	93.2	400	100.0	400	100.0	397	99.2
< 30%	398	99.5	400	100.0	400	100.0	399	99.7
< 40%	400	100.0	400	100.0	400	100.0	400	100.0
< 50%	400	100.0	400	100.0	400	100.0	400	100.0
< 60%	400	100.0	400	100.0	400	100.0	400	100.0
< 70%	400	100.0	400	100.0	400	100.0	400	100.0
< 80%	400	100.0	400	100.0	400	100.0	400	100.0
< 90%	400	100.0	400	100.0	400	100.0	400	100.0
<100%	400	100.0	400	100.0	400	100.0	400	100.0
< 10% > 0%	83	20.7	395	98.7	397	99.2	386	96.5
< 20% >11%	290	72.5	5	1.3	3	.8	11	2.7
< 30% >21%	25	6.3	0	.0	0	.0	2	.5
< 40% >31%	2	.5	0	.0	0	.0	1	.3
< 50% >41%	0	.0	0	.0	0	.0	0	.0
< 60% >51%	0	.0	0	.0	0	.0	0	.0
< 70% >61%	0	.0	0	.0	0	.0	0	.0
< 80% >71%	0	.0	0	.0	0	.0	0	.0
< 90% >81%	0	.0	0	.0	0	.0	0	.0
<100% >91%	0	.0	0	.0	0	.0	0	.0
PWR LIMITS (DBM)								
< -55	400	100.0	400	100.0	400	100.0	400	100.0
< -60	400	100.0	400	100.0	400	100.0	400	100.0
< -65	400	100.0	400	100.0	400	100.0	400	100.0
< -70	400	100.0	400	100.0	400	100.0	400	100.0
< -75	400	100.0	400	100.0	400	100.0	400	100.0
< -80	400	100.0	400	100.0	400	100.0	399	99.7
< -85	400	100.0	400	100.0	400	100.0	393	98.2
< -90	395	98.7	397	99.2	398	99.5	384	96.0
< -95	390	97.5	393	98.2	394	98.5	371	92.7
<-100	377	94.2	382	95.5	384	96.0	328	82.0
<-105	0	.0	329	82.2	364	91.0	240	60.0
<-110	0	.0	0	.0	0	.0	10	2.5
< -50> -55	0	.0	0	.0	0	.0	0	.0
< -56> -60	0	.0	0	.0	0	.0	0	.0
< -61> -65	0	.0	0	.0	0	.0	0	.0
< -66> -70	0	.0	0	.0	0	.0	0	.0
< -71> -75	0	.0	0	.0	0	.0	0	.0
< -76> -80	0	.0	0	.0	0	.0	1	.3
< -81> -85	0	.0	1	.3	0	.0	7	1.7
< -86> -90	5	1.3	2	.5	2	.5	10	2.5
< -91> -95	8	2.0	5	1.3	5	1.3	17	4.2
< -96>-100	46	11.5	13	3.2	12	3.0	49	12.2
<-101>-105	341	85.2	184	46.0	26	6.5	101	25.2
<-106>-110	0	.0	195	48.7	355	88.7	215	53.7
<-111>-115	0	.0	0	.0	0	.0	0	.0

TAPE #	2289		2294		2297		2290	
BAND	438-450 MHZ		438-450 MHZ		438-450 MHZ		438-450 MHZ	
DATE	3/18/72		3/19/72		3/21/72		3/18/72	
TIME	1016-1109		1020-1214		1351-1536		1418-1605	
OCC LEVEL	-99		-99		-99		-99	
OCCUPANCY LIMITS	# OF CHAN	% OF TOTAL	# OF CHAN	% OF TOTAL	# OF CHAN	% OF TOTAL	# OF CHAN	% OF TOTAL
< 5%	367	91.7	350	87.5	371	92.7	370	92.5
< 10%	384	96.0	375	93.8	393	98.2	391	97.7
< 20%	394	98.5	391	97.7	400	100.0	397	99.2
< 30%	398	99.5	399	99.7	400	100.0	398	99.5
< 40%	399	99.7	399	99.7	400	100.0	400	100.0
< 50%	400	100.0	399	99.7	400	100.0	400	100.0
< 60%	400	100.0	399	99.7	400	100.0	400	100.0
< 70%	400	100.0	399	99.7	400	100.0	400	100.0
< 80%	400	100.0	399	99.7	400	100.0	400	100.0
< 90%	400	100.0	399	99.7	400	100.0	400	100.0
<100%	400	100.0	400	100.0	400	100.0	400	100.0
< 10% > 0%	384	96.0	375	93.8	393	98.2	391	97.7
< 20% >11%	10	2.5	16	4.0	7	1.7	6	1.5
< 30% >21%	4	1.0	8	2.0	0	.0	1	.3
< 40% >31%	1	.3	0	.0	0	.0	2	.5
< 50% >41%	1	.3	0	.0	0	.0	0	.0
< 60% >51%	0	.0	0	.0	0	.0	0	.0
< 70% >61%	0	.0	0	.0	0	.0	0	.0
< 80% >71%	0	.0	0	.0	0	.0	0	.0
< 90% >81%	0	.0	0	.0	0	.0	0	.0
<100% >91%	0	.0	1	.3	0	.0	0	.0
PWR LIMITS (DBM)								
< -55	400	100.0	400	100.0	400	100.0	400	100.0
< -60	400	100.0	400	100.0	400	100.0	400	100.0
< -65	400	100.0	400	100.0	400	100.0	400	100.0
< -70	400	100.0	400	100.0	400	100.0	400	100.0
< -75	399	99.7	400	100.0	400	100.0	400	100.0
< -80	398	99.5	400	100.0	400	100.0	400	100.0
< -85	396	99.0	399	99.7	384	96.0	397	99.2
< -90	387	96.7	382	95.5	308	77.0	392	98.0
< -95	380	95.0	369	92.2	245	61.2	380	95.0
<-100	374	93.5	313	78.2	176	44.0	367	91.7
<-105	335	83.7	0	.0	127	31.7	337	84.2
<-110	0	.0	0	.0	0	.0	0	.0
< -50> -55	0	.0	0	.0	0	.0	0	.0
< -56> -60	0	.0	0	.0	0	.0	0	.0
< -61> -65	0	.0	0	.0	0	.0	0	.0
< -66> -70	0	.0	0	.0	0	.0	0	.0
< -71> -75	1	.3	0	.0	0	.0	0	.0
< -76> -80	1	.3	0	.0	0	.0	0	.0
< -81> -85	4	1.0	2	.5	61	15.2	4	1.0
< -86> -90	8	2.0	18	4.5	36	9.0	6	1.5
< -91> -95	7	1.7	23	5.7	74	18.5	10	2.5
< -96>-100	10	2.5	57	14.2	57	14.2	20	5.0
<-101>-105	43	10.7	300	75.0	52	13.0	41	10.2
<-106>-110	326	81.5	0	.0	120	30.0	319	79.7
<-111>-115	0	.0	0	.0	0	.0	0	.0

APPENDIX III

TAPE-VERSUS-TAPE COMPARISON

This appendix addresses the problem of comparing data collected during different flights on a band-by-band basis. The bands used are the ITU allocations discussed in Section 5. The comparison is presented in matrix form. The numbers below the diagonal are evaluations of the following formula:

$$S = \left[\frac{\sum_{i=1}^{N} [A_1(i) - A_2(i)]^2}{N} \right]^{\frac{1}{2}}$$

where

N = number of channels in the band
A_1, A_2 are the average power for the entire data tapes on each channel.

In each matrix, the tape numbers from which the A_1's were taken are listed along the top and the tapes from which the A_2's were taken are listed along the side.

Above the diagonal are the numbers

$$M = \frac{\sum_{i=1}^{N} [A_1(i) - A_2(i)]}{N}$$

where

N, A_1, A_2 are as above. A positive value of M indicates that on the average A_1 is above A_2 for the two tapes being compared; conversely, if M is negative, then A_1 is, on the average, lower than A_2.

The more "identical" two tapes are, the closer the values of S and M will be to zero.

A matrix is presented for each of the 29 frequency bands monitored during the European collection.

100-108 MHz

	2310	2316	2323	2334	2340	2343	2349	2366
2310	X	.68	-.07	-.27	.76	- .43	.19	- .64
2316	5.76	X	-.75	-.95	.09	-1.11	-.49	-1.31
2323	5.73	6.34	X	-.20	.84	- .36	.26	- .57
2334	6.01	5.83	5.39	X	1.03	- .16	.46	- .37
2340	7.08	6.28	6.72	5.28	X	-1.20	-.58	-1.40
2343	6.56	6.63	7.30	7.12	7.22	X	.62	- .20
2349	6.86	7.21	6.47	5.59	5.76	7.69	X	- .82
2366	7.83	7.61	7.42	6.67	7.74	8.67	7.51	X

TAPE	DAY	DATE	TIME
2310	TUE	4/18	1524-1725
2316	MON	4/24	1726-2013
2323	WED	5/3	0858-1126
2334	WED	5/10	1253-1511
2340	SUN	5/14	1255-1512
2343	TUE	5/16	2028-2223
2349	MON	5/22	1515-1659
2366	MON	5/29	1516-1723

108-118 MHz

	2310	2316	2323	2334	2340	2343	2349	2366
2310		1.17	.04	- .14	2.32	- .02	.90	-2.08
2316	5.31		-1.13	-1.31	1.16	-1.19	-.26	-3.24
2323	4.09	5.03		- .18	2.28	- .06	.86	-2.11
2334	5.48	5.37	4.85		2.46	.12	1.05	-1.93
2340	6.57	4.52	6.20	5.69		-2.34	-1.42	-4.40
2343	6.30	5.37	6.05	5.63	5.48		.92	-2.05
2349	5.10	6.31	4.73	5.86	6.22	6.56		2.98
2366	8.71	9.99	8.63	8.55	10.62	9.66	9.09	

TAPE	DAY	DATE	TIME
2310	TUE	4/18	1524-1725
2316	MON	4/24	1726-2013
2323	WED	5/3	0858-1126
2334	WED	5/10	1253-1511
2340	SUN	5/14	1255-1512
2343	TUE	5/16	2028-2223
2349	MON	5/22	1515-1659
2366	MON	5/29	1516-1723

118-136 MHz

	2310	2316	2323	2334	2340	2343	2349	2366
2310	X	.90	- .71	- .40	1.49	1.48	- .32	-2.36
2316	7.55	X	-1.61	-1.30	.60	.59	-1.22	-3.26
2323	6.08	6.43	X	.31	2.21	2.19	.39	-1.65
2334	6.92	6.34	6.03	X	1.90	1.88	.08	-1.96
2340	8.38	6.78	7.73	6.80	X	-.01	-1.82	-3.86
2343	8.71	7.08	8.08	8.20	7.90	X	-1.81	-3.85
2349	7.24	7.10	6.43	6.26	7.16	8.67	X	-2.04
2366	9.22	8.73	7.50	7.95	9.57	9.66	8.28	X

TAPE	DAY	DATE	TIME
2310	TUE	4/18	1524-1725
2316	MON	4/24	1726-2013
2323	WED	5/3	0858-1126
2334	WED	5/10	1253-1511
2340	SUN	5/14	1255-1512
2343	TUE	5/16	2028-2223
2349	MON	5/22	1515-1659
2366	MON	5/29	1516-1723

136-138 MHz

	2310	2316	2323	2334	2340	2343	2349	2366
2310		-2.39	-2.01	-2.51	- .31	-4.88	-1.04	-8.16
2316	5.06		.37	- .12	2.07	-2.49	1.34	-5.78
2323	3.80	4.68		- .49	1.70	-2.87	.97	-6.15
2334	5.56	4.42	4.87		2.19	-2.37	1.46	-5.66
2340	4.66	3.28	4.85	3.44		-4.57	- .73	-7.85
2343	7.06	5.75	6.27	6.23	7.11		3.84	-3.28
2349	4.29	4.25	4.14	6.03	4.87	6.20		-7.12
2366	10.06	8.34	8.96	8.93	10.09	4.07	8.97	

TAPE	DAY	DATE	TIME
2310	TUE	4/18	1524-1725
2316	MON	4/24	1726-2013
2323	WED	5/3	0858-1126
2334	WED	5/10	1253-1511
2340	SUN	5/14	1255-1512
2343	TUE	5/16	2028-2223
2349	MON	5/22	1515-1659
2366	MON	5/29	1516-1723

138-144 MHz

	2310	2316	2323	2334	2340	2343	2349	2366
2310	X	3.16	-1.34	.66	8.01	4.16	.78	3.73
2316	9.18	X	-4.51	-2.50	4.85	1.00	-2.38	.56
2323	6.84	8.86	X	2.00	9.36	5.51	2.12	5.07
2334	6.84	8.33	7.27	X	7.35	3.50	.12	3.07
2340	11.98	8.96	12.62	10.55	X	-3.85	-7.23	-4.28
2343	9.63	7.52	10.36	9.16	8.36	X	-3.38	- .43
2349	7.98	8.32	7.15	6.53	10.59	9.58	X	2.95
2366	9.17	8.20	9.45	8.64	8.47	7.43	8.48	X

TAPE	DAY	DATE	TIME
2310	TUE	4/18	1524-1725
2316	MON	4/24	1726-2013
2323	WED	5/3	0858-1126
2334	WED	5/10	1253-1511
2340	SUN	5/14	1255-1512
2343	TUE	5/16	2028-2223
2349	MON	5/22	1515-1659
2366	MON	5/29	1516-1723

144-146 MHz

	2310	2316	2323	2334	2340	2343	2349	2366
2310	X	-6.16	3.45	.72	-8.15	-8.85	-6.06	-2.34
2316	9.44	X	9.61	6.88	-1.99	-2.69	.10	3.82
2323	7.14	12.22	X	-2.73	11.60	-12.30	-9.51	-5.79
2334	8.07	11.59	7.13	X	-8.87	-9.57	-6.78	-3.06
2340	11.47	7.46	14.47	12.58	X	- .70	2.09	5.81
2343	11.38	7.73	14.67	13.23	5.37	X	2.79	6.51
2349	10.48	7.46	12.63	10.88	6.39	7.42	X	3.72
2366	7.41	8.74	9.65	8.86	9.86	9.08	8.85	X

TAPE	DAY	DATE	TIME
2310	TUE	4/18	1524-1725
2316	MON	4/24	1726-2013
2323	WED	5/3	0858-1126
2334	WED	5/10	1253-1511
2340	SUN	5/14	1255-1512
2343	TUE	5/16	2028-2223
2349	MON	5/22	1515-1659
2366	MON	5/29	1516-1723

146-150 MHz

	2310	2316	2323	2334	2340	2343	2349	2366
2310	X	4.61	- .33	.23	8.24	3.71	7.85	3.24
2316	6.76	X	-4.93	-4.38	3.64	- .89	3.24	-1.36
2323	3.70	7.05	X	.55	8.57	4.04	8.17	3.57
2334	3.15	6.21	3.25	X	8.02	3.48	7.62	3.02
2340	11.21	7.30	11.16	10.37	X	-4.53	- .39	-5.00
2343	8.35	6.93	8.49	8.12	8.39	X	4.11	- .47
2349	11.06	7.44	11.11	10.81	6.63	7.26	X	-4.61
2366	5.77	5.34	5.75	5.17	9.13	7.95	9.32	X

TAPE	DAY	DATE	TIME
2310	TUE	4/18	1524-1725
2316	MON	4/24	1726-2013
2323	WED	5/3	0858-1126
2334	WED	5/10	1253-1511
2340	SUN	5/14	1255-1512
2343	TUE	5/16	2028-2223
2349	MON	5/22	1515-1659
2366	MON	5/29	1516-1723

150-174 MHz

	2313	2306	2314	2322	2324	2335	2341	2342	2348	2365	2305	2325
2313	X	2.52	2.64	5.26	3.89	2.56	6.37	3.41	7.17	1.36	5.28	25.45
2306	5.34	X	.12	2.74	1.37	.04	3.85	.89	4.66	-1.15	2.76	22.93
2314	5.84	5.14	X	2.63	1.25	-.08	3.73	.78	4.54	-1.27	2.64	22.81
2322	8.86	7.37	7.56	X	-1.37	-2.70	-1.11	1.85	-1.91	3.90	-.02	20.18
2324	6.65	5.29	5.59	5.55	X	1.33	2.48	-.48	3.28	-2.53	1.39	21.55
2335	5.64	5.08	4.76	7.58	5.48	X	3.81	.85	4.61	-1.19	2.72	22.89
2341	9.35	8.10	7.47	8.32	7.14	7.38	X	-2.96	.81	-5.00	-1.09	19.08
2342	6.61	6.27	5.33	7.76	5.90	5.74	6.51	X	3.76	-2.05	1.87	22.03
2348	9.66	8.26	7.66	8.65	7.82	7.80	6.24	7.18	X	-5.81	-1.89	18.27
2365	6.45	6.79	6.00	9.14	7.26	6.69	9.37	6.82	9.38	X	3.92	24.08
2305	8.11	6.96	6.25	7.77	6.52	6.03	6.37	5.81	6.24	7.93	X	20.16
2325	26.70	24.58	24.48	23.01	23.50	24.65	21.82	23.81	21.01	25.59	22.38	X

150-174 MHz

TAPE	DAY	DATE	TIME
2313	TUE	4/11	1249-1516
2306	THUR	4/13	1210-1436
2314	FRI	4/21	1240-1506
2322	TUE	5/2	1233-1330
2324	WED	5/3	1153-1334
2335	WED	5/10	1525-1734
2341	SUN	5/14	1525-1718
2342	TUE	5/16	1806-2012
2348	MON	5/22	1308-1458
2365	MON	5/29	1246-1505
2305	MON	6/5	2005-2158
2325	NOISE	TAPE	

174-200 MHz

	2313	2306	2314	2322	2324	2335	2341	2342	2348	2365	2305	2325
2313		4.84	4.90	8.84	6.25	5.24	6.84	5.52	8.60	4.50	7.37	20.21
2306	5.52		.06	4.00	1.41	.40	2.00	.68	3.76	- .35	2.52	15.37
2314	5.78	2.19		3.94	1.35	.34	1.94	.62	3.70	- .41	2.46	15.31
2322	10.36	6.97	6.73		-2.59	-3.60	-2.00	-3.32	- .24	-4.35	-1.48	11.37
2324	7.32	3.30	3.11	5.31		-1.01	.59	- .73	2.35	-1.76	1.11	13.96
2335	6.59	3.44	3.04	5.99	2.54		1.60	.28	3.36	- .75	2.12	14.97
2341	8.12	3.87	3.89	6.15	2.92	2.80		-1.32	1.76	-2.34	.53	13.37
2342	6.81	3.52	3.19	5.93	2.99	2.52	3.07		3.08	-1.03	1.84	14.69
2348	9.54	5.08	5.13	5.62	4.01	4.52	3.30	3.95		-4.11	-1.24	11.61
2365	7.96	6.01	5.35	8.62	5.57	5.51	6.29	5.70	7.83		2.87	15.72
2305	8.85	4.58	4.35	6.38	3.62	3.66	2.73	3.43	3.01	6.58		12.85
2325	21.25	18.41	18.28	15.05	17.42	18.06	17.32	17.84	15.98	18.82	17.15	

174-200 MHz

TAPE	DAY	DATE	TIME
2313	TUE	4/11	1249-1516
2306	THUR	4/13	1210-1436
2314	FRI	4/21	1240-1506
2322	TUE	5/2	1233-1330
2324	WED	5/3	1153-1334
2335	WED	5/10	1525-1734
2341	SUN	5/14	1525-1718
2342	TUE	5/16	1806-2012
2348	MON	5/22	1308-1458
2365	MON	5/29	1246-1505
2305	MON	6/5	2005-2158
2325	NOISE	TAPE	

200-216 MHz

	2307	2319	2321	2337	2339	2344	2350	2367
2307	X	-8.89	-7.05	.39	1.70	- .60	-3.64	-7.37
2319	14.08	X	1.84	9.28	10.58	8.28	5.24	1.52
2321	13.26	3.66	X	7.44	8.75	6.45	3.40	- .32
2337	3.59	15.03	14.41	X	1.31	- .99	-4.04	-7.76
2339	4.01	15.53	14.85	2.58	X	-2.30	-5.34	-9.07
2344	6.70	10.94	10.21	7.30	6.88	X	-3.04	-6.77
2350	7.31	8.72	7.52	8.18	8.66	5.77	X	-3.72
2367	10.10	10.79	11.24	10.25	11.33	10.39	8.27	X

TAPE	DAY	DATE	TIME
2307	MON	4/17	1305-1518
2319	TUE	4/25	2018-2207
2321	TUE	5/2	1114-1223
2337	FRI	5/12	1524-1710
2339	SAT	5/13	1516-1711
2344	WED	5/17	1803-1851
2350	TUE	5/23	0832-1111
2367	TUE	5/30	1305-1503

216-223 MHz

	2307	2319	2321	2337	2339	2344	2350	2367
2307		2.97	5.58	5.49	6.44	7.28	2.11	- 5.18
2319	5.98		2.60	2.52	3.46	4.30	-.86	- 8.16
2321	7.03	3.82		- .09	.86	1.70	-3.46	-10.76
2337	7.48	3.70	3.05		.95	1.79	-3.38	-10.67
2339	7.74	3.98	2.62	2.28		.84	-4.33	-11.62
2344	8.95	4.48	3.39	3.01	2.00		-5.17	-12.46
2350	5.98	4.32	4.50	5.36	5.95	6.75		- 7.30
2367	6.08	10.44	12.21	12.49	13.02	14.15	9.92	

TAPE	DAY	DATE	TIME
2307	MON	4/17	1305-1518
2319	TUE	4/25	2018-2207
2321	TUE	5/2	1114-1223
2337	FRI	5/12	1524-1710
2339	SAT	5/13	1516-1711
2344	WED	5/17	1803-1851
2350	TUE	5/23	0832-1111
2367	TUE	5/30	1305-1503

223-235 MHz

	2307	2319	2321	2337	2339	2344	2350	2367
2307		9.58	12.20	13.27	12.73	14.88	11.76	13.15
2319	15.36		2.62	3.69	3.15	5.30	2.18	3.57
2321	17.15	4.61		1.07	.53	2.68	-.44	.94
2337	17.73	5.68	3.91		-.54	1.61	-1.51	-.13
2339	17.59	5.41	4.10	3.98		2.15	-.97	.42
2344	18.48	6.71	5.60	5.01	4.74		-3.12	-1.73
2350	17.32	6.05	5.09	5.04	5.17	6.46		1.39
2367	17.38	5.96	4.45	4.59	4.56	4.65	4.89	

TAPE	DAY	DATE	TIME
2307	MON	4/17	1305-1518
2319	TUE	4/25	2018-2207
2321	TUE	5/2	1114-1223
2337	FRI	5/12	1524-1710
2339	SAT	5/13	1516-1711
2344	WED	5/17	1803-1851
2350	TUE	5/23	0832-1111
2367	TUE	5/30	1305-1503

235-250 MHz

	2307	2319	2321	2337	2339	2344	2350	2367
2307		2.85	3.98	2.54	4.93	7.48	2.92	5.05
2319	8.40		1.14	- .31	2.08	4.63	.07	2.21
2321	8.59	7.05		-1.44	.94	3.49	-1.06	1.07
2337	8.21	8.10	6.69		2.38	4.94	.38	2.51
2339	9.00	7.31	5.06	6.34		2.55	-2.00	.13
2344	11.90	9.86	8.31	9.97	7.37		-4.56	-2.42
2350	9.19	7.97	8.91	9.29	9.31	11.44		2.13
2367	9.70	6.68	7.06	9.31	7.79	9.51	8.38	

TAPE	DAY	DATE	TIME
2307	MON	4/17	1305-1518
2319	TUE	4/25	2018-2207
2321	TUE	5/2	1114-1223
2337	FRI	5/12	1524-1710
2339	SAT	5/13	1516-1711
2344	WED	5/17	1803-1851
2350	TUE	5/23	0832-1111
2367	TUE	5/30	1305-1503

250-276 MHz

	2309	2317	2329	2331	2346	2352	2362	2360
2309	X	2.00	-1.69	2.19	2.58	-28.49	2.91	3.24
2317	8.17	X	-3.69	.19	.58	-30.49	.91	1.24
2329	6.11	8.92	X	3.88	4.27	-26.80	4.60	4.93
2331	7.99	7.21	7.57	X	.39	-30.68	.72	1.05
2346	5.86	7.45	6.89	6.89	X	-31.07	.33	.66
2352	32.89	35.03	31.73	34.81	35.08	X	31.40	31.73
2362	8.70	7.79	9.60	8.05	7.51	34.97	X	.33
2360	6.53	7.41	7.52	7.81	4.69	35.99	7.93	X

TAPE	DAY	DATE	TIME
2309	TUE	4/18	1211-1518
2317	MON	4/24	2046-2222
2329	FRI	5/5	1113-1318
2331	MON	5/8	1537-1726
2346	THUR	5/18	1757-2005
2352	WED	5/24	1221-1455
2362	THUR	6/1	1305-1505
2360	SUN	6/4	1235-1502

276-286 MHz

	2309	2317	2329	2331	2346	2352	2362	2360
2309	X	1.82	-1.25	2.09	2.85	- .27	1.74	4.14
2317	5.86	X	-3.08	.26	1.03	-2.09	- .08	2.31
2329	4.38	6.69	X	3.34	4.11	.98	2.99	5.39
2331	6.02	5.99	5.59	X	.77	-2.36	- .35	2.05
2346	6.26	6.40	6.51	5.27	X	-3.12	-1.11	1.28
2352	6.31	8.23	5.90	6.49	6.08	X	2.01	4.41
2362	6.14	6.27	6.25	5.48	4.68	6.41	X	2.39
2360	6.31	5.66	7.25	5.10	3.78	7.16	4.99	X

TAPE	DAY	DATE	TIME
2309	TUE	4/18	1211-1518
2317	MON	4/24	2046-2222
2329	FRI	5/5	1113-1318
2331	MON	5/8	1537-1726
2346	THUR	5/18	1757-2005
2352	WED	5/24	1221-1455
2362	THUR	6/1	1305-1505
2360	SUN	6/4	1235-1502

286-300 MHz

	2309	2317	2329	2331	2346	2352	2362	2360
2309	X	1.70	-1.48	1.60	3.14	-21.10	1.30	4.43
2317	5.15	X	-3.17	- .10	1.45	-22.79	- .40	2.73
2329	5.41	5.38	X	3.08	4.62	-19.62	2.77	5.91
2331	4.76	4.32	5.82	X	1.55	-22.70	- .30	2.83
2346	6.20	4.02	6.73	5.06	X	-24.24	-1.85	1.29
2352	24.28	25.95	23.09	25.66	27.04	X	22.39	25.53
2362	5.44	4.40	6.12	4.68	5.48	25.86	X	3.13
2360	6.70	4.80	7.75	5.77	3.06	28.40	5.83	X

TAPE	DAY	DATE	TIME
2309	TUE	4/18	1211-1518
2317	MON	4/24	2046-2222
2329	FRI	5/5	1113-1318
2331	MON	5/8	1537-1726
2346	THUR	5/18	1757-2005
2352	WED	5/24	1221-1455
2362	THUR	6/1	1305-1505
2360	SUN	6/4	1235-1502

300-329 MHz

	2311	2327	2333	2354	2363	2358	2357	
2311	X	1.92	2.07	2.58	4.56	3.68	3.63	
2327	6.73	X	.15	.66	2.64	1.76	1.71	
2333	7.16	5.90	X	.51	2.49	1.61	1.56	
2354	6.78	5.01	5.49	X	1.98	1.10	1.05	
2363	8.92	7.42	7.29	6.32	X	-.88	-.93	
2358	6.55	6.25	6.95	5.59	6.39	X	-.05	
2357	7.27	5.83	6.37	5.13	4.99	4.52	X	
								X

TAPE	DAY	DATE	TIME
2311	THUR	4/20	1223-1519
2327	THUR	5/4	1115-1313
2333	TUE	5/9	1514-1710
2354	THUR	5/25	0830-1055
2363	FRI	5/26	1757-2007
2358	SAT	6/3	1241-1506
2357	TUE	6/6	2006-2207

329-335 MHz

	2311	2327	2333	2354	2363	2358	2357	
2311	X	.70	.71	-.57	2.15	1.72	1.49	
2327	1.64	X	.01	-1.27	1.45	1.02	.79	
2333	2.46	2.17	X	-1.28	1.44	1.01	.78	
2354	3.97	4.12	3.63	X	2.72	2.29	2.06	
2363	4.36	4.06	3.73	3.07	X	-.43	-.66	
2358	3.79	3.52	3.07	4.63	3.94	X	-.23	
2357	2.89	2.77	2.29	4.77	4.40	2.91	X	
								X

TAPE	DAY	DATE	TIME
2311	THUR	4/20	1223-1519
2327	THUR	5/4	1115-1313
2333	TUE	5/9	1514-1710
2354	THUR	5/25	0830-1055
2363	FRI	5/26	1757-2007
2358	SAT	6/3	1241-1506
2357	TUE	6/6	2006-2207

335-350 MHz

	2311	2327	2333	2354	2363	2358	2357	
2311		1.69	-.40	1.84	5.71	4.58	3.12	
2327	4.93		-2.10	.14	4.01	2.89	1.42	
2333	5.67	5.31		2.24	6.11	4.99	3.52	
2354	5.82	4.99	5.74		3.87	2.75	1.28	
2363	7.76	5.59	8.29	6.22		-1.13	-2.59	
2358	7.67	5.53	7.69	5.64	4.81		-1.46	
2357	5.79	3.91	6.06	4.40	4.13	4.18		

TAPE	DAY	DATE	TIME
2311	THUR	4/20	1223-1519
2327	THUR	5/4	1115-1313
2333	TUE	5/9	1514-1710
2354	THUR	5/25	0830-1055
2363	FRI	5/26	1757-2007
2358	SAT	6/3	1241-1506
2357	TUE	6/6	2006-2207

350-365 MHz

	2312	2328	2332	2355	2369	2361	2304	
2312	X	.55	-5.79	-5.60	-1.39	-5.55	-6.04	
2328	3.19	X	-6.34	-6.16	-1.95	-6.10	-6.59	
2332	8.72	8.73	X	.18	4.39	.24	- .26	
2355	9.74	9.36	4.46	X	4.21	.05	- .44	
2369	5.26	5.07	8.08	8.63	X	-4.16	-4.65	
2361	9.32	9.32	4.71	4.57	8.60	X	- .49	
2304	10.10	9.99	4.96	4.21	9.20	2.83	X	
								X

TAPE	DAY	DATE	TIME
2312	THUR	4/20	1249-1515
2328	FRI	5/5	0851-1105
2332	TUE	5/9	1301-1502
2355	THUR	5/25	1103-1304
2369	WED	5/31	1245-1503
2361	SUN	6/4	1512-1717
2304	MON	6/5	1721-1958

365-375 MHz

	2312	2328	2332	2355	2369	2361	2304	
2312	X	-.07	-2.20	-1.10	-1.56	-.51	-1.50	
2328	3.64	X	-2.13	-1.03	-1.50	-.45	-1.44	
2332	4.62	5.15	X	1.10	.63	1.68	.69	
2355	3.69	4.30	3.63	X	-.46	.59	-.40	
2369	4.53	4.99	4.45	3.86	X	1.05	.06	
2361	2.90	3.76	4.04	2.35	4.05	X	-.99	
2304	3.63	4.06	3.68	2.98	4.20	2.10	X	
								X

TAPE	DAY	DATE	TIME
2312	THUR	4/20	1249-1515
2328	FRI	5/5	0851-1105
2332	TUE	5/9	1301-1502
2355	THUR	5/25	1103-1304
2369	WED	5/31	1245-1503
2361	SUN	6/4	1512-1717
2304	MON	6/5	1721-1958

375-385 MHz

	2312	2328	2332	2355	2369	2361	2304	
2312		-.29	-2.50	-1.83	-1.48	-.52	-2.65	
2328	3.49		-2.21	-1.54	-1.19	-.23	-2.36	
2332	4.06	4.50		.67	1.02	1.98	- .15	
2355	3.96	4.69	4.09		.35	1.32	- .82	
2369	3.72	3.31	4.13	3.93		.96	-1.17	
2361	2.25	3.45	3.79	4.35	3.95		-2.13	
2304	4.16	4.67	3.77	4.92	4.63	3.73		

TAPE	DAY	DATE	TIME
2312	THUR	4/20	1249-1515
2328	FRI	5/5	0851-1105
2332	TUE	5/9	1301-1502
2355	THUR	5/25	1103-1304
2369	WED	5/31	1245-1503
2361	SUN	6/4	1512-1717
2304	MON	6/5	1721-1958

385-400 MHz

	2312	2328	2332	2355	2369	2361	2304	
2312	X	.70	-10.54	-2.04	-1.22	-.98	-5.55	
2328	3.19	X	-11.23	-2.73	-1.92	-1.67	-6.24	
2332	15.39	15.49	X	8.50	9.31	9.56	4.99	
2355	5.43	5.27	14.45	X	.81	1.06	-3.51	
2369	4.51	4.62	14.49	4.15	X	.24	-4.33	
2361	4.42	4.70	14.65	4.12	3.51	X	-4.57	
2304	7.54	8.21	13.83	5.93	6.28	6.10	X	
								X

TAPE	DAY	DATE	TIME
2312	THUR	4/20	1249-1515
2328	FRI	5/5	0851-1105
2332	TUE	5/9	1301-1502
2355	THUR	5/25	1103-1304
2369	WED	5/31	1245-1503
2361	SUN	6/4	1512-1717
2304	MON	6/5	1721-1958

400-406 MHz

	2308	2318	2326	2336	2338	2345	2351	2368
2308	X	-9.97	-18.35	- .47	-2.82	- .34	- .35	-41.43
2318	10.13	X	- 8.38	9.50	7.14	9.63	9.61	-31.46
2326	33.06	28.90	X	17.88	15.52	18.01	17.99	-23.08
2336	3.04	9.95	33.93	X	-2.35	.13	.11	-40.96
2338	3.56	7.37	32.23	3.21	X	2.48	2.47	-38.61
2345	2.04	9.79	33.33	2.15	2.57	X	-.01	-41.09
2351	2.31	9.80	33.46	2.51	2.62	.96	X	-41.08
2368	41.47	31.47	36.12	41.06	38.65	41.13	41.12	X

TAPE	DAY	DATE	TIME
2308	MON	4/17	1532-1734
2318	TUE	4/25	1801-2006
2326	THUR	5/4	0831-1106
2336	FRI	5/12	1316-1511
2338	SAT	5/13	1303-1507
2345	WED	5/17	2024-2226
2351	TUE	5/23	1123-1310
2368	TUE	5/30	1527-1712

406-430 MHz

	2308	2318	2326	2336	2338	2345	2351	2368
2308	X	-7.75	16.27	.22	-1.30	.06	- .18	-34.05
2318	9.24	X	24.01	7.96	6.45	7.80	7.56	-26.31
2326	16.82	24.55	X	-16.05	-17.57	-16.21	-16.45	-50.32
2336	3.71	9.24	16.24	X	-1.52	- .16	- .40	-34.27
2338	3.93	8.02	17.98	3.07	X	1.36	1.12	-32.75
2345	3.38	8.92	16.70	2.88	2.82	X	- .24	-34.11
2351	3.95	8.85	17.12	3.75	3.71	2.57	X	-33.87
2368	34.64	26.78	50.67	34.80	33.37	34.65	34.47	X

TAPE	DAY	DATE	TIME
2308	MON	4/17	1532-1734
2318	TUE	4/25	1801-2006
2326	THUR	5/4	0831-1106
2336	FRI	5/12	1316-1511
2338	SAT	5/13	1303-1507
2345	WED	5/17	2024-2226
2351	TUE	5/23	1123-1310
2368	TUE	5/30	1527-1712

430-440 MHz

	2308	2318	2326	2336	2338	2345	2351	2368
2308	X	-7.32	16.53	2.72	1.93	3.80	.89	-35.24
2318	8.92	X	23.84	10.04	9.25	11.12	8.21	-27.92
2326	17.17	24.20	X	-13.80	-14.59	-12.72	-15.63	-51.77
2336	5.69	10.82	14.55	X	-.79	1.08	-1.83	-37.96
2338	6.93	10.18	15.87	4.72	X	1.87	-1.04	-37.17
2345	7.98	12.09	14.39	5.09	2.76	X	-2.91	-39.04
2351	5.66	9.10	16.21	4.70	5.38	6.27	X	-36.13
2368	35.95	28.27	52.20	38.32	37.23	39.12	36.61	X

TAPE	DAY	DATE	TIME
2308	MON	4/17	1532-1734
2318	TUE	4/25	1801-2006
2326	THUR	5/4	0831-1106
2336	FRI	5/12	1316-1511
2338	SAT	5/13	1303-1507
2345	WED	5/17	2024-2226
2351	TUE	5/23	1123-1310
2368	TUE	5/30	1527-1712

440-450 MHz

	2308	2318	2326	2336	2338	2345	2351	2368
2308	X	-8.59	16.75	.89	.15	.49	.54	-35.77
2318	10.24	X	25.33	9.48	8.74	9.08	9.13	-27.19
2326	17.39	25.45	X	-15.86	-16.59	-16.26	-16.20	-52.52
2336	4.18	9.87	15.95	X	-.74	-.40	-.35	-36.67
2338	4.85	9.13	16.73	2.02	X	.34	.39	-35.93
2345	4.96	9.68	16.50	2.81	2.35	X	.05	-36.26
2351	5.16	9.62	16.39	2.43	2.37	2.90	X	-36.32
2368	36.19	27.29	52.61	36.82	36.04	36.40	36.45	X

TAPE	DAY	DATE	TIME
2308	MON	4/17	1532-1734
2318	TUE	4/25	1801-2006
2326	THUR	5/4	0831-1106
2336	FRI	5/12	1316-1511
2338	SAT	5/13	1303-1507
2345	WED	5/17	2024-2226
2351	TUE	5/23	1123-1310
2368	TUE	5/30	1527-1712

450-470 MHz

	2315	2320	2330	2347	2353	2364	2359	2356
2315	X	1.39	-3.26	- .68	-1.25	-1.07	-1.52	.75
2320	6.13	X	-4.65	-2.07	-2.64	-2.46	-2.91	- .64
2330	6.18	5.84	X	2.57	2.01	2.19	1.73	4.00
2347	5.47	5.33	4.67	X	- .56	- .38	- .84	1.43
2353	5.44	5.78	4.37	3.53	X	.18	- .27	1.99
2364	5.60	5.14	4.28	2.71	3.62	X	- .45	1.81
2359	5.84	5.33	4.06	3.16	3.62	2.41	X	2.27
2356	5.34	4.71	5.66	3.87	4.49	3.42	3.65	X

TAPE	DAY	DATE	TIME
2315	FRI	4/21	1530-1631
2320	TUE	5/2	0817-1106
2330	MON	5/8	1259-1523
2347	THUR	5/18	2022-2213
2353	WED	5/24	1521-1656
2364	FRI	5/26	2016-2130
2359	SAT	6/3	1513-1708
2356	TUE	6/6	1725-2000

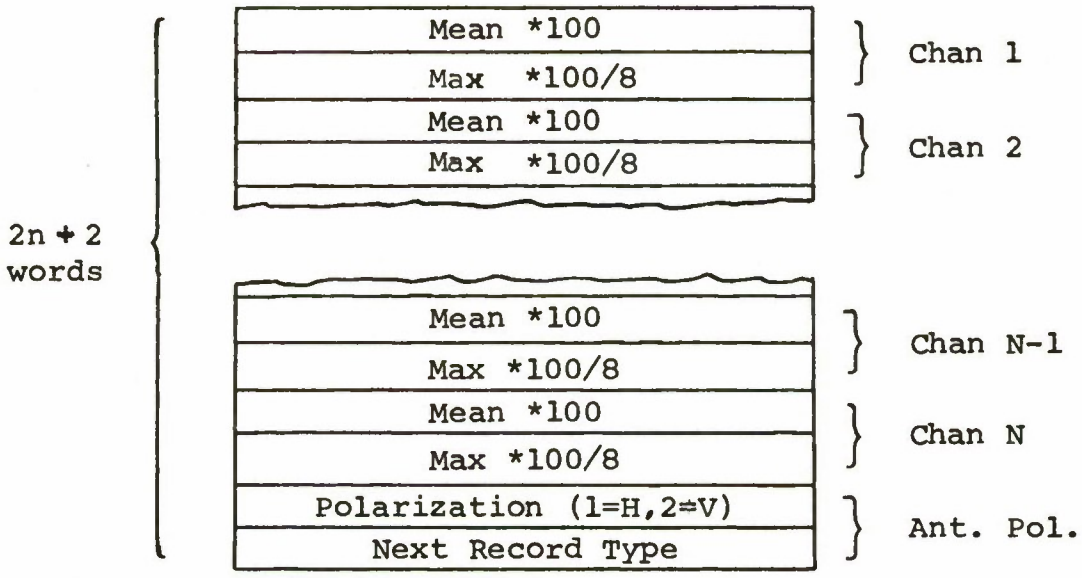
470-500 MHz

	2315	2320	2330	2347	2353	2364	2359	2356
2315	X	4.94	.68	1.69	.67	1.34	1.08	1.43
2320	6.23	X	-4.26	-3.25	-4.27	-3.60	-3.87	-3.51
2330	3.36	4.82	X	1.01	-.01	.66	.39	.75
2347	3.77	4.86	2.91	X	-1.02	-.35	-.62	-.26
2353	3.19	5.32	2.53	2.34	X	.67	.40	.76
2364	3.57	4.99	2.73	1.70	2.24	X	-.27	.09
2359	3.44	5.44	2.85	1.95	2.12	2.00	X	.36
2356	3.76	4.82	2.89	2.68	3.00	2.15	2.83	X

TAPE	DAY	DATE	TIME
2315	FRI	4/21	1530-1631
2320	TUE	5/2	0817-1106
2330	MON	5/8	1259-1523
2347	THUR	5/18	2022-2213
2353	WED	5/24	1521-1656
2364	FRI	5/26	2016-2130
2359	SAT	6/3	1513-1708
2356	TUE	6/6	1725-2000

APPENDIX IV

MAGNETIC DATA TAPE FORMATS



1) Word number 1 (the mean value for channel 1) is set positive (i.e., bit 15 is off) if this record represents attenuated measurements.

2) All maximum values have the following form:

bit #	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
	sign	status				maximum (dBm *100/8)										

The status bits, if set on, represent the following:

14 - VHF on
13 - UHF on
12 - High signal (-50 dBm) present
11 - Unused

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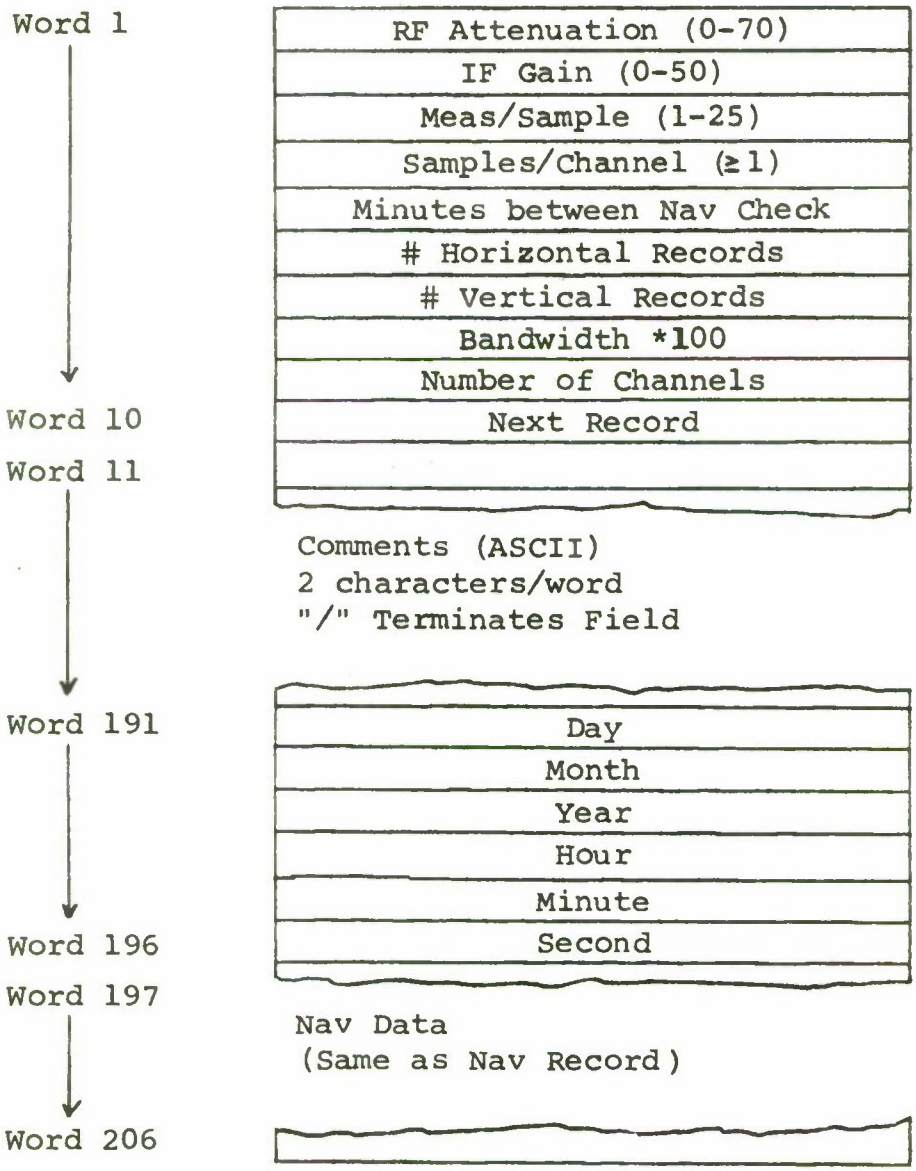
Figure IV-1. Measurement Record (Type 1)



Word 1 (RF Attenuation) is negative (bit 15 on) if one extra measurement record with attenuation is taken with each change of polarization. If the word is positive, each record is attenuated.

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Figure IV-2. Header Record (Type 2)

Word 1	Next Record (INT)
2	Hours (INT)
3	Minutes (INT)
4	Seconds (INT)
5, 6	Ground Speed (F.P.)
7, 8	Track Angle (F.P.)
9, 10	Track Heading (F.P.)
11, 12	Latitude (F.P.)
13, 14	Longitude (F.P.)

The floating point formats are:

1st Word.

15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0	bit #
LSD + 1				LSD				Type								

2nd Word.

15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0	bit #
Code		MSD		LSD + 4				LSD + 3				LSD + 2				

Code:

00 => + (ground speed), N (latitude), or E (angles and longitude)

10, 01 => No data

11 => - (ground speed), S (latitude), W (angles and longitude).

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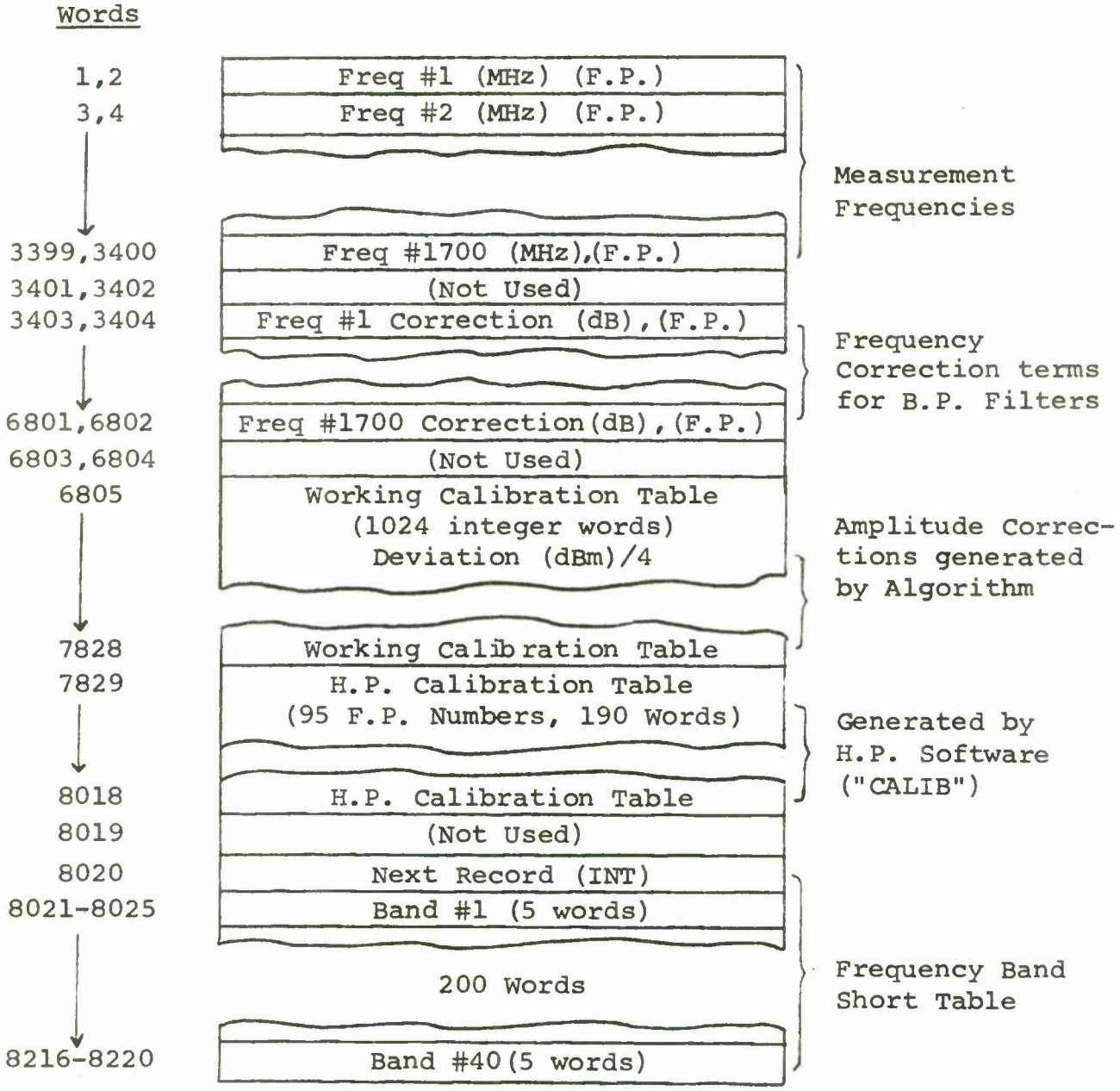
Figure IV-3. Navigation Record (Type 3)



Frequency Band formats:

Word 1. Signal path (1-4)
Word 2. Start Frequency (MHz)
Word 3. End frequency (MHz)
Word 4. Bandwidth (KHz*100)
Word 5. Step Size (KHz*100)

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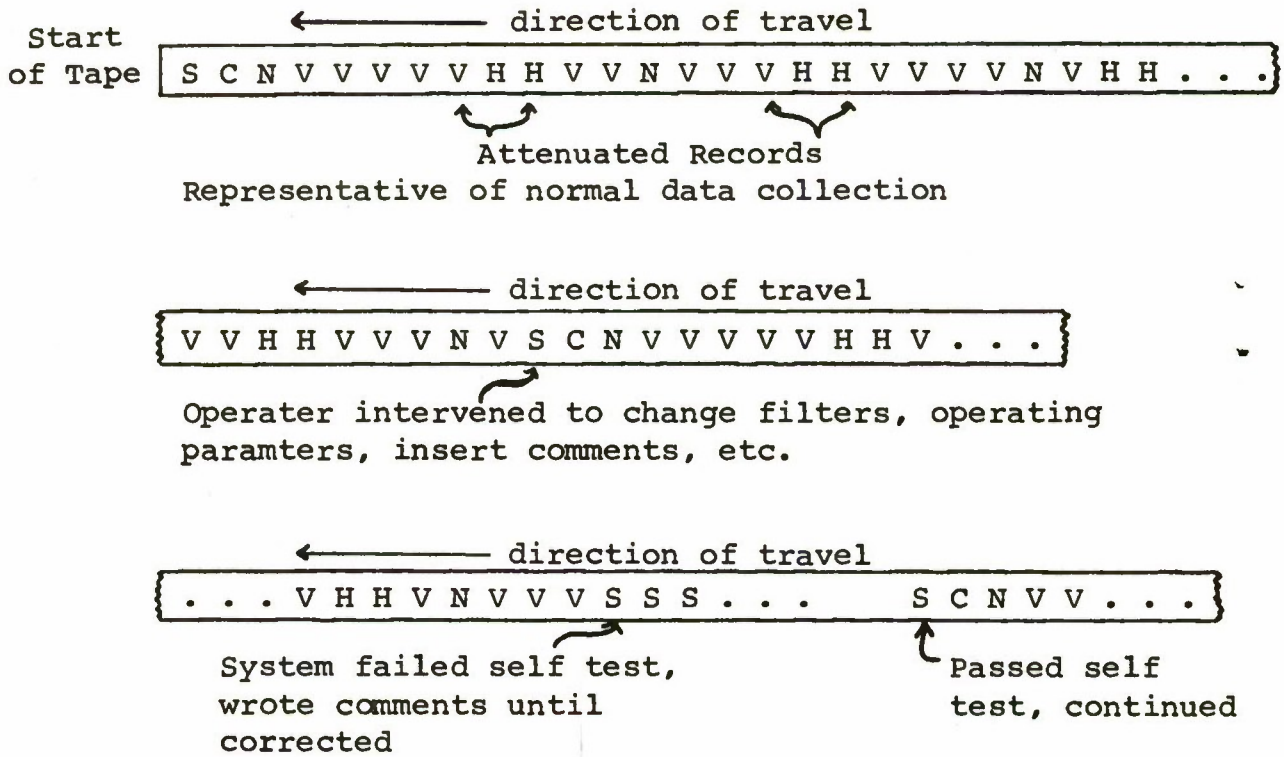
Figure IV-4. Calibration Record (Type 4)



S = Header record
N = Nav record
H = Horizontal data record
V = Vertical data record
C = Calibration record

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Figure IV-5. Typical File Construction

APPENDIX V

CALENDAR OF EVENTS

S	M	T	W	T	F	S	
12 ← Install and	13	14 test the	15 C.W. System	16 →	17 →	18 East Coast	March
19 East Coast	20	21 East Coast	22	23	24	25	
26	27	28	29	30	31	1	April
2 ← Install and	3	4 test the	5 Pulse Equipment	6 →	7 →	8 Fly to Europe	
9	10	11 ← Site Survey → Germany 1250-1730	12	13 Germany 1210-1435	14	15	
16	17 ← Germany 1300-1730	18 → 1210-1730	19 Pulse System Operational	20 ← Germany 1220-1815	21 → 1240-1630	22	
23	24 ← Germany 1730-2220	25 → 1800-2205	26	27	28	29	
30	1	2 ← 0815-1315	3 Germany 0900-1335	4 → 0830-1320	5 →	6	May
7	8 ← 1300-1725	9 Germany 1300-1710 →	10 → 1255-1735	11	12 Germany 1315-1710 →	13 1305-1710	
14 Germany 1255-1720	15	16 ← 1805-2225	17 Germany 1805-2225	18 → 1755-2215	19	20	
21	22 ← 1310-1700	23 Germany 0830-1310 →	24 1220-1655 →	25 0830-1305	26 → 1755-2130	27	
28	29 ← 1245-1725	30 France 1305-1710 →	31 1245-1740 →	1 1305-1505 →	2	3 Germany 1240-1710	June
4 ← 1245-1715	5 Germany 1720-2200 →	6 1715-2210	7	8 Return to CONUS			

Figure V-1. Calendar of Events

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1. [redacted]

2. [redacted]

3. Caprio, S., Propagation Survey for Defense Special Projects Group, ESD-TR-71-100, ECAC, Annapolis, Md., Sept. 1971 (UNCLASSIFIED).

4. [redacted]

5. [redacted]

6. DSPG Message, 1917202Z, Aug. 71, Subject: Project Support Request PSR-700A-71-081 for F1 Measurements (U).

7. [redacted]

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13. ABSTRACT

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This report contains a description of an airborne RF measurement project. Included is a discussion of the hardware used to obtain the measurements, a description of the computer algorithms used to control an automatic spectrum analyzer, a description of the basic raw data and a presentation of the results. The measurements were taken over West Germany and France in the 100 to 500 MHz band. The automatic spectrum analyzer was mounted in a KC-135 aircraft, and a log-periodic antenna was mounted under the nose of the plane. The measurements were taken during April, May, and June 1972, and a complete schedule is contained in this report.

The data reduction was accomplished by ranking, by percent of occupancy, the 28 International Telecommunication Union (ITU) bands for Region 1 contained within the 100 to 500 MHz band. Samples of the measured occupancy and power plots across the 100 to 500 MHz band are included.

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