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SUBJECT: Forwards response to 811224 request for addl info re loose monitoring sys & neutron noise data.

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May 11, 1982

Mr. Harold R. Denton, Director
Office of Nuclear Reactor Regulation
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

Attention: Mr. J. F. Stolz, Chief
Operating Reactors Branch No. 4

Subject: Oconee Nuclear Station
Docket Nos. 50-269, -270, -287

Dear Sir:

In response to your letter of December 24, 1981 concerning loose parts monitoring system (LPMS) and neutron noise data, please find attached our response to your request for additional information.

Very truly yours,

William O. Parker, Jr.

JFN/php
Attachments

cc: Mr. James P. O'Reilly, Regional Administrator
U. S. Nuclear Regulatory Commission
Region II
101 Marietta Street, Suite 3100
Atlanta, Georgia 30303

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Response to Request for
Additional Information Concerning
LPMS and Neutron Noise Data

Concern

1. The LPMS signals from the Oconee 2 startup transient flow test: This will allow detailed analysis that helps detect loose parts which only impact when flow is disturbed.

Response

Since all loose parts in Oconee 2 were accounted for during the inservice inspection, no special monitoring tests were conducted during the startup of the unit. Normal monitoring was conducted as described in Enclosure 1.

Concern

2. The neutron noise data obtained from Oconee Units 1, 2, and 3: Besides the neutron noise level change observed in Unit 1, it was stated in the October 9, 1981 meeting that a neutron noise level change was also observed in Unit 2, and consultants had been hired to record and analyze neutron noise at the Oconee Units. These data and analyses will be evaluated for evidence of core barrel or thermal shield vibration.

Response

Neutron noise data for the Oconee units and the consultant's analysis are contained in Enclosures 2 and 3.

Concern

3. The analysis or evidence to support your contention in the reference letter that a loose thermal shield or thermal shield bolts will be detected by the LPMS.

Response

The loose parts monitoring system (LPMS) installed at Oconee was operating prior to shutdown; however, it did not detect the presence of any of the broken or loose bolts in the reactor vessel. B&W was requested to determine the operational status of all three Oconee LPMSs. The three systems use 22 channels of loose parts monitoring--11 active and 11 passive. This redundancy allows for replacement of sensors during operation without entering the containment.

The results of the investigation indicated that the LPMS on Unit 1 was operational, with 9 of its 11 sensors functioning. The amplifier range

settings were set to accommodate background noise without spurious trips. It was felt that the system would detect the broken bolt head if it had remained loose and moving in the system. However, it is likely from LPMS data and from inspection of the bolts that the parts did not move around after initial impact.

Special impact tests were performed to ensure that the system was operational. Tests consisted of dropping weights in water on a cable from the refueling bridge to impact on the inside of the lower reactor vessel head. The impacts were audible on thirteen channels, five channels were not operable, and four channels were disconnected for work during the outage. Although five channels were inoperative, there were sufficient redundant good channels for backup.

The current monitoring requirements were reviewed with B&W and the site personnel. As a result of the LPMS investigation, several upgrades were implemented to improve monitoring sensitivity without causing spurious alarms:

1. Duke installed high-pass filters to eliminate any 60-Hz or other low-frequency noise. These filters allowed a more sensitive range setting for the amplifiers.

2. Duke modified the LPMS operator procedure to use higher gain settings as allowed by item 1 without spurious alarms. These procedures ensure that the amplifiers are adjusted to the system's optimum sensitivity.

3. The Oconee systems utilize 22 accelerometers, half active and half reserve. The channel selection switches were rewired to avoid confusion and to ensure that at least two sensors at the top and two at the bottom of the reactor vessel are monitored.

As a result of these tests and modifications and the past experience of the LPMS in successfully identifying loose parts of similar size, Duke is confident that the system can perform its design function.

Concern

4. The Oconee loose part monitoring program report in accordance with Regulatory Guide 1.133, Rev. 1. The report should include at least a description of LPMS hardware, implementation, plant personnel training, and in particular, the LPMS calibrations and operational procedure.

Response

A description and a comparison of the LPMS to Regulatory Guide 1.133 is contained in Enclosure 1.

ENCLOSURE 1

OCONEE NUCLEAR STATION
LOOSE PARTS MONITORING SYSTEM
FUNCTIONAL DESCRIPTION WITH A
COMPARISON TO R.G. 1.133 REV 1

DUKE POWER COMPANY

MAY 5, 1982

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I. FUNCTIONAL DESCRIPTION

A. Introduction

Each of the three B&W 177 NSSS Units at Oconee Nuclear Station are equipped with a Loose Parts Monitor (LPM) which was supplied by B&W. All three LPM systems are essentially identical in manufacture and installation, therefore, one general functional description will suffice for all three units.

Inputs to the monitor are provided from twenty-two sensors located around the reactor vessel, steam generators and reactor coolant pumps. Each sensor output is conditioned locally by a pre-amplifier and sent to the LPM equipment bay located in the control room. Equipment in control room select, scale, alarm and record the inputs of interest (see page 5 for outline of following description).

B. Components Located In Containment

1. Sensors

All sensors are a piezo electric crystal type and have a pre-amplifier located within ten feet of the sensor. The sensors are placed as close as possible to natural loose parts collection points as follows:

Sensors	Locations
4	One each, on four incore instrument guide tubes located on the personnel side of the biological shield wall at the bottom of the vessel.
2	Steam generators A and B vent line.
2	Steam generators A and B hand holds.
2	Main feed water lines A and B.
2	Control rod drive mechanisms (two of sixty-nine).
4	Reactor coolant pump suction on pumps A1, A2, B1, B2.
4	Reactor coolant pump discharge on pumps A1, A2, B1, B2.
2	Core flood lines A and B.

All of the sensors mounted on piping are mounted to a metal plate which is strapped around the pipe. Sensors mounted on the steam generators (OTSG) are mounted to the end of a pipe that is screwed onto an exposed stud used to secure the man way access cover.

2. Pre-Amplifiers

The line driver (or pre-amplifier), for each sensor is located within ten feet of the sensor and converts the sensors output from a charge to a current that is proportional to the vibration of the sensor crystal. Immediate conversion of the sensors voltage signal to a current signal substantially reduces the effects of induced stray signals along the long cable run to the charge amplifiers.

C. Components Located In Control Room

1. Sensor Selection

The outputs of the line drivers are routed to the LPM equipment rack located in the unit control room. Here the twenty-two inputs are grouped into eleven pairs of switch selected inputs and routed to eleven charge amplifiers.

2. Charge Amplifiers

The charge amplifiers serve several functions, the first of which is to provide power to the selected sensors line driver via the signal conductors. The received current signal is then converted back to its original charge (voltage) value and amplified with a calibrated gain setting which scales the output to a desired g (acceleration) per volt output.

The scaled output is then processed by a band pass filter network that has a pass band between one and ten kilohertz. By rejecting signals below one kilohertz, a majority of the process flow noise is eliminated. Rejection of signals above ten kilohertz eliminate noise from induced electrical transients and the exaggerated effects of accelerometer mechanical resonance. This pass band was selected after studies by B&W LPM vendor indicated that the majority of spectral components associated with metal impacts were found in this spectrum.

The filtered output is then routed to buffer amplifiers to be sent to the amplifier meter indicator, alarm module and tape recorder/monitor.

3. Alarm Module

The alarm module consists of eleven alarm setpoint meters with associated drive electronics and HI/LO indicator lights (LED's), audiable alarm sources, alarm silence switch, and a reset switch.

A separate and buffered output from each of the eleven charge amplifiers is fed to an associated meter indicator on this module. Before being displayed on the meter, the linear signal

is converted into an exponential function and sent to the meter. This allows a signal with a wide dynamic range to be displayed on the alarm setpoint meter which has a much smaller dynamic range. This transformation results in the meter indicator operating in a region well away from the alarm setpoints while displaying relative values of ambient process flow noise.

Should one of the selected sensors receive a transient noise significantly greater than the ambient process noise (within the filters 1 kHz to 10 kHz pass band) the high alarm setpoint would be exceeded and that channels "High Alarm" LED would light and an audible pulsating tone would sound.

After an operator has determined the channel in alarm, the reset button is pushed to clear all alarm indications, provided the channel is out of alarm.

A key operated switch allows an operator to deactivate the audio alarm while listening to on-line sounds or reference tapes. It is also used by technicians performing maintenance or calibration procedures.

4. Audio Module

The audio module consists of three subsections - on-line tape transport, reference playback tape transport and a common monitor section.

The on-line section contains a four channel cassette tape unit capable of either FM or Direct Recording (DR) and playback. The unit also contains four, eleven position selector switches for patching any of the eleven outputs from the charge amplifiers into each of the four recorder channels. The channel one selector switch also routes the selected charge amplifiers output to the on-line monitor speaker.

The off-line reference playback unit contains a duplicate four channel FM/DR tape unit for playing pre-recorded reference tapes. This section also contains a four position selector switch to select one of the four pre-recorded channels for playback through the off-line speaker.

The monitor section is common to both sections and contains speakers, selector switches and a stereo headphone jack. The "Reference" speaker is fed by the selected output channel. A five position interlocked pushbutton selector switch routes the signal from the input of channel one of the input to the on-line tape recorder or one of the four output channels of that tape unit. Separate volume controls are provided for each speaker also.

When a stereo headset is plugged into the headphone jack, on the monitor section, the reference signal can be heard in one ear and the on-line signal in the opposite. A selector switch allows the operator to hear either of the reference signals separately or both together.

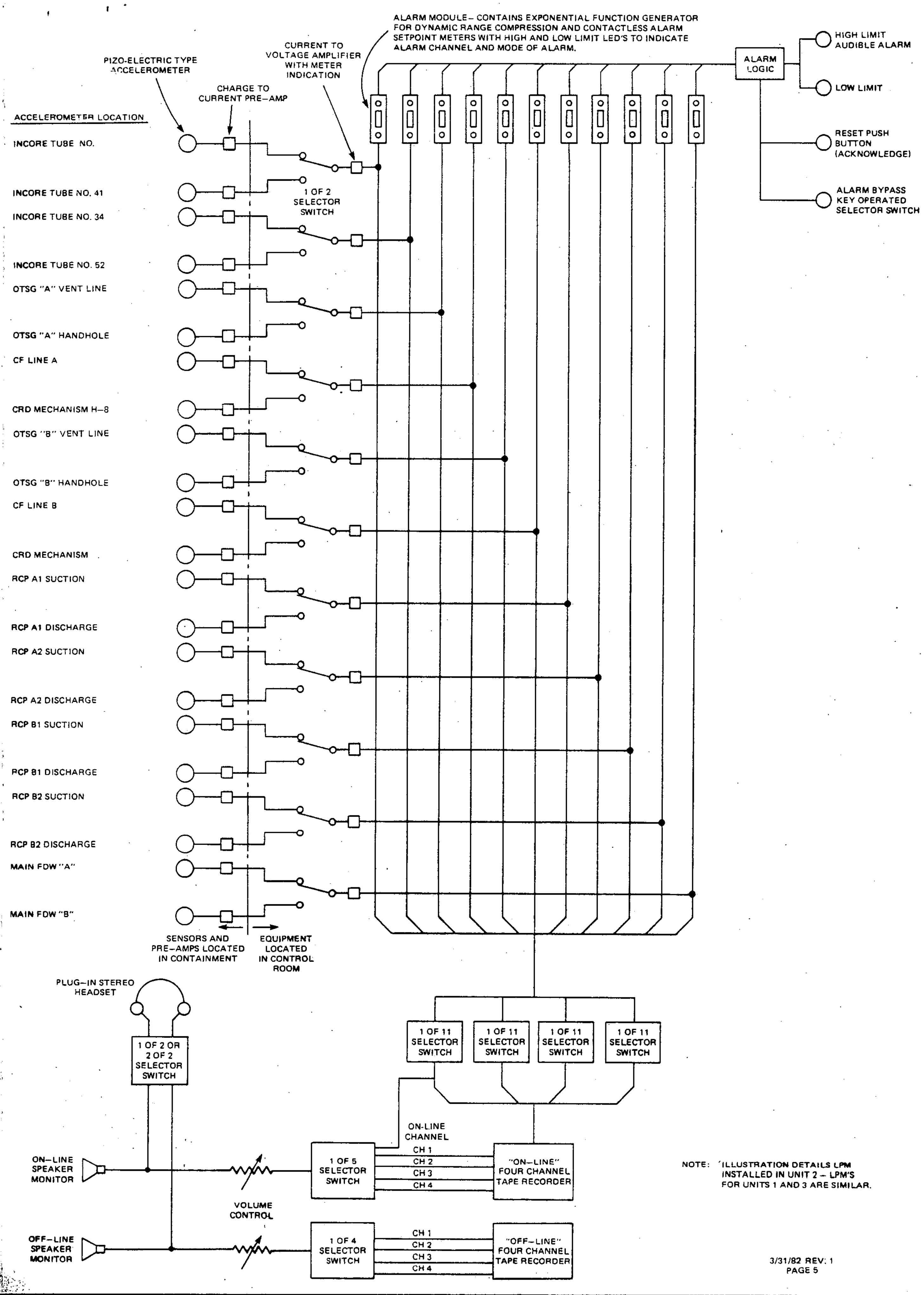
5. Operational Practice

At least once per shift, a control room operator will monitor the system for each unit and make an entry into that units loose parts monitor log book. This monitoring consists of selecting each of the monitored areas and listening to its status through the "on-line" speaker in the audio module. This procedure is used much more frequently during non-routine plant operational periods, such as pump startup and control rod movement for the first time after a refueling outage.

Such a frequent use provides the operators with an excellent first hand knowledge of what the systems should sound like and aid in the training of new personnel. If there is any reason to suspect a channel, the operator places a reference tape in the "off-line" tape recorder and compares the reference and "live" channels simultaneously.

In the past, such items as defective check valves, loose valve handles, and tight control rod drive assemblies have been detected and correctly diagnosed using this system and these operating procedures.

OCONEE NUCLEAR STATION LOOSE PA[illegible]MONITOR FUNCTIONAL OUTLINE



NOTE: ILLUSTRATION DETAILS LPM INSTALLED IN UNIT 2 – LPM'S FOR UNITS 1 AND 3 ARE SIMILAR.

II. COMPARISON OF R.G. 1.133 TO EXISTING LOOSE PART DETECTION PROGRAM

A. Introduction

In the following comparison of the guide to the existing system only those points of discernable differences will be discussed.

B. System Characteristics

Section C.1.b., System Sensitivity

No calibrated impact procedure is currently used. Channel sensitivity and operability are verified during refueling outages by tapping a metalic tool in the proximity of the sensor. At present, a means of providing an impact of predictable kinetic energy with a portable and practical device is being evaluated. See response to Section C.3.a.(3) for additional comments.

Section C.1.c., Channel Separation

As a data collection device, this system does not perform or activate any safety related functions; therefore, the nature of this system does not warrant channel separation associated with the automatic protection system.

Section C.1.d., Data Acquisition System

Data acquisition is by manual startup. Such a procedure insures that data is recorded for meaningful phenomenon. Autostartup of tape recording equipment would provide no advantage for a transient event since it could not achieve recording speed in time to capture a one shot event. Previous analysis performed using the system has only provided meaningful results when the noise in question was of a duration much longer than the time required to manually start a tape recorder. Manual start also places a higher confidence level in assuring that data is not lost due to a malfunction of automatic equipment.

Section C.1.g., Operability for Seismic and Environmental Conditions

The primary system, in which the loose-part detection system is installed, is designed to withstand seismic events including the OBE. Therefore, the presence of loose parts in the primary system is not an anticipated condition -- during or after any seismic event. In addition, the loose-part detection system does not perform any automatic protective action. For these reasons, the system does not require seismic qualification.

Section C.1.h., Quality of System Components

Connecting coaxial cable for the accelerometers are unprotected and are subject to physical damage by personnel working in their proximity during unit shutdown. A method of protecting this cable is being reviewed.

The feasibility of replacing the existing sensors with a device that can withstand higher temperatures than existing units is being studied also.

C. Establishing The Alert Level

Section C.2.a., Ambient Noise Rejection

A recent modification to the charge amplifiers limited the band pass to between 1 kHz to 10 kHz signals. This modification has proven effective in rejecting transient electrical noise and other noises not associated with metal impacts. A review of the "Loose Parts monitor Log Book" indicated an extremely low number of incidents reporting nuisance alarms. Therefore, no further modifications are considered necessary.

Section C.2.c., Alert Level

The alert level is determined by placement of the alarm meter set point indicator for each channel. Since the alarm module compresses the wide dynamic range of the amplifiers output exponentially and is dampened by the alarm setpoint meter movement the number of nuisance alarms has been extremely low as verified by the LPM log book for each unit, therefore a floating alarm point is not considered necessary.

D. Using the Data Acquisition Modes

Section C.3.a. (2-d), Manual Mode

Current maintenance procedures call for calibration of the equipment located in the control room once a year. This procedure calls for disconnecting the field input current signal to the current to charge amplifier and injecting a known input and adjusting the appropriate controls for a calibrated output, meter indication and alarm functions. Based on previous experience, no justification to increase this calibration cycle can be justified.

Section C.3.a. (2-e), Manual Mode

Current practice for making reference tapes is not defined for routine operation but are sometimes made during plant operating procedures such as pump starts. The merits of routine recording of reference tapes are being evaluated.

Section C.3.a. (3), Manual Mode

Efforts are currently underway to locate a portable device that will deliver a test impact, with a predictable amount of desired kinetic energy. This device should be capable of working in any position on all of the sensors presently mounted on the system. Its use must be quick and predictable so as to minimize time spent in areas of high background radiation.

During future cold shutdown, plans are also being made to use a portable calibrated shaker table to calibrate the entire assembly from sensor to control room indication during initial sensor replacement. After the sensor is installed, its response to a portable calibrated impact device would be recorded and compared with calibrated impacts during following refueling outages.

No plans are made for a complete system calibration check during intervals less than every refueling outage. Intervals less than these outages would require unit shutdown and increase personnel radiation doses since only refueling outages involve thorough decontamination. This is an important consideration, since most of these sensors are located in some very radiologically active areas.

ENCLOSURE 2

TEC Report No.: R-81-039

CORE SUPPORT BARREL MOTION ANALYSIS FOR OCONEE UNIT 2

TEC

TECHNOLOGY for ENERGY CORPORATION

KNOXVILLE, TENNESSEE 37922 (615) [illegible]

TEC Report No.: R-81-039

CORE SUPPORT BARREL MOTION ANALYSIS FOR OCONEE UNIT 2

Work Performed for:

Duke Power Company
422 S. Church Street
Charlotte, North Carolina 28242

Work Performed Under Account No. 517.00

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October 1981

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SUMMARY

Personnel from Duke Power took routine noise measurements for the Middle of Cycle (MOC)-5 on Oconee Unit 2 on April 16, 1981. Subsequent examination of these data led to concern that the normal beam mode vibration of the core barrel was absent. This concern was based on the unusual behavior in the phase and coherence between the cross-core power range monitors NI-5 and NI-7.

The absence of beam mode vibration could indicate a core barrel structural problem, such as a loose upper-head support or a loose junction in the core barrel sections. Another cause for these phenomena could be the loss of clearance between the shock pads and guide lugs.

A detailed analysis of the neutron noise data and of possible structural problems was performed. This analysis indicated that beam mode vibration of the core barrel was still present in the observed signals, but that presence of another phenomenon was distorting the phase and coherence data.

Based on this analysis, continued operation of the plant is recommended, but frequent analyses of the noise data (and related signals) should be performed to determine if more serious problems are developing.

1. INTRODUCTION

1.1 SCOPE

Personnel from Duke Power took routine noise measurements for the Middle of Cycle (MOC)-5 on Oconee Unit 2 on April 16, 1981. Subsequent examination of these data led to concern that the normal beam mode vibration of the core barrel was absent. This concern was based on the unusual behavior in the phase and coherence between the cross-core power range monitors NI-5 and NI-7.

The absence of beam mode vibration could indicate a core barrel structural problem, such as a loose upper-head support or a loose junction in the core barrel sections. Another cause for these phenomena could be the loss of clearance between the shock pads and guide lugs.

In response to the unusual behavior in the noise measurement results and due to the potentially serious nature of the possible causes, a more detailed noise analysis was performed. The analysis methodology and results are presented in the body of this report, along with recommendations for continued monitoring.

1.2 BACKGROUND

Neutron noise analysis entails the extraction of information from the small fluctuations about the mean that occur naturally in the output

signal of all neutron detectors in a nuclear power reactor. These fluctuations can be related to many different phenomena, but the major sources for them in a PWR are:

1. Temperature fluctuations which are usually observable at frequencies below 1 Hz,

2. Fuel element vibrations[2,3] which are observable in the 1 to 4 Hz range,

3. Beam mode CSB motion (i.e., vibration) which normally occurs in the 4 to 12 Hz range,

4. Higher modes of CSB motion which usually occur above 12 Hz, and

5. Reactivity fluctuations which normally occur below 1 or 2 Hz.

The fluctuations in the output signals of the excore power range ionization chambers that are related to Core Support Barrel (CSB) motion are caused by changes in the attenuation of core leakage neutrons that occur when the CSB moves. The CSB is supported by the pressure vessel at the head and hangs inside the pressure vessel with a water gap between the CSB and the pressure vessel. As the CSB moves in a beam or cantilever fashion, the water gap in the direction of motion is reduced, decreasing the neutron attenuation in that direction, simultaneously, the water gap away from the direction of motion is enlarged, increasing the neutron attenuation in that direction. Hence, excore neutron detectors that are located diametrically across the core will see the same perturbation from CSB motion with the detector in the direction of motion increasing the output signal.

This characteristic of neutron noise analysis is the foundation for CSB monitoring. The fluctuations in the output signals of diametrically

opposed excore neutron detectors are scrutinized for frequency ranges where there is a high degree of correlation between the two signals and where they are correspondingly 180° out of phase with each other.

Higher modes of CSB motion can be evaluated by a similar analysis using the excore neutron detector signals. These motions are usually considerably smaller in amplitude than the beam mode vibration.

2. DATA BASE

2.1 DATA BASE FROM NORMAL MONITORING PROGRAM

Duke Power personnel have implemented a neutron noise monitoring program to analyze the output of the power range detectors on a periodic basis. This analysis is normally carried out at three times during each fuel cycle--beginning, middle, and end.

A top view layout of the Oconee Unit 2 reactor and power range detectors is given in Fig. 2-1. As shown in the figure, there are two cross-core detector pairs with an angular separation of 60 (or 120) degrees. The normal Duke analysis consists of obtaining cross-power spectral data for all possible combinations of detectors (6 pairings). These data include power spectra for each detector, as well as cross-power spectra, phase, and coherence for each pair. The typical experimental configuration for on-line analysis is shown in Fig. 2-2. The results are output via hardcopy as well as stored on disk.

2.2 DATA BASE FROM SPECIAL MONITORING PROGRAM

As noted in Section 1.1, there was concern that the normal beam mode vibration of the core barrel was absent. Consequently, special measurements were carried out on August 5 and 6 to examine this concern in greater detail. The approach and data base generated in these measurements are presented in the remainder of this section.

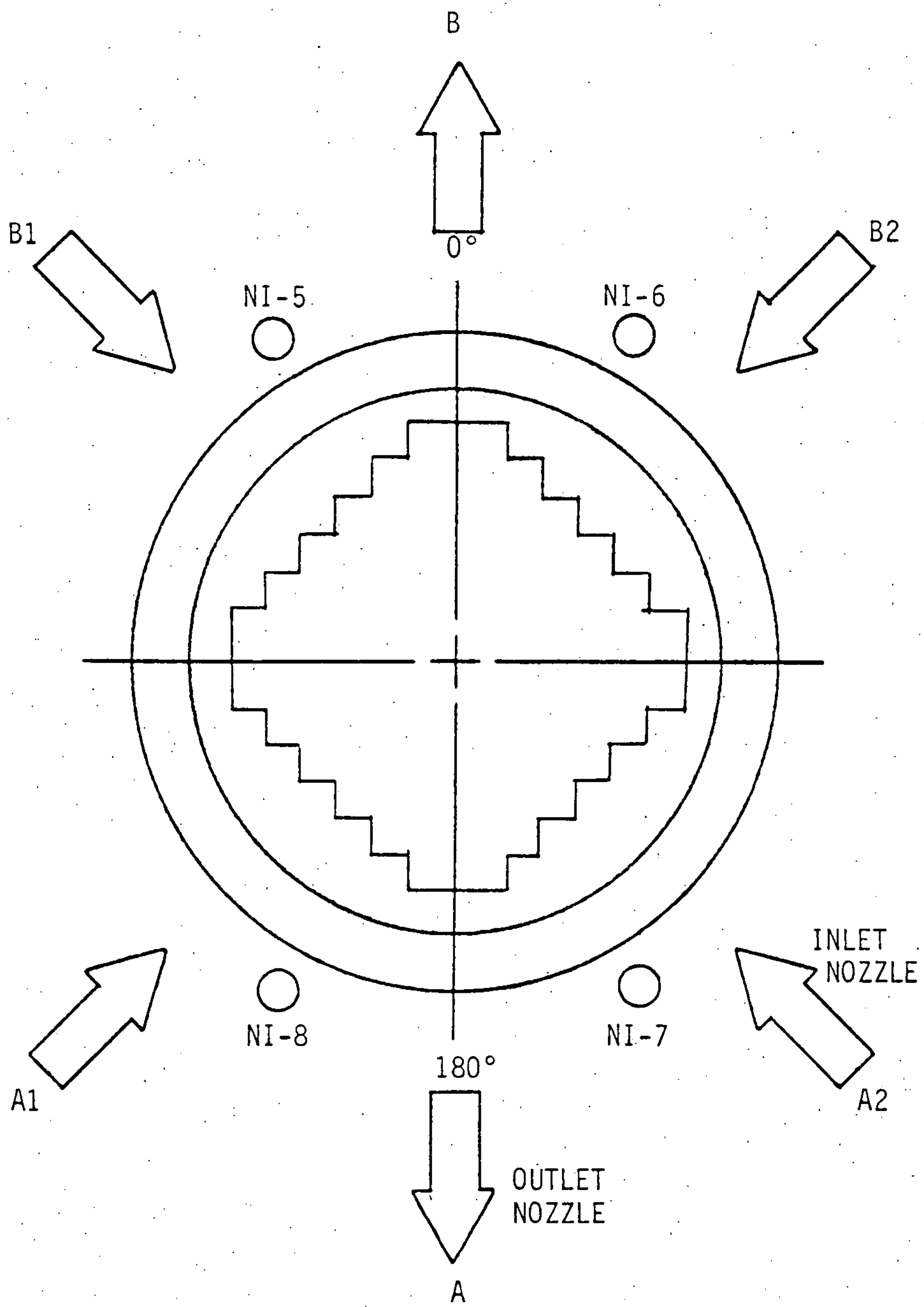

Figure 2-1. Azimuthal Excore Detector Locations for Oconee Unit 2.

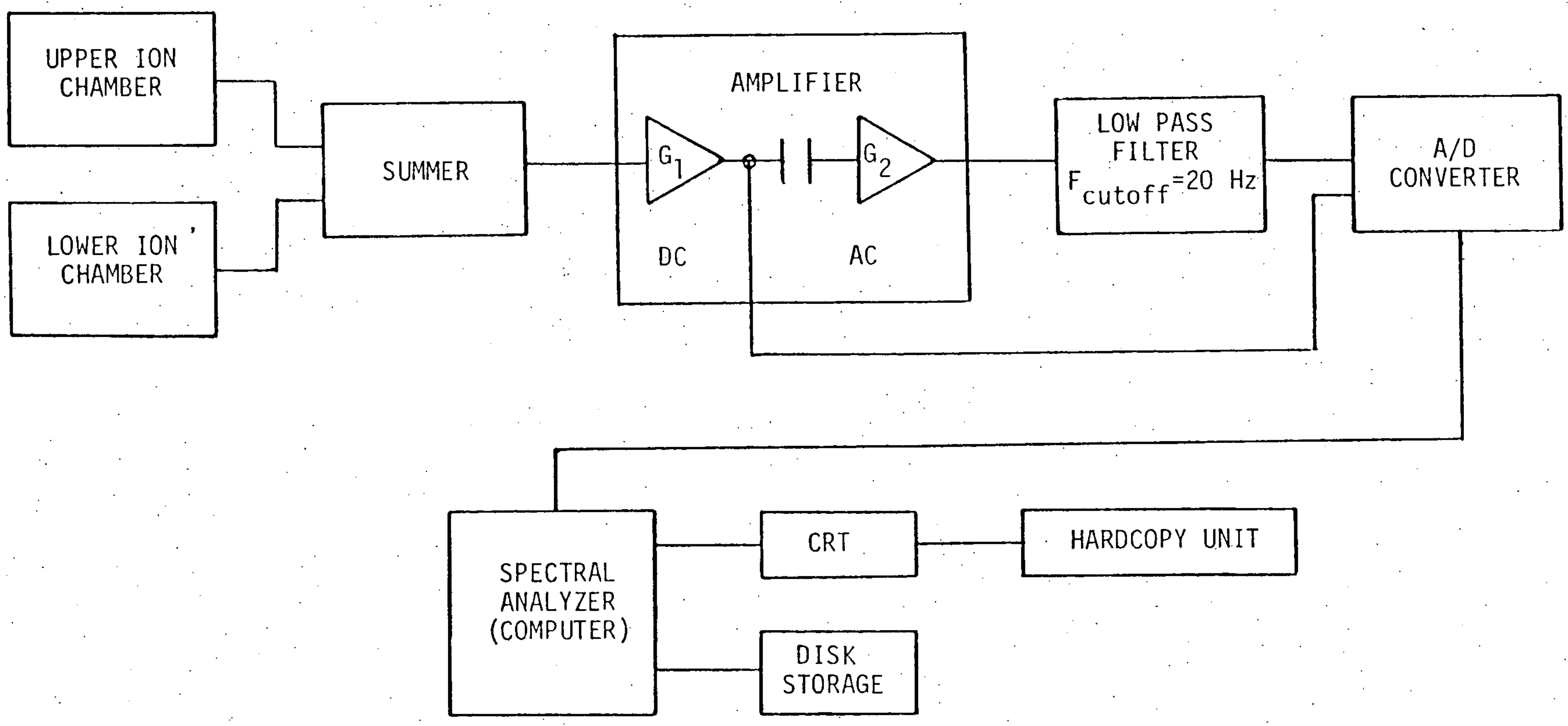

Figure 2-2. Typical On-Line Noise Analysis Configuration for One of the Four Excore Detector Channels (all four channels are brought into the analyzer simultaneously).

2.2.1 Independent Verification of Analysis Equipment

The first task which was carried out was an independent verification of the equipment used by Duke personnel in obtaining the earlier spectra. This was carried out primarily by using signals of known characteristics, such as sinusoidal and square wave reference test signals at various frequencies.

2.2.2 Verification of Signals from Excore Power Range Monitors

One concern was that a particular detector section (upper or lower) or signal conditioning electronics was introducing the observed behavior in the coherence and phase between detector pairs. This concern was eliminated by (a) examining the signals from the upper and lower sections of the excore detectors separately, and (b) observing that the coherence and phase were different from that normally expected over a limited frequency band.

2.2.3 On-line Spectral Analysis

Using the configuration shown in Fig. 2-2, spectral (noise) analysis was performed for all six detector pairs using the Duke noise analysis system. The results from this analysis were output graphically and stored on disk. This analysis was performed on August 5, 1981 for Unit 2 in Cycle 5 at 331 Equivalent Full Power Days (EFPDs).

2.2.4 On-line High Resolution Spectral Analysis

The software normally used on the Duke noise analysis system was replaced by a higher-resolution software package. Analysis was then performed on-line for the detector pairs, consisting of the lower-half signals and selected upper-half signals. The experimental configuration for this analysis is shown in Fig. 2-3.

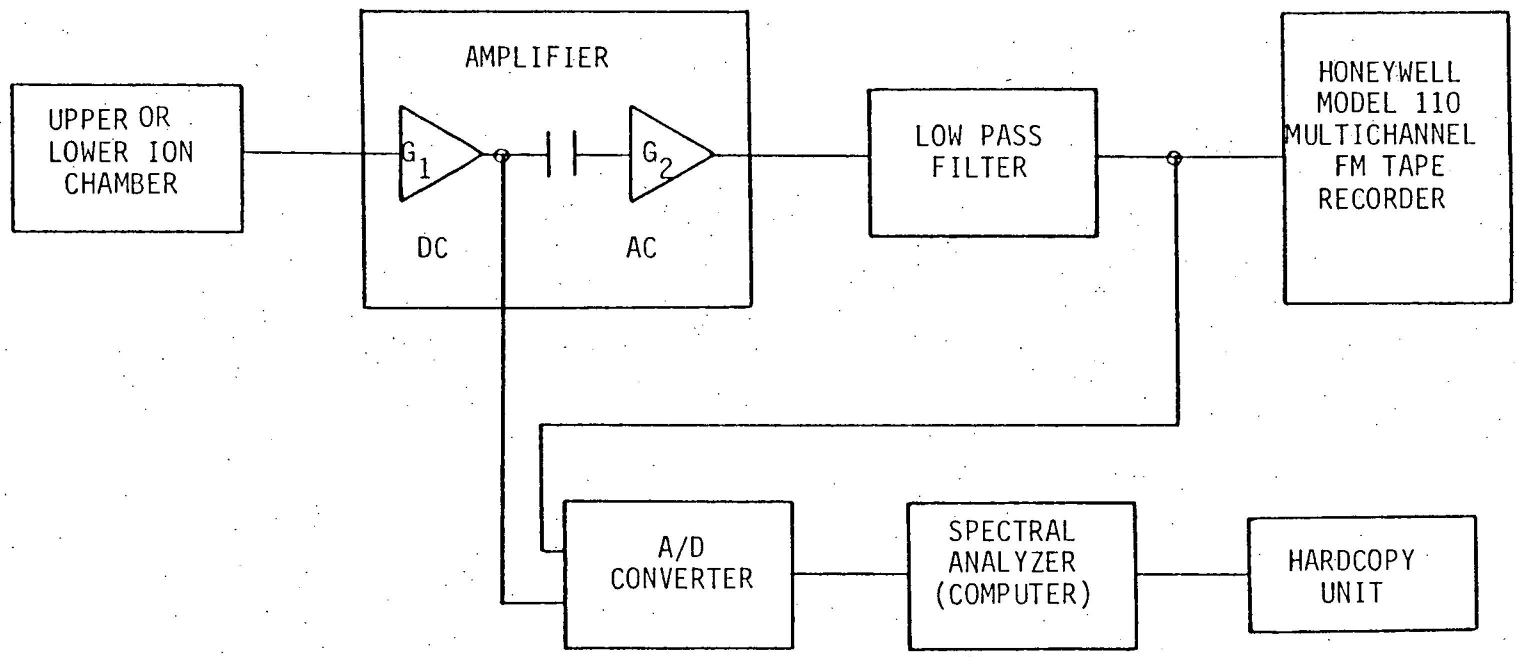

Figure 2-3. Experimental Configuration Used for On-Line High Resolution Analysis and Recording of Analog Signals (Eight Signals - 4 Upper and 4 Lower).

2.2.5 Analog Signal Data Recording

During the time the on-line high resolution spectral analysis was being performed (overnight analysis), the analog signals were also being recorded on a multichannel FM tape recorder (see Fig. 2-3). In addition to the normal bandpass recording (shown in Fig.2-3) the lowpass filter was bypassed and a second recording taken on August 6 for seven of the possible eight excore detector sections. The NI-8 upper-section signal was replaced by the narrow-range B loop pressure signal to allow analysis of possible pressure-induced motion.

2.2.6 Off-Line Spectral Analysis

Extensive off-line spectral analysis has been completed for the signals recorded on August 5 and 6. In addition to the August 5 and 6 data from Unit 2, spectra were recalled from the disk and output graphically. These data were the result of analyses taken by Duke personnel in their normal monitoring mode for Unit 2 as well as Unit 1. These data were used for trending analyses.

3. ANALYSIS OF CSB MOTION DATA

3.1 INTRODUCTION

As discussed in previous sections, the unusual behavior observed in the coherence and phase from the power range monitor pair NI-5 and NI-7 obtained in the Middle-of-Cycle (MOC)-5 for Oconee Unit 2 led to concern that the usual beam mode core barrel motion was absent. The absence of beam mode vibration could be indicative of core barrel structural problems, such as:

1. Loose support of the core support assembly at the upper head.
2. Loose core support assembly (either the lower grid assembly or core barrel assembly).

A less serious cause would be loss of clearance (for whatever reason) between the shock pad and guide lugs.

Selected noise analysis results* obtained from current measurements, as well as those obtained for the End-of-Cycle (EOC)-4, Beginning-of-Cycle (BOC)-5, and Middle-of-Cycle (MOC)-5 for Unit 2 are presented below. In addition to the Unit 2 data, data are presented which were acquired for Cycles 5 and 6 for Unit 1.

3.2 MOC-5 RESULTS FOR UNIT 2

Selected spectral analysis results obtained from the normal MOC-5 analysis for Unit 2 (taken on April 16, 1981) are presented in

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*A much more complete set of spectral analysis results used in the analysis reported here is presented under separate cover in an Addendum to this report.

Fig. 3.1 through Fig. 3.8. The excore detector locations relative to the core are presented in Fig. 2-1, p. 2-2.

The power spectral density (PSD) results do not look unusual relative to what would be expected, but coherence and phase are different from (a) what would be expected from simple CSB motion, and (b) what has been observed in the past on this unit. It is the low coherence between NI-5 x NI-7 in the 8-12 Hz range and the deviation from 180° in phase over the same frequency range for both detector pairs NI-5 x NI-7 and NI-6 x NI-8 which led to the concern that beam mode motion may be absent.

3.3 TRENDING ANALYSIS

To assist in the analysis of the CSB motion, a considerable amount of trending analysis was performed. This consisted of results obtained previously for Unit 2 and selected results from Unit 1. Results from Unit 1, Cycle 6 were chosen because it was known that several bolts which assisted in holding the thermal shield in place were found loose or missing at the end of Cycle 6. Only selected results will be presented in this section. All results used in the analysis are in the Addendum to this report.

3.3.1 Trending Data

The coherence and phase for Unit 2 detector pair NI-5 x NI-7 for EOC-4, BOC-5, and MOC-5^{+}* (data recorded on August 5, 1981) are presented in

*We will use MOC-5^{+} to denote the data recorded on August 5 and 6, 1981. The MOC-5 data set was collected on April 16, 1981. The BOC-5 data set was collected on October 7, 1980.

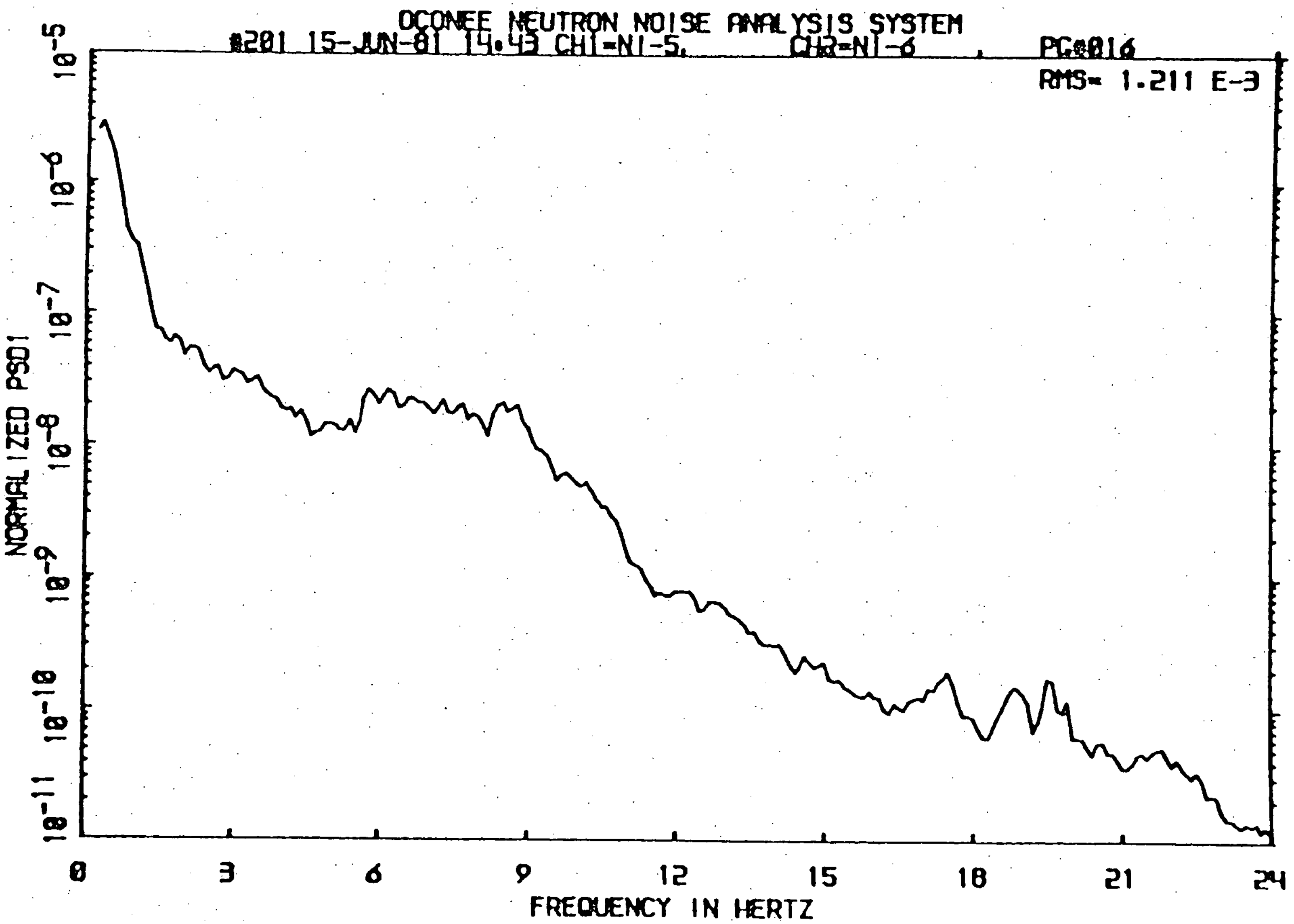

Figure 3-1. Power Spectral Density for NI-5 Total for MOC-5 Unit 2 Taken April 16, 1981.

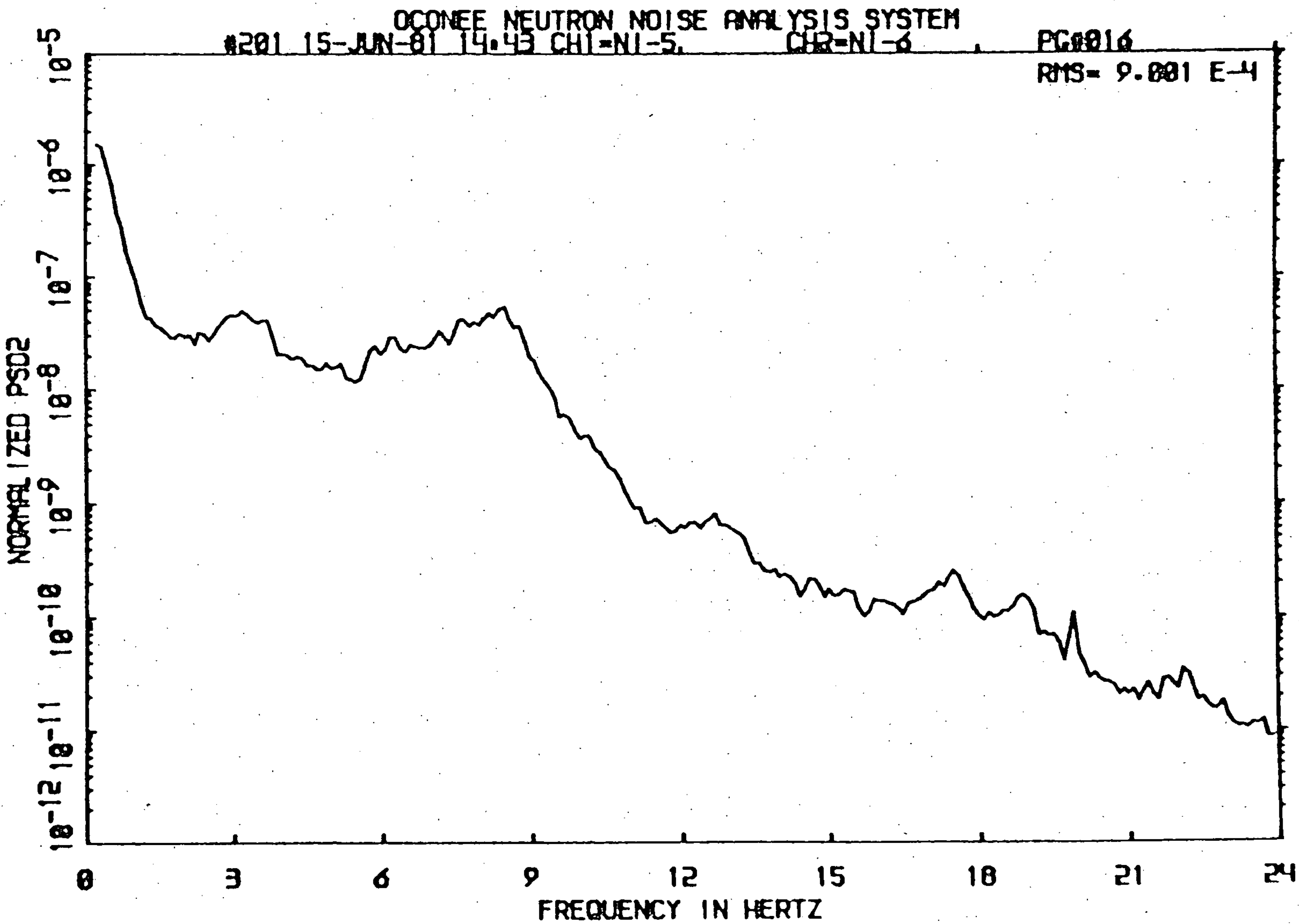

Figure 3-2. Power Spectral Density for NI-6 Total for MOC-5 Unit 2 Taken April 16, 1981.

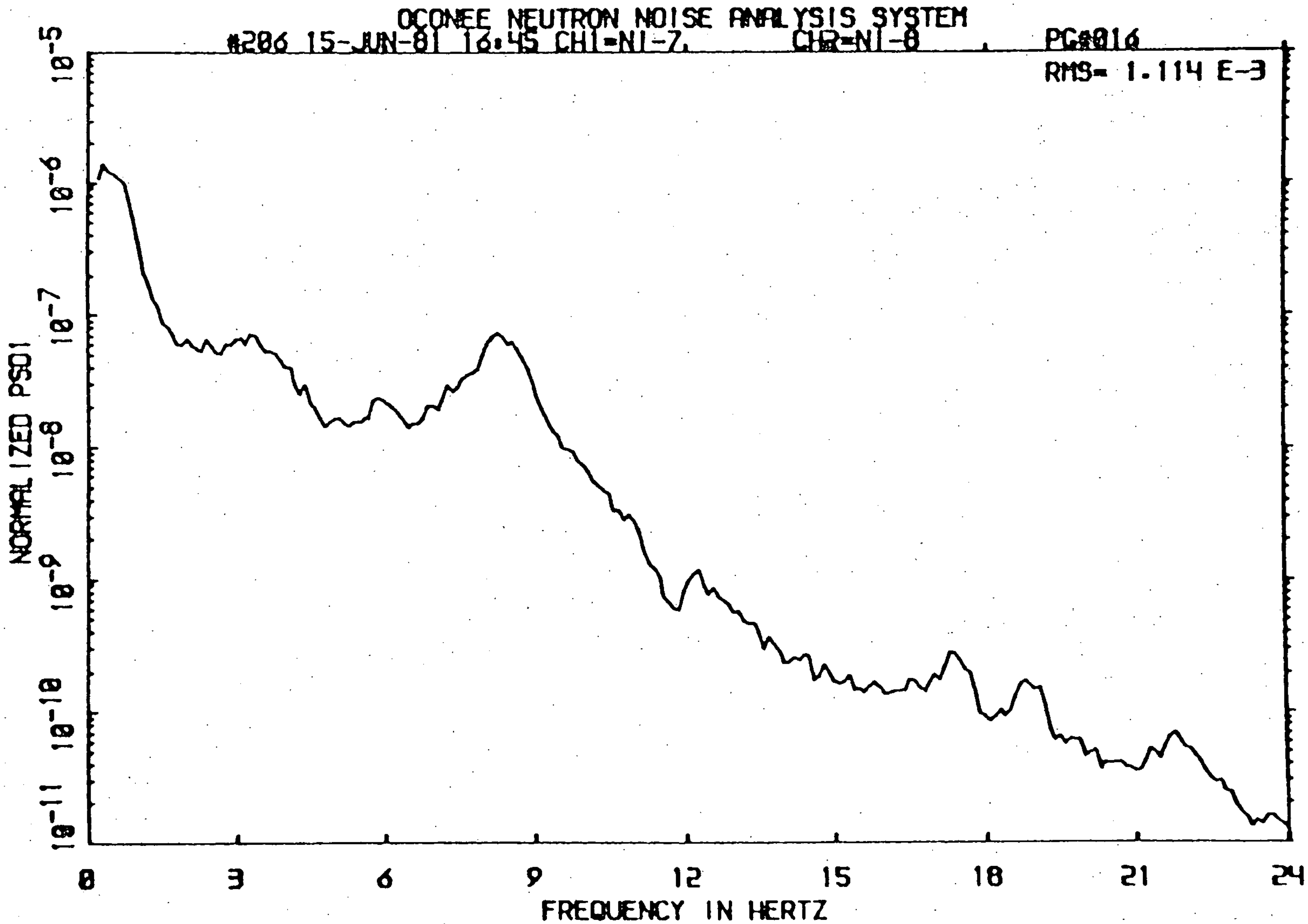

Figure 3-3. Power Spectral Density for NI-7 Total for MOC-5 Unit 2 Taken April 16, 1981.

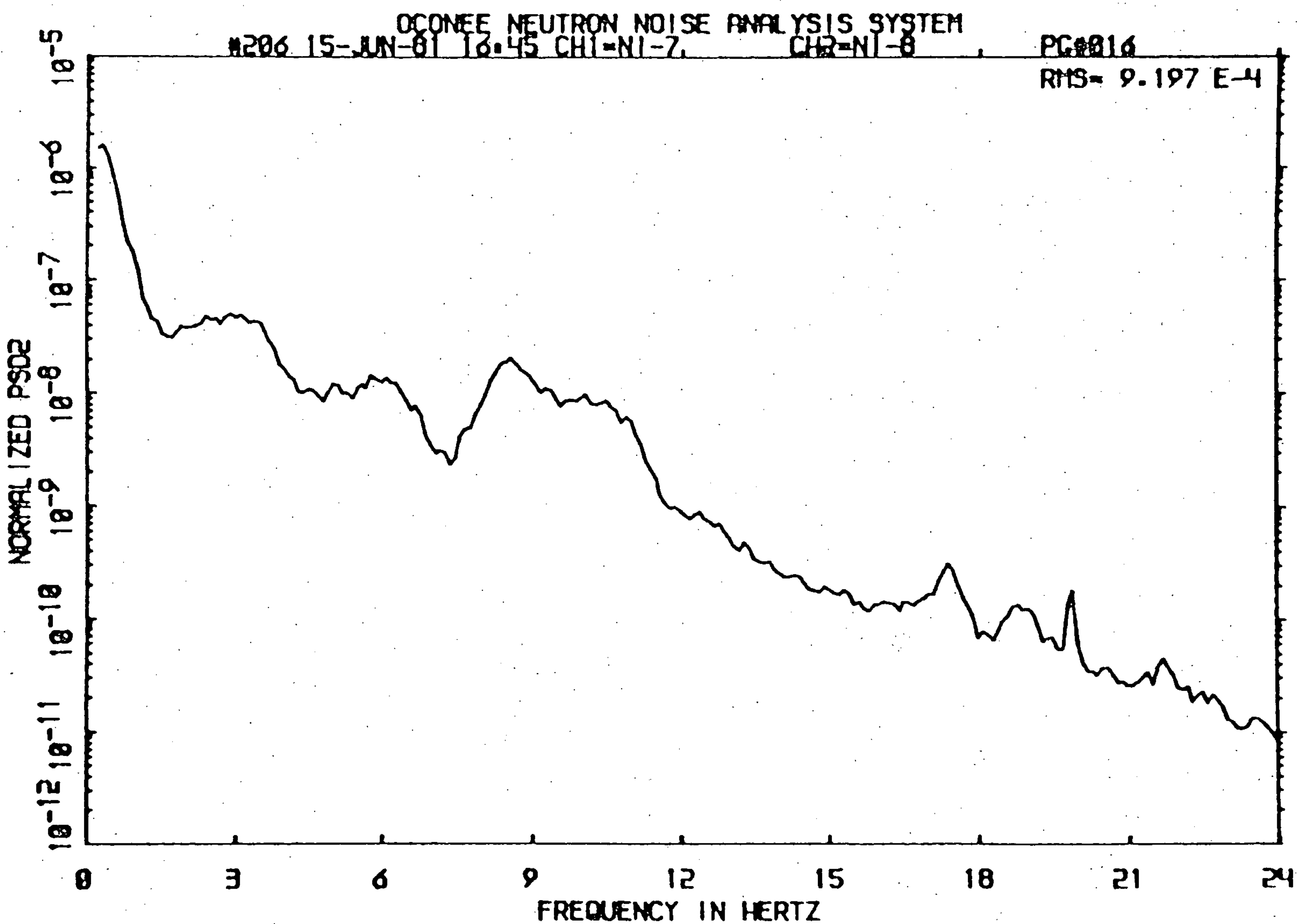

Figure 3-4. Power Spectral Density for NI-8 Total for MOC-5 Unit 2 Taken April 16, 1981.

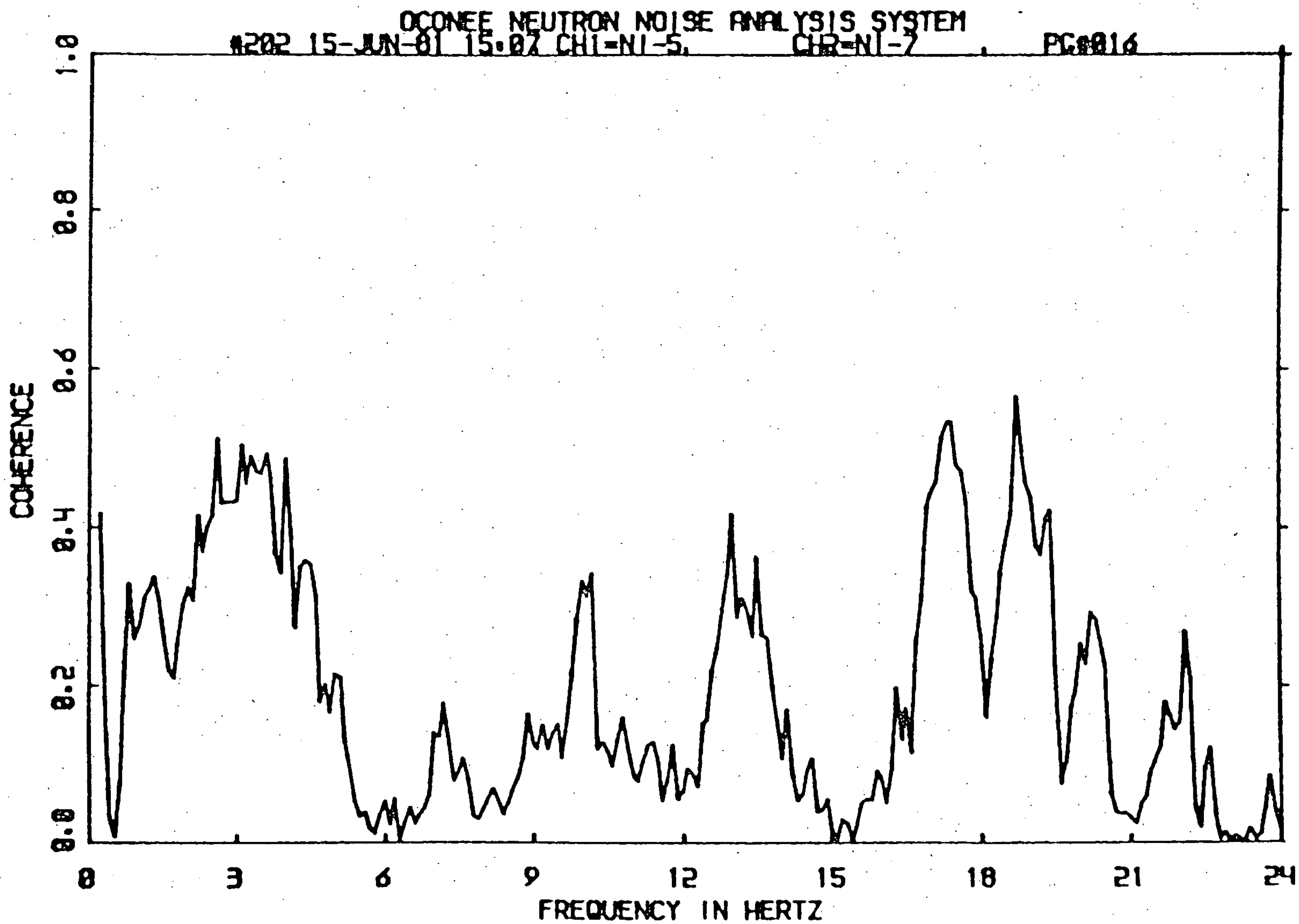

Figure 3-5. Coherence Between NI-5 x NI-7 Total for MOC-5 Unit 2 Taken April 16, 1981.

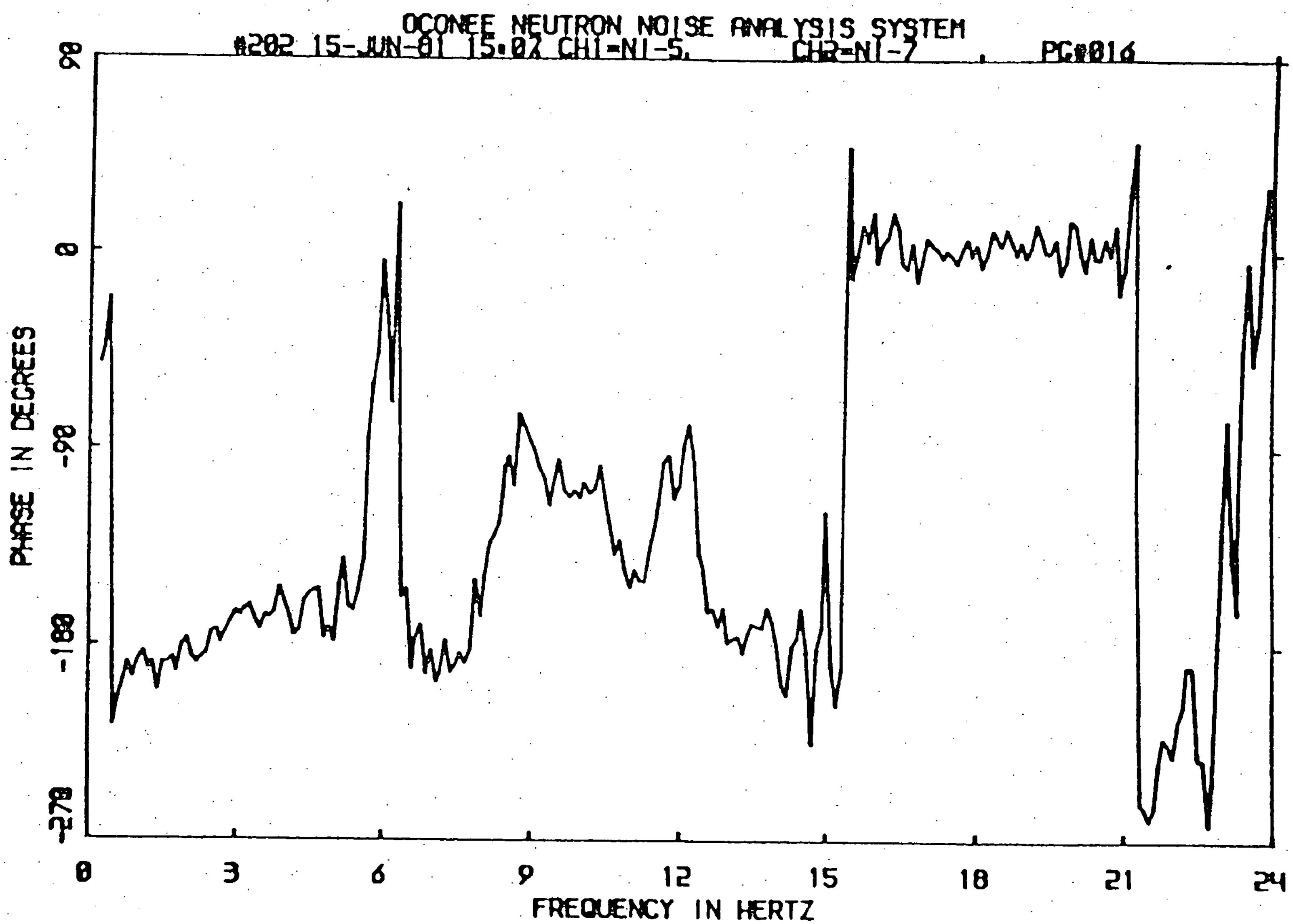

Figure 3-6. Phase Between NI-5 x NI-7 Total for MOC-5 Unit 2 Taken April 16, 1981.

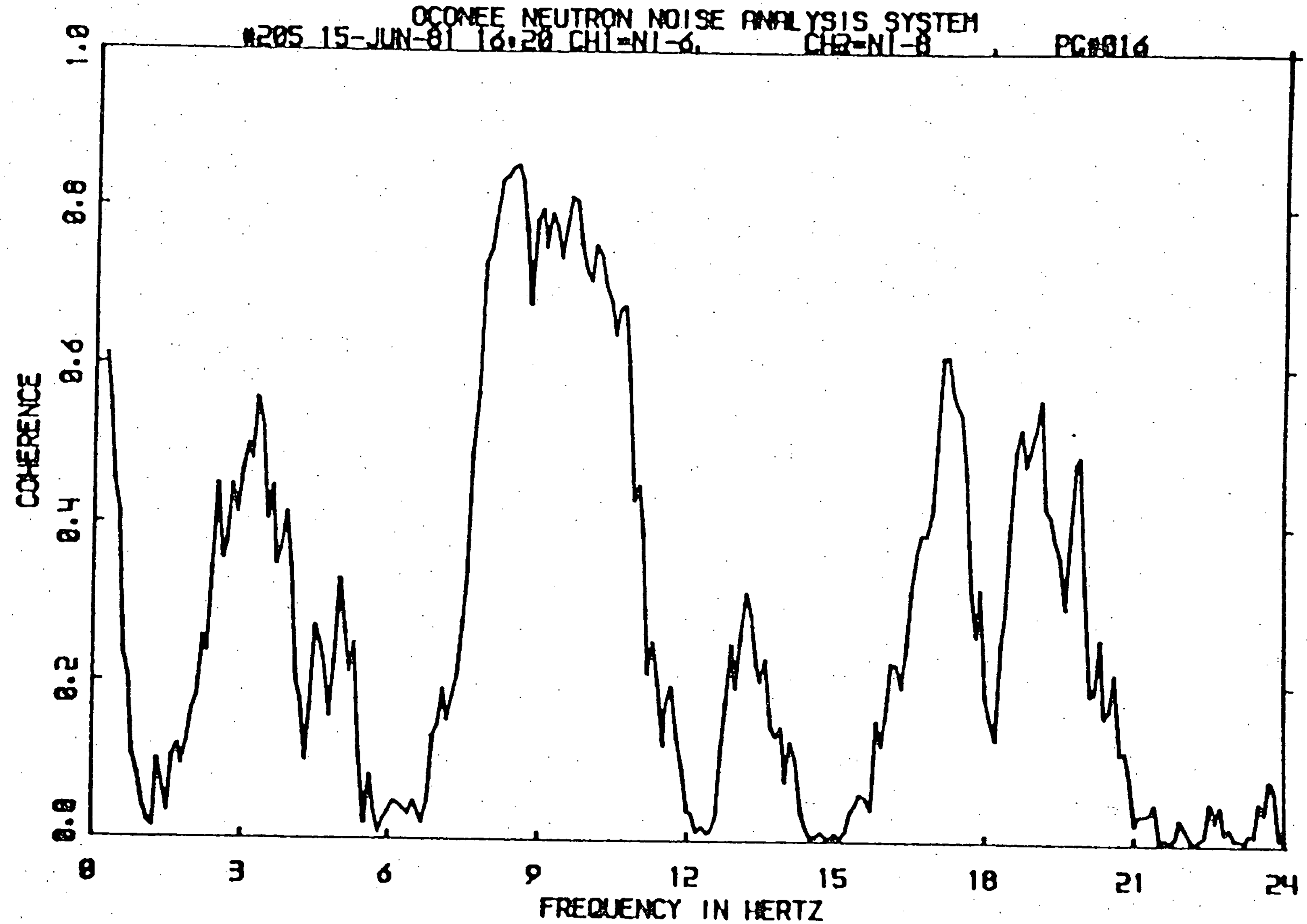

Figure 3-7. Coherence Between NI-6 x NI-8 Total for MOC-5 Unit 2 Taken April 16, 1981.

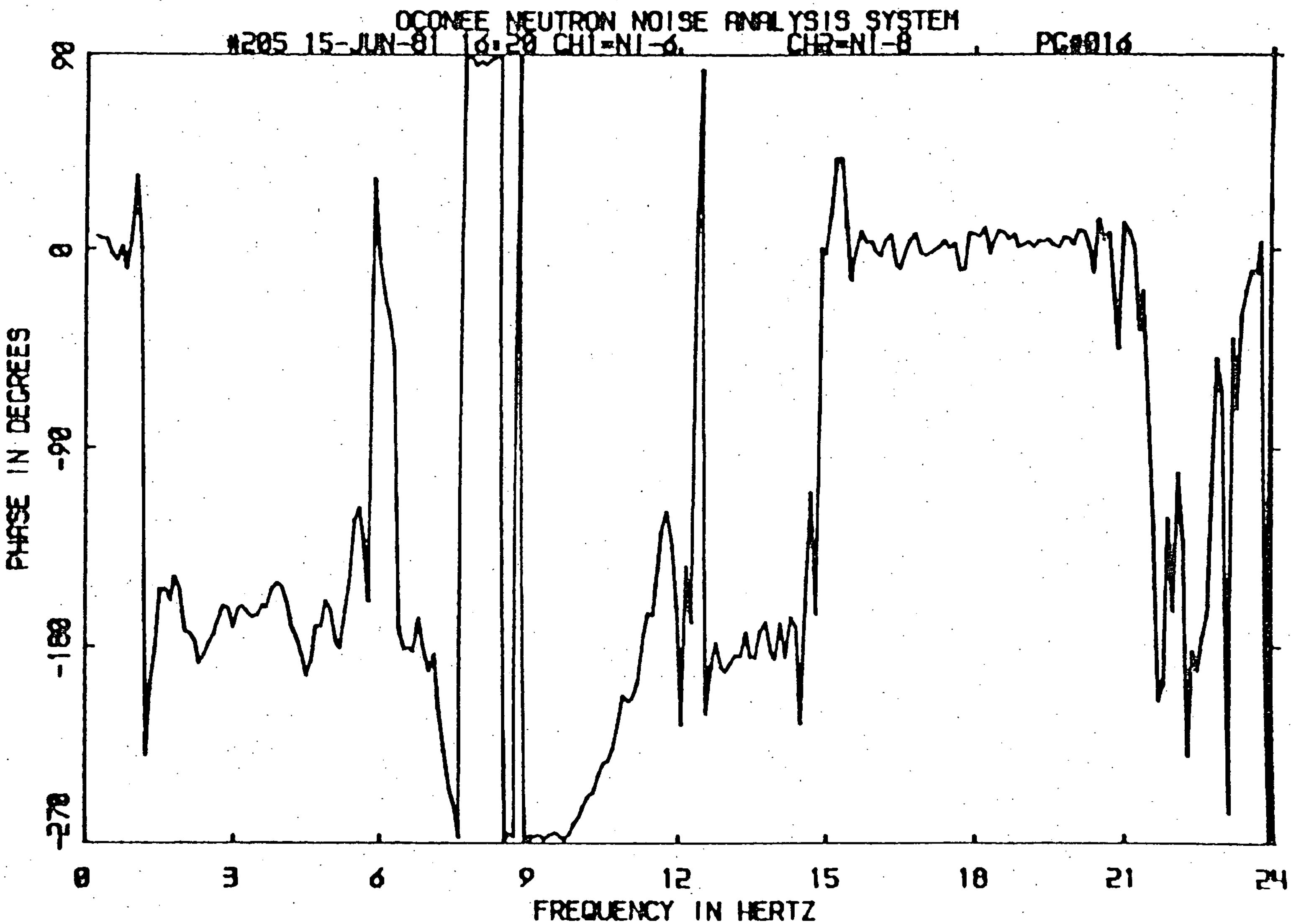

Figure 3-8. Phase Between NI-6 x NI-8 Total for MOC-5 Unit 2 Taken April 16, 1981.

Figs. 3-9 and 3-10. Similar data for Unit 2 detector pair NI-6 x NI-8 are presented in Figs. 3-11 and 3-12. In addition to the coherence and phase trending data, the percent fractional power fluctuations (mean of all four excore detectors) from the power spectral densities (PSDs) are presented in Fig. 3-13 at selected frequencies, e.g., the 6 Hz peak frequency, the CSB motion band (8.5 Hz and 10.5 Hz), and the shell mode frequencies of 17.5 Hz and 18.9 Hz.

The coherence and phase for Unit 1, similar to that presented for Unit 2, are presented in Fig. 3-14 through Fig. 3-17. Figs. 3-14 through 3-17 include only Cycle 6. The EOC-5 Unit 1 data is in the Addendum. These data are not presented here, since they are similar to the EOC-4, Unit 2 data.

3.3.2 Significant Observations from Trending Data

There are significant changes in the coherence and phase data in the Unit 2, Cycle 5 CSB motion frequency range of 8-12 Hz from BOC to MOC. These changes cannot be explained by normal trending over a fuel cycle, as evidenced by the EOC-4, Unit 2 data. The changes observed in the Unit 2, Cycle 5 data are very similar to, but more pronounced than, the Unit 1, Cycle 6 data over the same frequency band, e.g.,

1. The coherence peak shifts to a different frequency in the NI-5 x NI-7 detector pair than in the NI-6 x NI-8 detector pair.
2. The phase tends to go away from -180° over the 8-12 Hz frequency band. The NI-5 x NI-7 detector pair deviates from -180° in a direction opposite to that in the NI-6 x NI-8 detector pair.

The deviation in coherence and phase data from what (a) is expected and (b) has been observed in previous cycles is greater in Unit 2, Cycle 5 data than in Unit 1 Cycle 6 data.

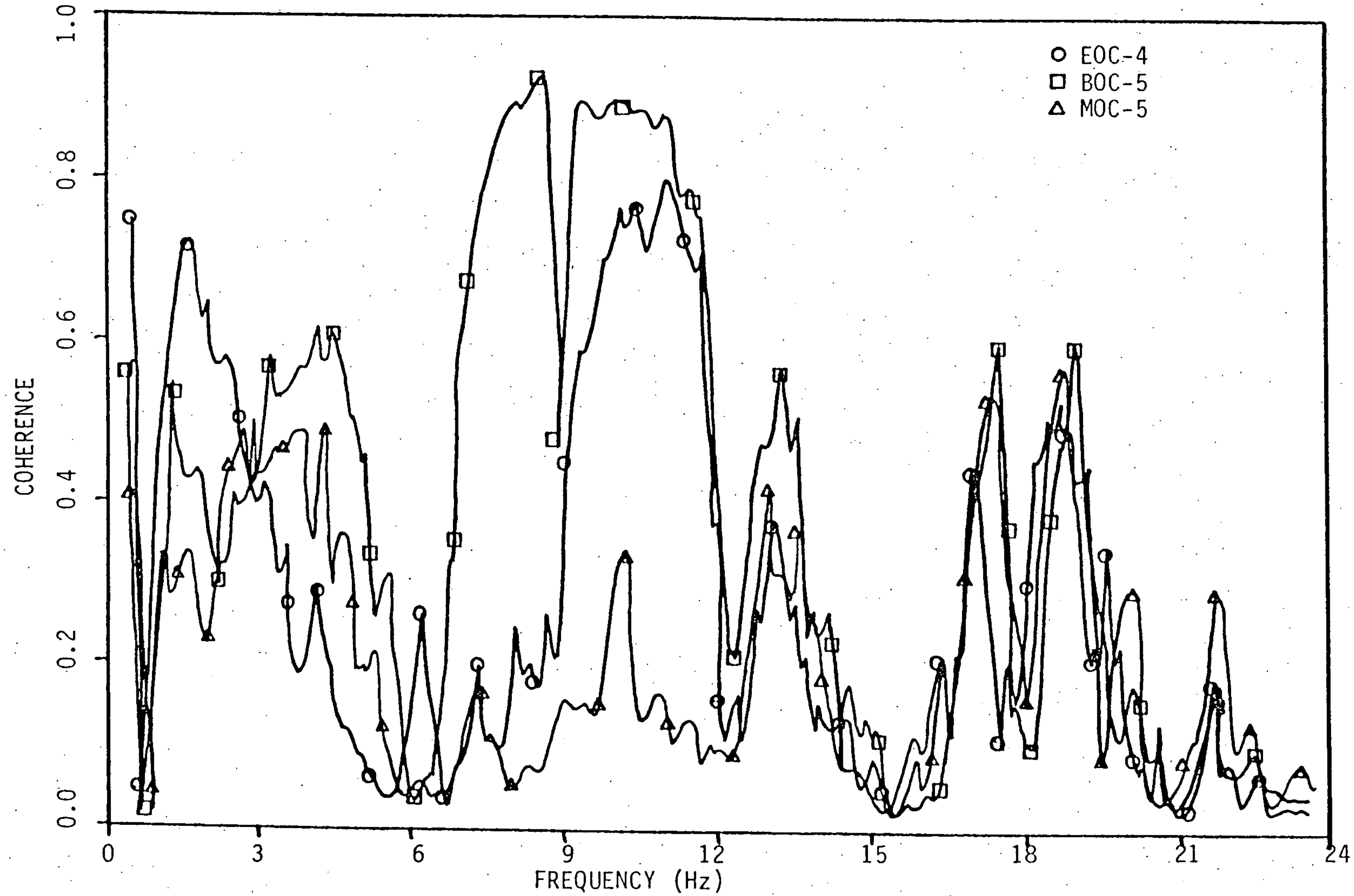

Figure 3-9. Trending of Coherence from Unit 2 Detector Pair NI-5 x NI-7.

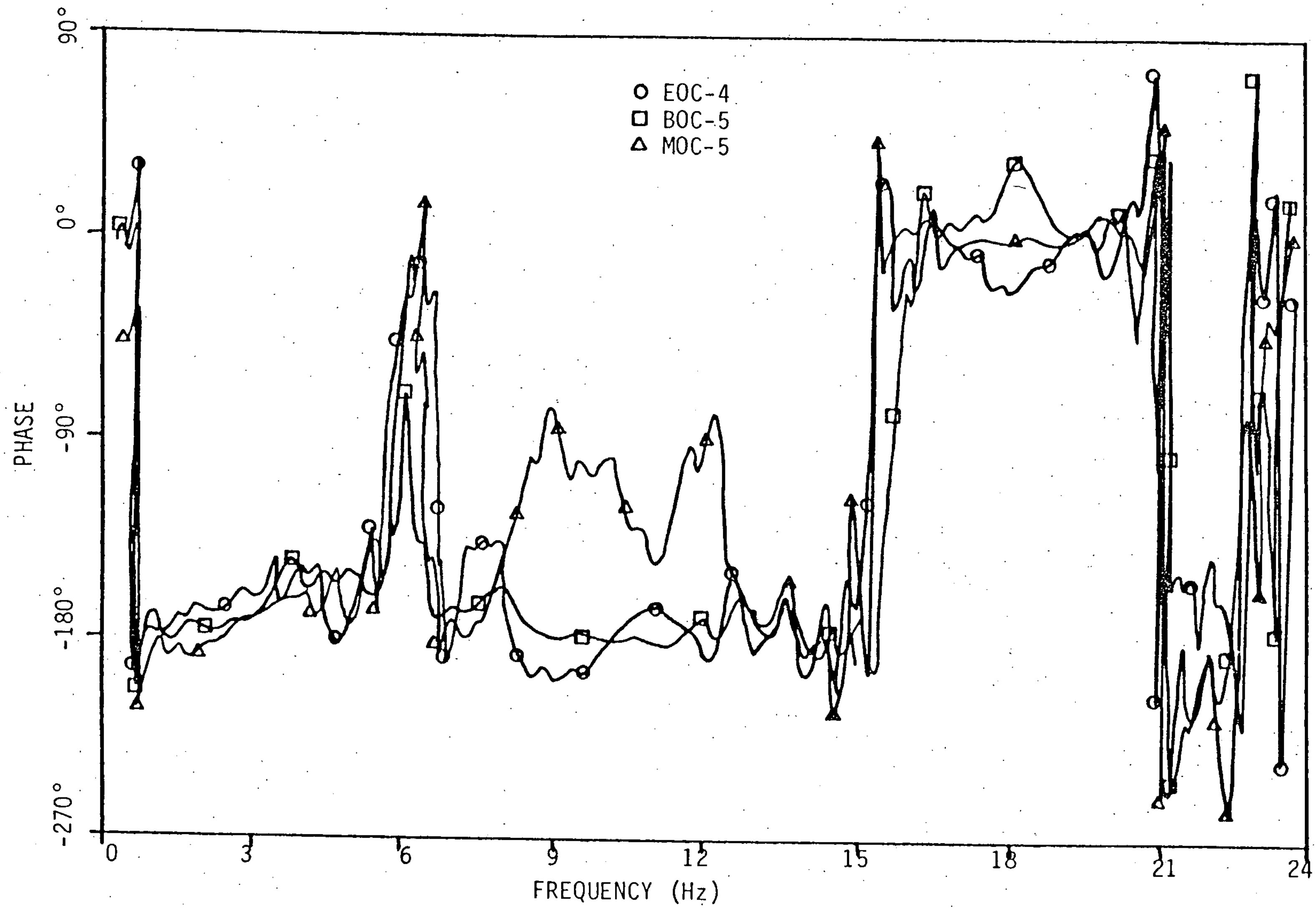

Figure 3-10. Trending of Phase from Unit 2 Detector Pair NI-5 x NI-7.

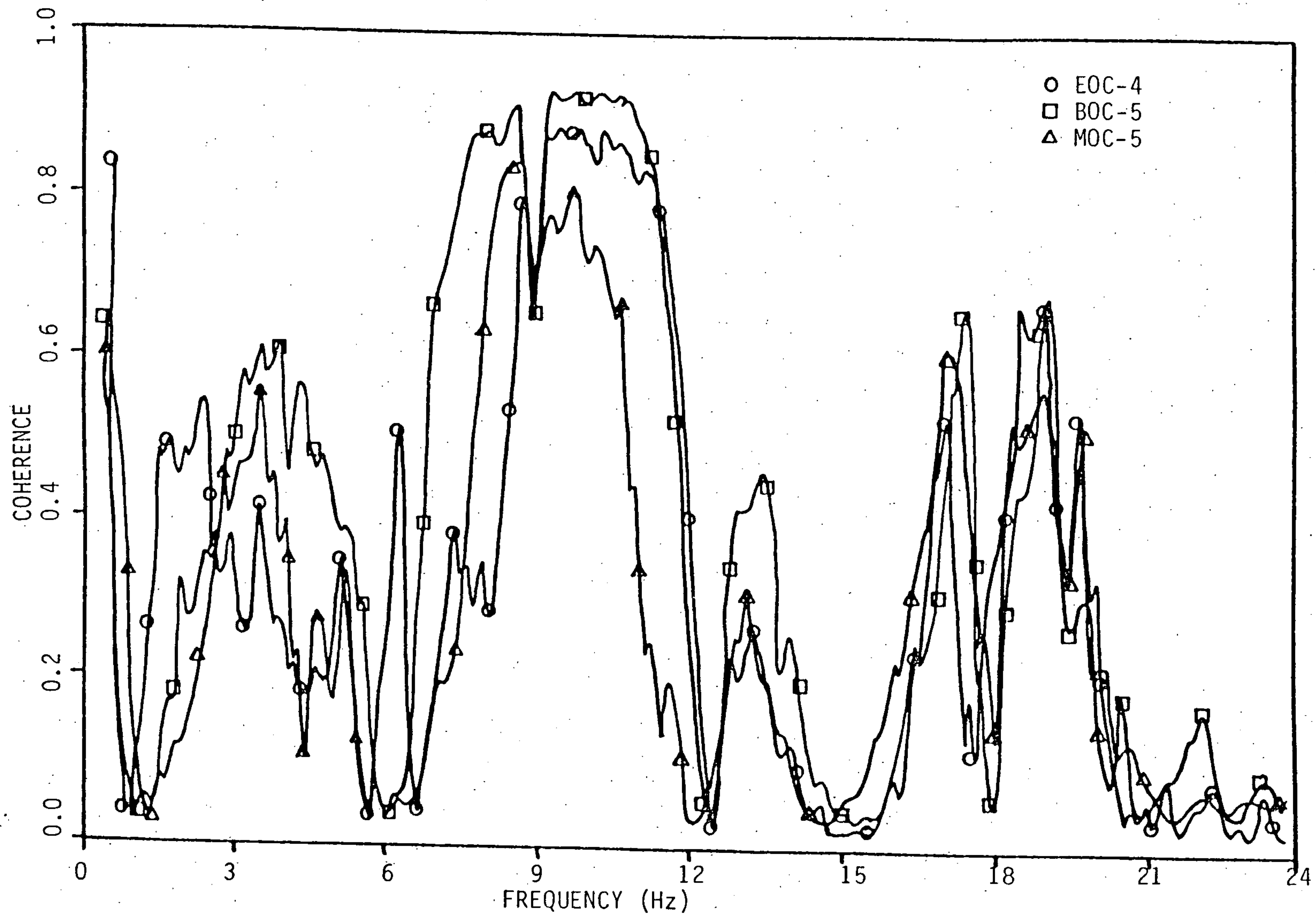

Figure 3-11. Trending of Coherence from Detector Pair NI-6 x NI-8.

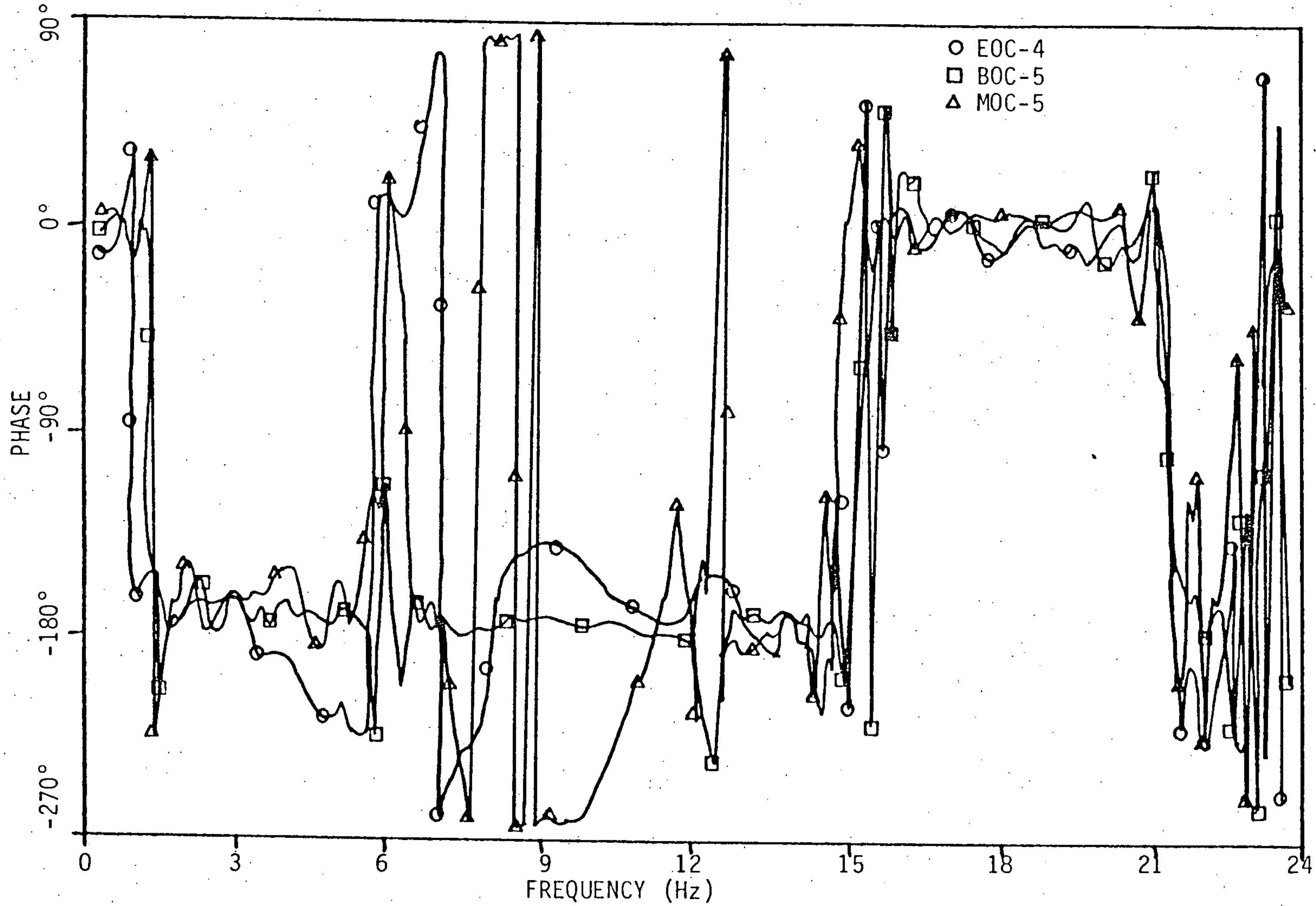

Figure 3-12. Trending of Phase from Detector Pair NI-6 x NI-8.

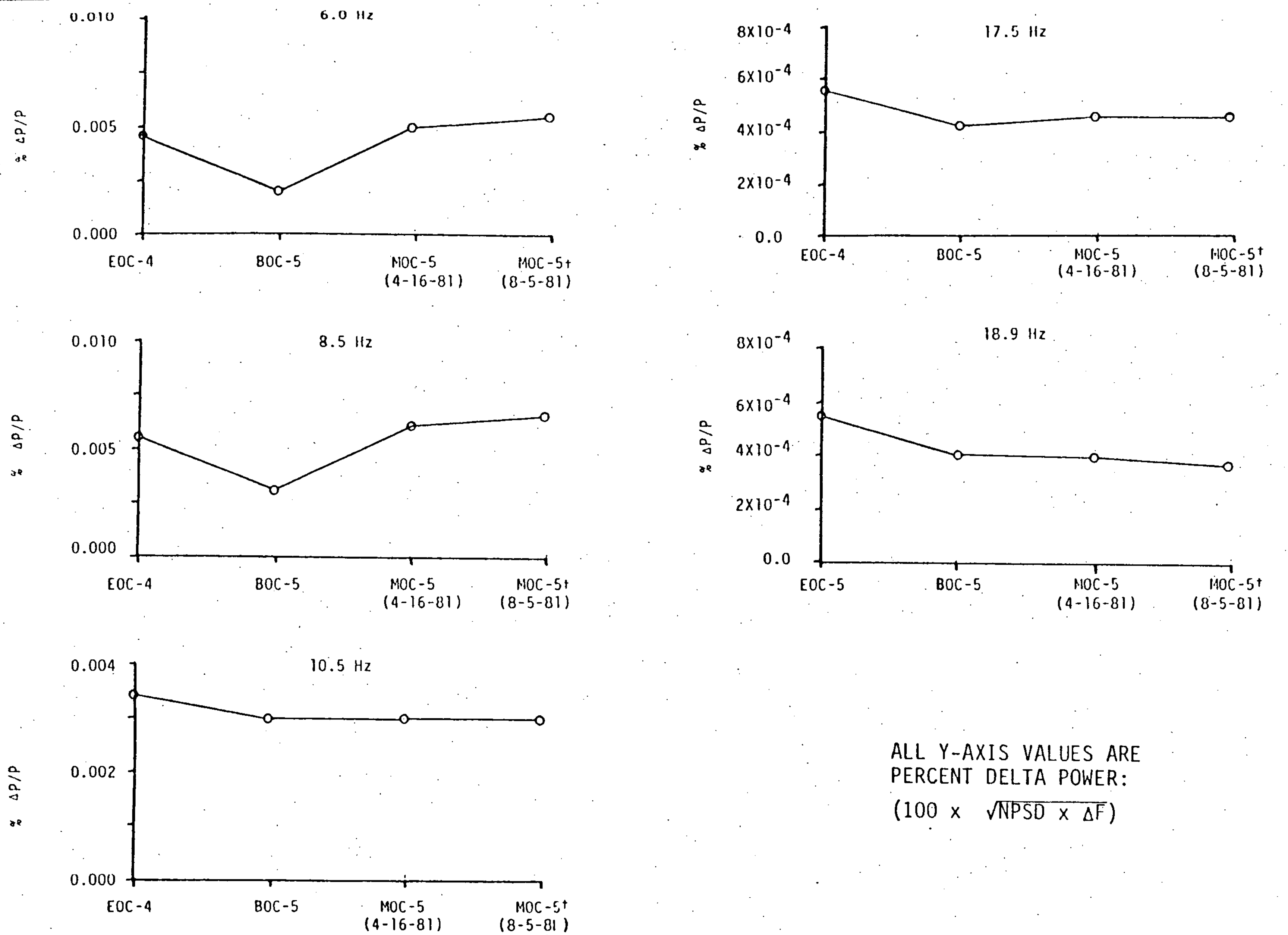

Figure 3-13. Percent Fractional Power Fluctuations from the Mean of the Four Excore Detectors.

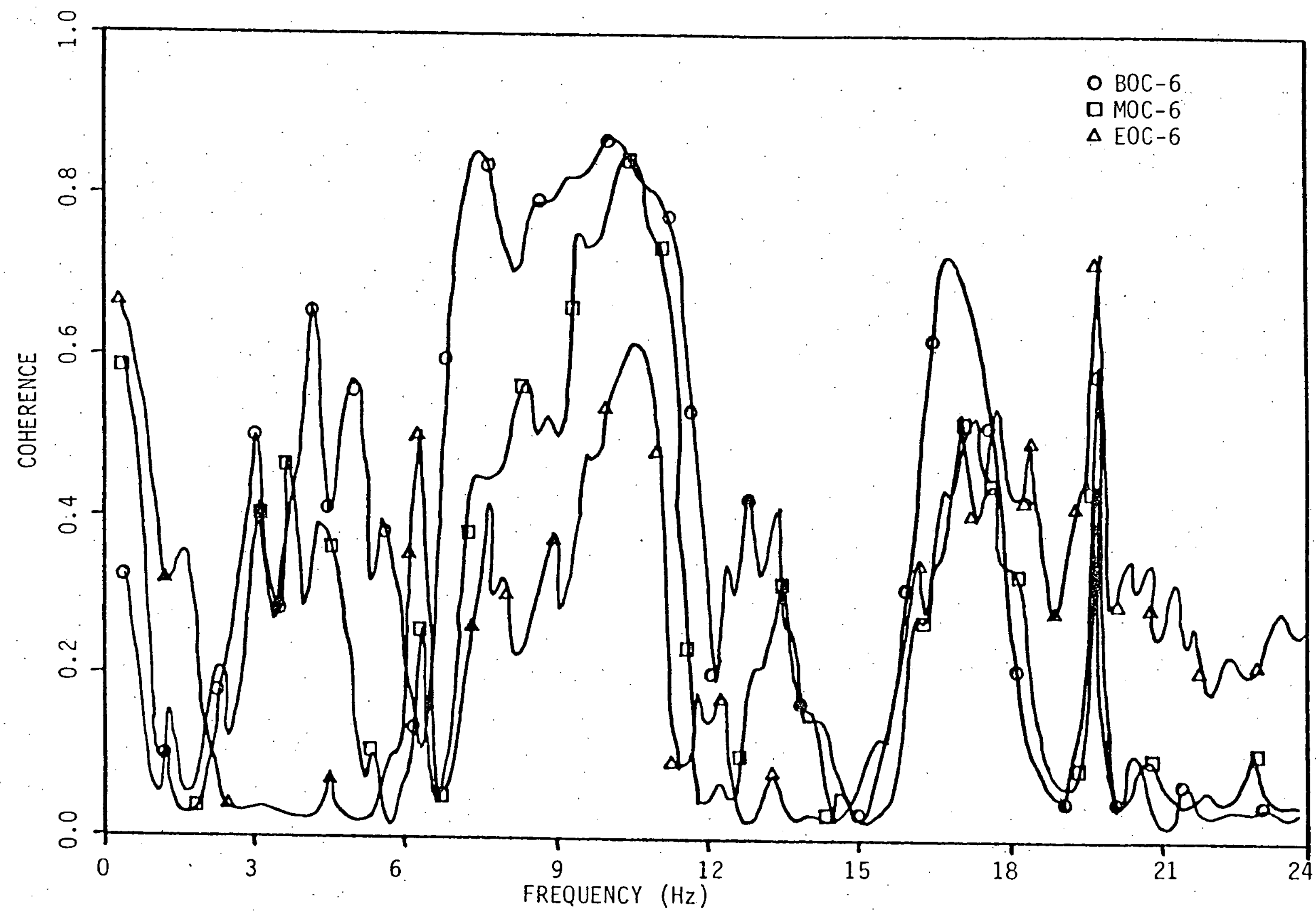

Figure 3-14. Coherence for Unit 1 Cycle 6 BOC, MOC, and EOC for Detector Pair NI-5 x NI-7.

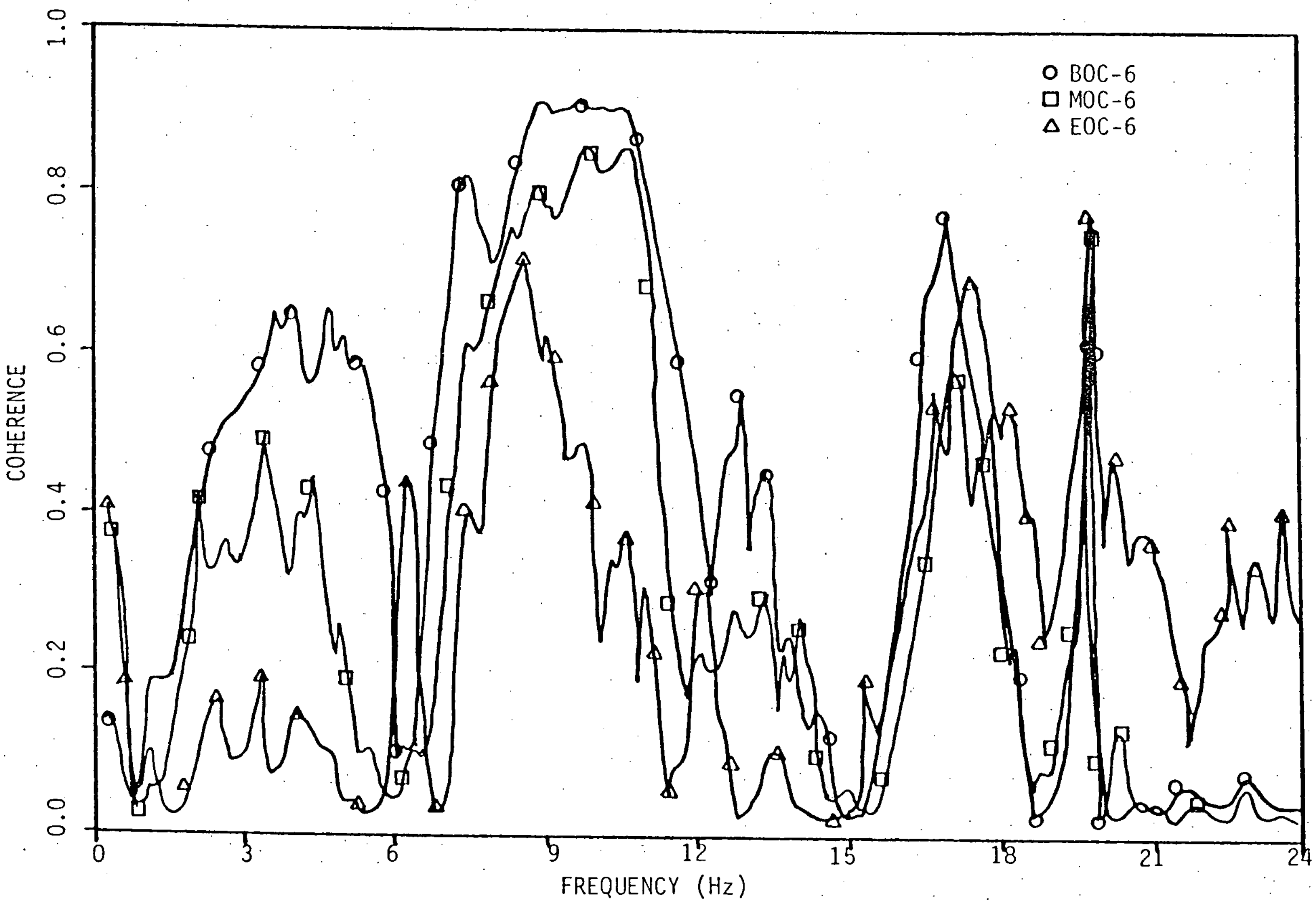

Figure 3-16. Coherence for Unit 1 Cycle 6 BOC, MOC, and EOC for Detector Pair NI-6 x NI-8.

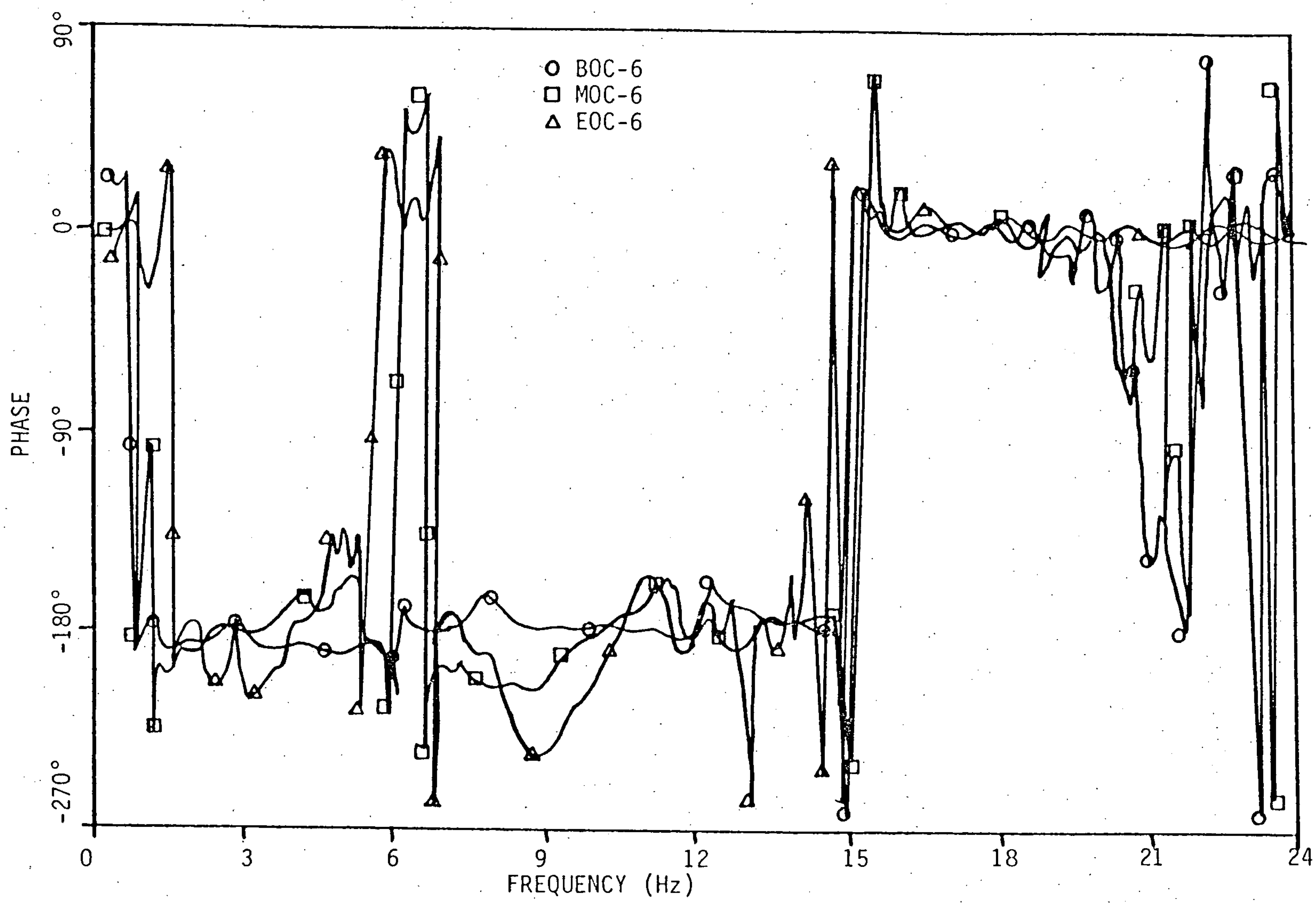

Figure 3-15. Phase for Unit 1 Cycle 6 BOC, MOC, and EOC for Detector Pair NI-5 x NI-7.

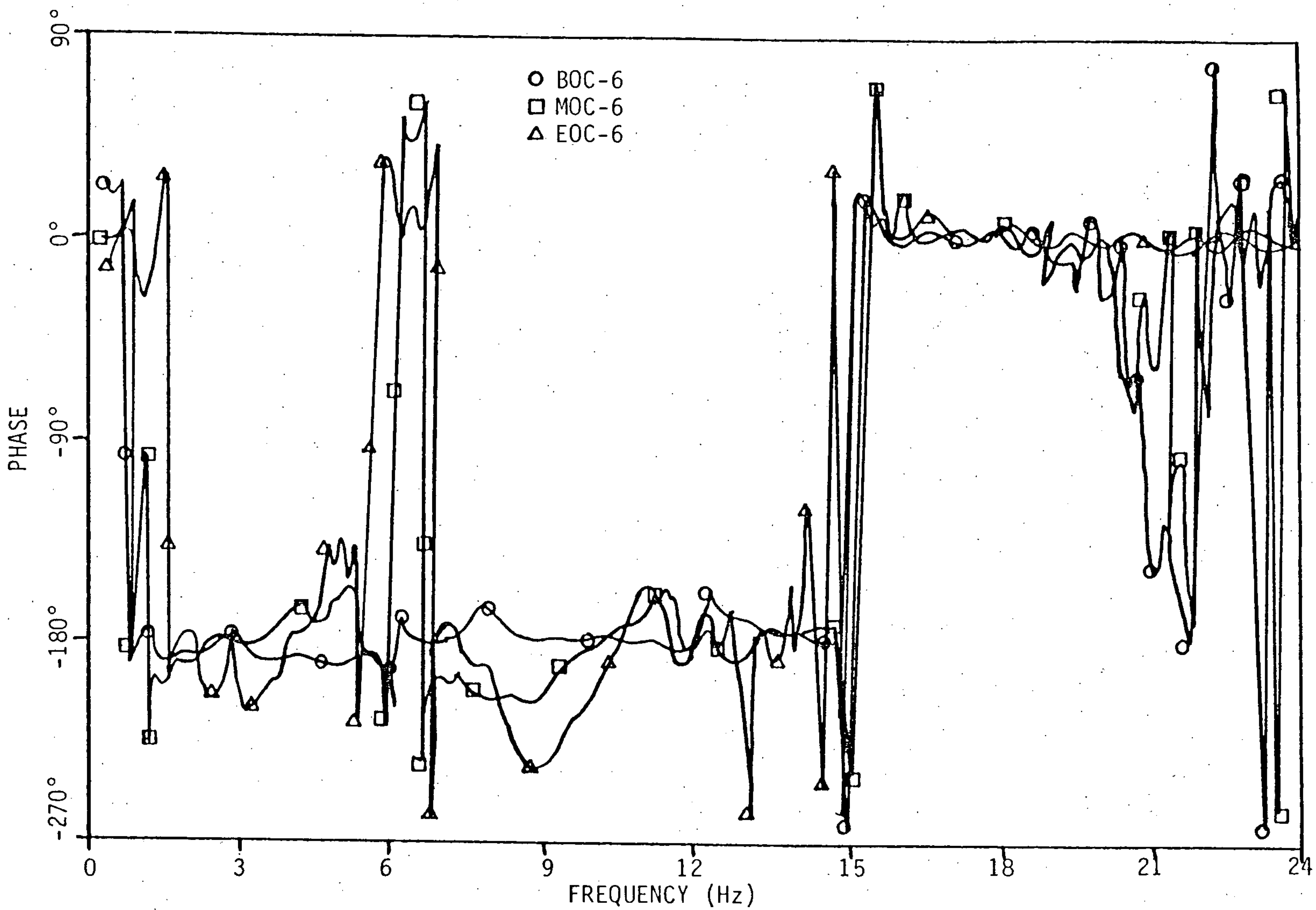

Figure 3-17. Phase for Unit 1 Cycle 6 BOC, MOC, and EOC for Detector Pair NI-6 x NI-8.

When considering the other significant frequency bands presented in the trending data, we are led to the following observations:

1. There are no observed significant changes in the fuel element frequency range of 2-5 Hz for Cycle 5 of Unit 2.
2. There are no observed significant changes in the shell mode frequency band for Cycle 5 of Unit 2.
3. The PSDs (energy at specified frequencies) exhibit no significant changes.

3.4 ADDITIONAL ANALYSIS

3.4.1 Upper-Lower Detector Analysis for Unit 2

Spectral analysis was performed for the upper detector pairs and lower detectors pairs separately for the MOC-5$^+$ data (recorded on August 5 and 6). If there are beam mode vibrations, one would expect the upper detectors to have slightly less energy in the CSB motion frequency band than the lower detector frequency band. The data obtained from this analysis are presented in the Addendum. As expected from beam mode motion, the energy in the upper detectors was slightly lower than in the lower detectors.

3.4.2 Excore Detector/Pressure Signal Analysis

In addition to the upper-lower detector recordings acquired on August 6, the narrow range B-loop pressure signal was also recorded. Correlation analysis between the pressure signal and excore detector demonstrated that the peak at 6 Hz was pressure related, but no additional correlation exists between pressure and the power range monitors. This is consistent with findings from other B&W plants.

3.5 FINDINGS OF CSB MOTION ANALYSIS

When analyzing passive data such as that presented here, it is always difficult to draw concrete conclusions, but one can eliminate some of the major scenarios. In Section 3.1, it was noted that there may be significant core barrel structural problems. These were:

1. Loose support of the core support assembly at the upper head
2. Loose core support assembly (either the lower grid assembly or core barrel assembly.

From the results presented in this section, we conclude that neither of these problems exist.

The loose core support assembly at the upper head is eliminated from the trending of the spectral analysis results at the core barrel frequency. If the core support assembly were beginning to loosen, the core barrel resonant frequency would be decreasing, and the PSDs at the corresponding resonant frequency would be increasing (observed to have happened at Palisades).

If the core support assembly were loosened at the lower grid assembly, one would anticipate a lowering in frequency of the fuel element resonant frequencies. There was no significant change in the fuel element vibrations; hence, it is concluded that the core support assembly did not loosen and slump down on the snubbers (thereby reducing core barrel motion).

If the core support assembly became loose at the core barrel assembly, it would be anticipated that the shell mode resonant frequency would decrease (an analysis would be required to determine how much). There was no observable decrease in shell mode resonant frequency during Cycle 5 of Unit 2. Therefore, a loose core support assembly at the core barrel assembly is unlikely.

From the trend data of the PSDs and the upper-lower detector analysis, one would conclude the beam mode CSB motion is present, as always. The phase and coherence do suggest some other effect is present. The similarity between the Cycle 5, Unit 2 data and the Cycle 6, Unit 1 data makes one suspicious that there may be a problem in Unit 2 similar to that which was found with Unit 1; however, there has not been any analysis which would identify the thermal shield problem in Unit 1 as being responsible for the behavior observed in the coherence and phase in Unit 1. Thus, one cannot conclude that there is a problem with the thermal shield in Unit 2. An alternate mechanism for the phase and coherence behavior may be some restrictive mechanism to induce systematic rub between the shock pads and guide lug(s).

4. CONCLUSIONS AND RECOMMENDATIONS

4.1 CONCLUSIONS

From the data and analyses presented in the previous section, our conclusions are:

1. The core support assembly is exhibiting beam mode vibration. The dominant frequency of the beam mode vibration has not changed significantly over the time we examined (since the EOC-4). If there had been a reduction in stiffness of the core support assembly, one would expect a reduction in resonant frequency.

2. From the fuel element vibration trending analysis, it was concluded that the chance of a loose lower grid assembly is small.

3. From the shell mode resonant frequency trending analysis, it was concluded that the chance of the core barrel assembly being loose is small.

4. The source of the unusual signature between excore power range monitor pairs in the coherence and phase are not understood at this time, but there are no indications of serious structural problems in the core support assembly.

4.2 RECOMMENDATIONS

Recommendations:

1. Based upon our conclusion that the core support assembly is exhibiting beam mode vibration at its nominal resonant frequency and fuel elements at their nominal resonant frequency, we recommend continued operation.

2. Based upon the unusual behavior between the coherence and phase relationship between cross-core power range monitors, we recommend:

   a. An increase in the frequency of monitoring the excore power range monitors until the end of this cycle.

b. Some examination of the core support assembly during the next refueling outage.

c. Monitoring of the in-core thermocouples and SPNDs (as is normally done) at OCONEE for any unusual indication of flow redistributions.

ENCLOSURE 3

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G	MOC 5, Unit 2
H	MOC 5, Unit 2
I	MOC 5, Unit 2
J	MOC 5, Unit 2
K	EOC 5, Unit 2
L	BOC 6, Unit 3
M	MOC 6, Unit 3
N	MOC 6, Unit 3

* This data compiled by either TEC or Duke personnel.

A

FUEL MOTION BAND (2-5 Hz)

DATA SET NAME:

LOWER AND UPPER CHAMBERS- EOC5 (UNIT 1)

Pairs	Freq. Band	Coherence	Phase	CPSD value	PSD2 value	PSD1 value	Observations
5-6	1.5-7 Hz	.2-.6	0°	X	decreasing- 10^{-7} to 10^{-8}	decreasing- 10^{-7} to 7×10^{-9}	large spike at 6 Hz (C=.6)
5-7	2-5 Hz	.3-.6	-180°	X	decreasing- 4×10^{-8} to 10^{-8}	X	—
5-8	—	—	—	—	—	—	spikes at 4 Hz (C=.2) and 5 Hz (C=.2)
6-7	—	—	—	—	—	—	small spikes (C=.1) at 2.5 & 4 Hz
6-8	1.5-4 Hz	.35-.65	-180°	X	X	X	—
7-8	—	—	—	—	—	—	broadband resonance about 4 Hz (C=.1-.2)

A

CBM Band (6-12 Hz)

DATA SET NAME:

LOWER AND UPPER CHAMBERS - EOC 5 (UNIT 1)

Pairs	Freq. Band	Coherence	Phase	CPSD value	PSD2 value	PSD1 value	Observations
5-6	12-16 Hz	.2-.5	0°	X	decreasing- 3×10^{-9} to 2×10^{-10}	decreasing 2×10^{-9} to 2×10^{-10}	resonance about 10 Hz (c<.1)
5-7	8-12 Hz	.4-.8	increasing from -180° to -150°	X	decreasing- 2×10^{-8} to 2×10^{-9}	X	broadband resonance about 13.5 Hz (c≈.3)
5-8	—	—	—	—	—	—	spikes at 6Hz (c=.25) and 7.5 Hz (c=.5),
6-7	—	—	—	—	—	—	spike at 6Hz (c=.4)
6-8	7-12 Hz	.45-.8	increasing- -225° to -180°	X	X	X	—
7-8	7-9.5	.1-.3	decreasing- 0 to -45°	X	X	X	spike at 6Hz (c=.5) and at 13 Hz (c=.25)

A

17.9 Hz

DATA SET NAME:

LOWER AND UPPER CHAMBERS - EOC 5 (UNIT 1)

Pairs	Freq. Band	Coherence	Phase	CPSD value	PSD2 value	PSD1 value	Observations
5-6	~18 Hz	.4	-180°	X	2×10^{-10}	2×10^{-10}	—
5-7	18 Hz	.6	0°	X	3×10^{-10}	X	—
5-8	18 Hz	.5	0°	X	3×10^{-10}	X	—
6-7	18 Hz	.55	-180°	X	X	X	—
6-8	~18 Hz	.7	0°	X	X	X	—
7-8	18 Hz	.5	-180°	X	X	X	—

A

19 Hz

DATA SET NAME:

LOWER AND UPPER CHAMBERS - EOC 5 (UNIT 1)

Pairs	Freq. Band	Coherence	Phase	CPSD value	PSD2 value	PSD1 value	Observations
5-6	20 Hz	.65	$-180°$	X	4×10^{-10}	4×10^{-10}	broadband resonance about 21.5 Hz (c=.3)
5-7	~20 Hz	.65	$0°$	X	4×10^{-10}	X	—
5-8	~20 Hz	.6	$-180°$	X	4×10^{-10}	X	broadband resonance about 22 Hz (c=.1-.2)
6-7	~20 Hz	.6	$-180°$	X	X	X	—
6-8	~20 Hz	.9	$0°$	X	X	X	—
7-8	~20 Hz	.6	$-180°$	X	X	X	—

FUEL MOTION BAND (2-5 Hz)

DATA SET NAME:

LOWER AND UPPER CHAMBERS - BOC 6 (UNIT 1)

Pairs	Freq. Band	Coherence	Phase	CPSD value	PSD2 value	PSD1 value	Observations
5-6	2-4.5 Hz	.15-.3	0°	X	2×10^{-8}	10^{-8}	—
5-7	2.5-5.5 Hz	.3-.6	-180°	X	decreasing - 1.5×10^{-8} to 2×10^{-9}	X	—
5-8	—	—	—	X	—	X	no activity in this band
6-7	—	—	—	X	X	X	no activity in this band
6-8	2-5 Hz	.5-.65	-180°	X	X	X	—
7-8	—	—	—	X	X	X	no activity in this band

CBM Band (6-12 Hz)

DATA SET NAME:

LOWER AND UPPER CHAMBERS - BOC 6 (UNIT 1)

Pairs	Freq. Band	Coherence	Phase	CPSD value	PSD2 value	PSD1 value	Observations
5-6	10.5-14.5 Hz	0-.2	fluctuates about 0°	X	decreasing-3×10^{-9} to 2×10^{-10}	decreasing-4×10^{-9} to 10^{-10}	spikes at 6 Hz (C=.2, Θ=0°) and 7.5 Hz (C=.2, Θ=45°)
5-7	6.5-11.5 Hz	.7-.85	-180°	X	$\sim 3 \times 10^{-9}$	X	broadband resonance about 13 Hz (C=.4, Θ=-180°)
5-8	11-14 Hz	.05-.25	fluctuates about -180°	X	decreasing-3×10^{-9} to 2×10^{-10}	X	—
6-7	—	—	—	X	X	X	small resonance over 8 to 10 Hz (C=.1-.15, Θ=~0°)
6-8	7-11 Hz	.7-.9	-180°	X	X	X	resonance about 13 Hz (C=.5, Θ=-180°)
7-8	—	—	—	X	X	X	small resonance over 11 to 14 Hz (C=.05-.2, Θ=~0°)

17.9 Hz

DATA SET NAME:

LOWER AND UPPER CHAMBERS - BOC 6 (UNIT 1)

Pairs	Freq.Band	Coherence	Phase	CPSD value	PSD2 value	PSD1 value	Observations
5-6	16-18 Hz	.4-.7	-180°	X	peak of 3×10^{-10} at 17 Hz	peak of 3×10^{-10} at 17 Hz	—
5-7	16-18 Hz	.4-.7	0°	X	peak of 3×10^{-10} at ~17 Hz	X	—
5-8	16-18 Hz	.4-.7	-180°	X	peak of 3×10^{-10} at 17 Hz	X	—
6-7	16-18 Hz	.4-.7	-180°	X	X	X	—
6-8	16.5-17.5 Hz	.5-.8	0°	X	X	X	—
7-8	16-17.5 Hz	.4-.65	-180°	X	X	X	—

B

19 Hz

DATA SET NAME:

LOWER AND UPPER CHAMBERS - BOC 6 (UNIT 1)

Pairs	Freq.Band	Coherence	Phase	CPSD value	PSDZ value	PSD1 value	Observations
5-6	~20Hz	.65	-180°	X	10^{-10}	1.5×10^{-10}	sharp increase in PSDZ and PSD1 at this frequency
5-7	~20Hz	.6	0°	X	10^{-10}	X	//
5-8	~20Hz	.8	-180°	X	2×10^{-10}	X	//
6-7	~20 Hz	.7	-180°	X	X	X	—
6-8	~20 Hz	.6	0°	X	X	X	—
7-8	~20 Hz	.7	-180°	X	X	X	—

FUEL MOTION BAND (2-5 Hz)

DATA SET NAME:

LOWER AND UPPER CHAMBERS - MOCG (UNIT 1)

Pairs	Freq. Band	Coherence	Phase	CPSD value	PSD2 value	PSD1 value	Observations
5-6	2-5 Hz	.3-.45	0°	X	decreasing - 4×10^{-8} to 7×10^{-9}	peak of 4×10^{-8} at ~3 Hz	—
5-7	2-4 Hz	.2-.4	fluctuates about -180°	X	1.5×10^{-10}	X	—
5-8	—	—	—	X	—	X	no activity in this band
6-7	—	—	—	X	X	X	"
6-8	2-4.5 Hz	.35-.5	-180°	X	X	X	—
7-8	—	—	—	X	X	X	spike at 5 Hz ($c=.2, \theta=0^\circ$)

CBM Band (6-12 Hz)

DATA SET NAME:

LOWER AND UPPER CHAMBERS - MOC 6 (UNIT 1)

Pairs	Freq. Band	Coherence	Phase	CPSD value	PSD2 value	PSD1 value	Observations
5-6	11-14 Hz	.2-.4	0°	X	decreasing- 10^{-9} to 2×10^{-10}	decreasing- 10^{-9} to 2×10^{-10}	spike at 6 Hz (C=.65); broadband resonance at 8 Hz (C=.2, Θ=-45°)
5-7	7-11 Hz	.5-.85	-180°	X	~5×10^{-9}	X	spike at 6Hz (C=.2); broadband resonance at 13Hz (C=.2, Θ=-180°)
5-8	—	—	—	X	—	X	spikes at 6Hz (C=.35) and 11 Hz (C=.2)
6-7	—	—	—	X	X	X	large spike at 6Hz (C=.5, Θ=0°)
6-8	7-11 Hz	.6-.85	fluctuates about -180°	X	X	X	resonance over 12 to 14.5 Hz (C=.2-.25, Θ=-180°)
7-8	7-9 Hz	.15-.3	shifts from 90° to -270°	X	X	X	spike at 6Hz (C=.35); resonance over 12.5 to 14.5 Hz (C=.1-.2, Θ=0°)

C

17.9 Hz

DATA SET NAME:

LOWER AND UPPER CHAMBERS - MOC 6 (UNIT 1)

Pairs	Freq. Band	Coherence	Phase	CPSD value	PSD2 value	PSD1 value	Observations
5-6	16.5-18 Hz	.4	-180°	X	10^{-10}	2×10^{-10}	—
5-7	16-18 Hz	.25-.55	0°	X	2×10^{-10}	X	—
5-8	16.5-18 Hz	.4-.5	-180°	X	2×10^{-10}	X	—
6-7	16.5-18 Hz	.4	-180°	X	X	X	—
6-8	16.5-18 Hz	.5-.6	0°	X	X	X	—
7-8	16.5-17.5 Hz	.3-.4	-180°	X	X	X	—

C

19 Hz

DATA SET NAME:

LOWER AND UPPER CHAMBERS – MOC 6 (UNIT 1)

Pairs	Freq. Band	Coherence	Phase	CPSD value	PSD2 value	PSD1 value	Observations
5-6	~20 Hz	.5	-180°	X	2×10^{-10}	2×10^{-10}	sharp increase in PSD2 and PSD1 at this frequency
5-7	~20 Hz	.4	0°	X	1.5×10^{-10}	X	//
5-8	~20 Hz	.55	fluctuates about -180°	X	3×10^{-10}	X	//
6-7	~20 Hz	.55	-180°	X	X	X	—
6-8	~20 Hz	.8	0°	X	X	X	—
7-8	~20 Hz	.55	-180°	X	X	X	—

FUEL MOTION BAND (2-5 Hz)

DATA SET NAME:

LOWER AND UPPER CHAMBERS - EOC 6 (UNIT 1)

Pairs	Freq. Band	Coherence	Phase	CPSD value	PSD2 value	PSD1 value	Observations
5-6	2-5 Hz	.4-.6	0°	X	decreasing - 10^{-7} to 10^{-8}	decreasing 7×10^{-8} to 7×10^{-9}	—
5-7	—	—	—	X	—	X	no activity in this band
5-8	—	—	—	X	—	X	no activity in this band
6-7	1.5-3.5 Hz	.1-.2	30°	X	X	X	spike at 1 Hz (c=.4)
6-8	2-4.5 Hz	.1-.2	-180°	X	X	X	—
7-8	3-5 Hz	.2-.3	fluctuates about 0°	X	X	X	—

CBM Band (6-12 Hz)

D

DATA SET NAME:

LOWER AND UPPER CHAMBERS - EOC 6 (UNIT 1)

Pairs	Freq. Band	Coherence	Phase	CPSD value	PSD2 value	PSD1 value	Observations
5-6	8-15 Hz	.15-.45	fluctuates about 0°	X	decreasing - 2×10^{-8} to 2×10^{-10}	decreasing - 10^{-8} to 2×10^{-10}	large spike at ~6Hz (C=.8)
5-7	7.5-11 Hz	.2-.6	increases -180° to -135° then drops to -270°	X	peaks of 10^{-8} at 6 and 8 Hz	X	large spike at 6 Hz (C=.5)
5-8	9-10.5 Hz	.1-.2	0°	X	7×10^{-9}	X	large spike at ~6Hz (C=.6, Θ=0°)
6-7	—	—	—	—	—	—	spikes at 6Hz (C=.7, Θ=8) and 8 Hz (C=.45, Θ=0°); resonance over 10 to 12 Hz (C=.1-.2, Θ=-225°)
6-8	7.5-11 Hz	.3-.7	decreases -180° to -225°, then increases to -180°	X	X	X	spikes at 6Hz (C=.4) and 12 Hz (C=.3)
7-8	11-15 Hz	.15-.3	increase from -45° to 0° (11-12Hz); 0° (12-15 Hz)	X	X	X	large spikes at 6Hz (C=.7, Θ=0°) and ~9Hz (C=.6, Θ=90°)

D

17.9 Hz

DATA SET NAME:

LOWER AND UPPER CHAMBERS - EOC 6 (UNIT 1)

Pairs	Freq. Band	Coherence	Phase	CPSD value	PSD2 value	PSD1 value	Observations
5-6	17-17.5 Hz	.2	-200°	X	2×10^{-10}	2×10^{-10}	—
5-7	16.5-18.5 Hz	.3-.5	0°	X	2×10^{-10}	X	—
5-8	~17 Hz	.3	-180°	X	2×10^{-10}	X	—
6-7	~17.5 Hz	.25	-180°	X	X	X	—
6-8	16.5-18.5 Hz	.4-.7	0°	X	X	X	—
7-8	~17.5 Hz	.15	-180°	X	X	X	—

D

19 Hz

DATA SET NAME:

LOWER AND UPPER CHAMBERS - EOC 6 (UNIT 1)

Pairs	Freq. Band	Coherence	Phase	CPSD value	PSD2 value	PSD1 value	Observations
5-6	~20 Hz	.2	-180°	X	4×10^{-10}	2×10^{-10}	sharp increase in PSD2 and PSD1 at this frequency
5-7	~20 Hz	.75	0°	X	2×10^{-10}	X	//
5-8	~20 Hz	.25	-180°	X	3×10^{-10}	X	//
6-7	~20 Hz	.2	fluctuates about -180°	X	X	X	—
6-8	~20 Hz	.75	0°	X	X	X	—
7-8	~20 Hz	.4	-180°	X	X	X	—

FUEL MOTION BAND (2-5 Hz)

DATA SET NAME:

LOWER AND UPPER CHAMBERS – EOC 4 (UNIT 2)

Pairs	Freq. Band	Coherence	Phase	CPSD value	PSD2 value	PSD1 value	Observations
5-6	2-8 Hz	.2-.6	0° (2-7 Hz), 0° to -45° to 90° from 7 to 8 Hz	X	decreasing 2×10^{-8} to 4×10^{-9}	2 peaks – 2×10^{-8} at 6 Hz, 4×10^{-8} at 8 Hz	4 spikes in region – at 2.5, 5, 6.5, & 7.5 Hz
5-7	1-4.5 Hz	.2-.7	−180°	X	decreasing 10^{-6} to 10^{-8}	X	—
5-8	1-3 Hz	.1-.25	−160°	X	decreasing 3×10^{-7} to 2×10^{-8}	X	broadband resonance about 4.3 Hz (c=.1)
6-7	—	—	—	X	X	X	—
6-8	1-5 Hz	.2-.5	decreasing – from −170° to −230°	X	X	X	2 spikes in region – at 3.5 & 5 Hz
7-8	1.5-3.5 Hz	.1-.3	increasing – from 0° to 45°	X	X	X	large resonance over 3.5 to 8 Hz (c = .3 to .6)

E

CBM Band (6-12 Hz)

DATA SET NAME:

LOWER AND UPPER CHAMBERS – EOC 4 (UNIT 2)

Pairs	Freq. Band	Coherence	Phase	CPSD value	PSD2 value	PSD1 value	Observations
5-6	11-16 Hz	0-.45	0°	X	decreasing- 10^{-8} to 2×10^{-10}	decreasing- 10^{-8} to 2×10^{-10}	large resonance between 8 & 11 Hz (C= .2)
5-7	9-12 Hz	.6-.8	-180°	X	decreasing- 10^{-8} to 4×10^{-9}	X	spike at 6 Hz (C=.2), broadband resonance about 13 Hz (C=.4)
5-8	8-9.5 Hz	.2-.3	decreases from +45° to -45°	X	decreasing- 6×10^{-7} to 1.5×10^{-7}	X	spikes at 6 Hz (C=.4), 11 Hz (C=.2), and 11.5 Hz (C=.25)
6-7	—	—	—	X	X	X	spikes at 6 Hz (C=.55), 8 Hz (C=.6), 10 Hz (C=.2), and 11.5 Hz (C=.15)
6-8	8-12 Hz	.8-.9	decreases from -135° to -180°	X	X	X	spike at 6 Hz (C=.5), broad band resonance about 13.5 Hz (C=.2)
7-8	11-15 Hz	.2-.3	0°	X	X	X	large resonance over 3.5 to 8 Hz (C=.3 to .6)

17.9 Hz

DATA SET NAME:

LOWER AND UPPER CHAMBERS – EOC 4 (UNIT 2)

Pairs	Freq. Band	Coherence	Phase	CPSD value	PSD2 value	PSD1 value	Observations
5-6	~17 Hz	.4	−180°	X	3×10^{-10}	3×10^{-10}	—
5-7	~17 Hz	.45	0°	X	4×10^{-10}	X	—
5-8	~17 Hz	.5	−180°	X	4×10^{-10}	X	—
6-7	~17 Hz	.4	−180°	X	X	X	—
6-8	~17 Hz	.5	0°	X	X	X	—
7-8	~17 Hz	.45	−180°	X	X	X	—

E

19 Hz

DATA SET NAME:

LOWER AND UPPER CHAMBERS - EOC 4 (UNIT 2)

Pairs	Freq. Band	Coherence	Phase	CPSD value	PSD2 value	PSD1 value	Observations
5-6	~19 Hz	.6	-180°	X	3×10^{-10}	3×10^{-10}	spike at 22.5 Hz (C=.2)
5-7	18.5-19.5 Hz	.5	0°	X	3×10^{-10}	X	spike at 22 Hz (C=.2)
5-8	~19 Hz	.55	-180°	X	3×10^{-10}	X	broadband resonance about 22 Hz (C=.2)
6-7	18.5-19.5 Hz	.5	-180°	X	X	X	resonance between 21.5 & 23 Hz (C=.1)
6-8	18-20.5 Hz	.3-.7	0°	X	X	X	—
7-8	18-20 Hz	.6	-180°	X	X	X	spike at 22 Hz (C=.4)

FUEL MOTION BAND (2-5 Hz)

DATA SET NAME:

LOWER AND UPPER CHAMBERS - BOC 5 (UNIT 2)

Pairs	Freq. Band	Coherence	Phase	CPSD value	PSD2 value	PSD1 value	Observations
5-6	2-5 Hz	.1-.3	fluctuates about 0°	X	peak of 2×10^{-8} at 3.5 Hz	decreasing - 2×10^{-8} to 4×10^{-9}	—
5-7	1-5 Hz	.3-.6	-180°	X	X	X	—
5-8	—	—	—	X	X	X	broadband resonance about 2.5 Hz (C=.1-.2, θ=-180°) and 5 Hz (C=.1-.2, θ=-135°)
6-7	—	—	—	X	X	X	no activity in this band
6-8	2-5 Hz	.3-.6	-180°	X	X	X	—
7-8	1.5-3 Hz	.1-.25	fluctuates about 0°	X	2×10^{-8}	2×10^{-8}	—

CBM Band (6-12 Hz)

DATA SET NAME:

LOWER AND UPPER CHAMBERS- BOC 5 (UNIT 2)

Pairs	Freq.Band	Coherence	Phase	CPSD value	PSD2 value	PSD1 value	Observations
5-6	—	—	—	X	—	—	spike at ~11 Hz (C=.35, Θ=0°); resonance over 13 to 15 Hz (C=.2, Θ=0°)
5-7	6.5-12 Hz	.6-.9	-180°	X	X	X	resonance about 13 Hz (C=.4-.6, Θ=-180°)
5-8	—	—	—	X	X	X	resonance over 11 to 12 Hz (C=.3, Θ=-180°)
6-7	—	—	—	X	X	X	no activity in this band
6-8	6.5-12 Hz	.6-.9	-180°	X	X	X	spike at ~13 Hz (C=.4, Θ=-180°)
7-8	—	—	—	X	—	—	small resonances over 8 to 10 Hz (C=~.1, Θ=-180°) and 11 to 15 Hz (C=.1-.2, Θ=0°)

17.9 Hz

F

DATA SET NAME:

LOWER AND UPPER CHAMBERS – BOC 5 (UNIT 2)

Pairs	Freq. Band	Coherence	Phase	CPSD value	PSD2 value	PSD1 value	Observations
5-6	~17.5 Hz	.6	-180°	X	1.5×10^{-10}	10^{-10}	—
5-7	~17.5 Hz	.6	0°	X	X	X	—
5-8	~17.5 Hz	.6	-180°	X	X	X	—
6-7	~17.5 Hz	.6	-180°	X	X	X	—
6-8	~17.5 Hz	.65	0°	X	X	X	—
7-8	~17.5 Hz	.6	-180°	X	2×10^{-10}	2×10^{-10}	—

F

19 Hz

DATA SET NAME:

LOWER AND UPPER CHAMBERS - BOC 5 (UNIT 2)

Pairs	Freq. Band	Coherence	Phase	CPSD value	PSD2 value	PSD1 value	Observations
5-6	~19 Hz	.7	-180°	X	1.5×10^{-10}	2×10^{-10}	spike at ~22 Hz (C=.25, Θ=-180°)
5-7	~19 Hz	.6	0°	X	X	X	spike at ~22 Hz (C=.2, Θ=-180°)
5-8	19 Hz	.7	-180°	X	X	X	spike at ~22 Hz (C=.35, Θ=0°)
6-7	19 Hz	.7	-180°	X	X	X	—
6-8	~19 Hz	.6	0°	X	X	X	spike at ~22 Hz (C=.2, Θ=-180°)
7-8	~19 Hz	.6	-180°	X	1.5×10^{-10}	1.5×10^{-10}	spike at 22 Hz (C=.4, Θ=-180°)

FUEL MOTION BAND (2-5 Hz)

DATA SET NAME:

LOWER AND UPPER CHAMBERS - MOC 5 (UNIT 2)

Pairs	Freq. Band	Coherence	Phase	CPSD value	PSD2 value	PSD1 value	Observations
5-6	4-7.5 Hz	.3-.6	0°	X	10^{-8} - 3×10^{-8}	10^{-8} - 3×10^{-8}	resonance over 2 to 3.5 Hz (C=.3, Θ=0°)
5-7	1-5 Hz	.2-.5	-180°	X	decreasing- 10^{-6} to 2×10^{-8}	decreasing- 10^{-7} to 2×10^{-8}	—
5-8	2-5.5 Hz	.1-.25	fluctuates about -180°	X	X	X	—
6-7	—	—	—	X	X	X	no activity in this band
6-8	2-5.5 Hz	.1-.5	fluctuates about -180°	X	X	X	—
7-8	1-6 Hz	.1-.4	0°	decreasing- 3×10^{-8} to 5×10^{-7}	decreasing- 10^{-7} to 10^{-8}	decreasing- 3×10^{-7} to 2×10^{-8}	—

CBM Band (6-12 Hz)

DATA SET NAME:

LOWER AND UPPER CHAMBERS - MOC 5 (UNITZ)

Pairs	Freq Band	Coherence	Phase	CPSD value	PSD2 value	PSD1 value	Observations
5-6	8-10.5 Hz	.2-.55	decreases from -45° to -90°	X	decreasing- 5×10^{-8} to 10^{-9}	decreasing 2×10^{-8} to 10^{-9}	large resonance over 12 to 16 Hz (c=.1-.4, θ=0°)
5-7	12.5-14 Hz	.3	fluctuates about -180°	X	decreasing- 10^{-9} to 3×10^{-10}	decreasing 10^{-9} to 3×10^{-10}	spikes at 7 Hz (c=.15) and 10 Hz (c=.3), some resonance over 9 to 12 Hz (c ≃.1)
5-8	7-10.5 Hz	.1-.45	abrupt jump from -270° to 90° at 8 Hz, decrease to 0° at 10.5 Hz	X	X	X	spike at 6 Hz (c=.2) and at 7.5 Hz (c=.45)
6-7	6-10.5 Hz	.1-.65	increase from -45° to 45° (6-10.5 Hz) abrupt jump to -270° at 10.5 Hz	X	X	X	—
6-8	7.5-11 Hz	.7-.8	wild fluctuations from 90° to -270°	X	X	X	broadband resonance about 13.5 Hz (c=.25, θ=-180°)
7-8	8-12 Hz	.3-.6	45° from 8 to 10 Hz, decrease to 0° at 12 Hz	peak of 3×10^{-8} at 8.5 Hz	peak of 2×10^{-8} at 8.5 Hz	peak of 7×10^{-8} at 8.5 Hz	spike at 15 Hz (c=.2)

17.9 Hz

DATA SET NAME:

LOWER AND UPPER CHAMBERS - MOC 5 (UNIT 2)

Pairs	Freq. Band	Coherence	Phase	CPSD value	PSD2 value	PSD1 value	Observations
5-6	~17.5 Hz	.2	-180°	X	2×10^{-10}	2×10^{-10}	—
5-7	~17.2 Hz	.5	0°	X	3×10^{-10}	10^{-10}	—
5-8	~17.5 Hz	.4	-180°	X	X	X	—
6-7	~17.2 Hz	.2	-180°	X	X	X	—
6-8	~17.2 Hz	.6	0°	X	X	X	—
7-8	~17.5 Hz	.5	-180°	2×10^{-10}	3×10^{-10}	3×10^{-10}	—

G

19 Hz

DATA SET NAME:

LOWER AND UPPER CHAMBERS – MOC 5 (UNIT 2)

Pairs	Freq. Band	Coherence	Phase	CPSD value	PSD2 value	PSD1 value	Observations
5-6	19 Hz	.4	-180°	X	10^{-10}	10^{-10}	—
5-7	~19 Hz	.4-.5	0°	X	2×10^{-10}	10^{-10}	spikes at 20 Hz (c=.3) and 22 Hz (c=.2)
5-8	19 Hz	.4	-180°	X	X	X	broadband resonance about 22 Hz (c=.1-.2)
6-7	19 Hz	.45	-180°	X	X	X	spike at 22.5 Hz (c=.2)
6-8	~19 Hz	.5	0°	X	X	X	—
7-8	19 Hz	.4	-180°	10^{-10}	1.5×10^{-10}	2×10^{-10}	spike at 22 Hz (c=.35)

FUEL MOTION BAND (2-5 Hz)

DATA SET NAME:

LOWER CHAMBERS - TEC FIELD DATA MOC 5 (UNIT 2)

Pairs	Freq. Band	Coherence	Phase	CPSD value	PSD2 value	PSD1 value	Observations
5-6	2-4 Hz	.1-.2	0°	2×10^{-8}	peak of 6×10^{-8} at 3.5 Hz	decreasing 10^{-7} to 3×10^{-8}	—
5-7	1-4 Hz	.3-.5	-180°	5×10^{-8}	decreasing - 10^{-6} to 4×10^{-8}	decreasing - 10^{-6} to 4×10^{-8}	—
5-8	—	—	—	—	—	—	broadband resonance about 3 Hz (C=.1)
6-7	—	—	—	—	—	—	no activity in region
6-8	2-4 Hz	.2-.5	fluctuates about -180°	peak of 4×10^{-8} at ~3 Hz	peak of 6×10^{-8} at ~3 Hz	peak of 6×10^{-8} at ~3 Hz	—
7-8	1-3 Hz	.1-.35	fluctuates about 0°	4×10^{-8}	6×10^{-8}	8×10^{-8}	resonance over 4.5 to 5 Hz (C=.2-.3)

UPPER CHAMBERS - TEC FIELD DATA MOC 5 (UNIT 2)

Pairs	Freq. Band	Coherence	Phase	CPSD value	PSD2 value	PSD1 value	Observations
5-7	1.5-4.5 Hz	.3-.5	-180°	decreasing - 10^{-7} to 10^{-8}	8×10^{-8}	decreasing 2×10^{-7} to 2×10^{-8}	—
6-8	2.5-4 Hz	.3-.5	-180°	4×10^{-8}	5×10^{-8}	5×10^{-8}	—
6-7	—	—	—	—	—	—	small resonances about 2.5, 3.5, and 4.5 Hz (C<.1)

CBM Band (6-12 Hz)

DATA SET NAME:

LOWER CHAMBERS - TEC FIELD DATA. MOC 5 (UNIT 2)

Pairs	Freq. Band	Coherence	Phase	CPSD value	PSD2 value	PSD1 value	Observations
5-6	5-10 Hz	.3-.7	0° (5 to 7 Hz), decreases to -90° at 10 Hz	peak of 2×10^{-8} at 8.5 Hz	peak of 5×10^{-8} at 8.5 Hz	peak of 3×10^{-8} at 8.5 Hz	large resonance over 12 to 16 Hz, C=.2-.5, θ=0°
5-7	9.5-11 Hz	.3-.5	fluctuates about -135°	decreasing 6×10^{-8} to 10^{-9}	decreasing- 2×10^{-8} to 2×10^{-9}	decreasing- 10^{-8} to 2×10^{-9}	broadband resonance about 13 Hz (C=.2)
5-8	9-11 Hz	.2-.4	decreases from 45° to 0°	8×10^{-9}	decreasing- 2×10^{-8} to 3×10^{-9}	decreasing- 2×10^{-8} to 2×10^{-9}	spikes at ~6 Hz (C=.2) and 12.5 Hz (C=.2)
6-7	6.5-10 Hz	.2-.5	fluctuates about 0°	peak of 4×10^{-8} at 8.5 Hz	peak of 7×10^{-8} at 8.5 Hz	peak of 5×10^{-8} at 8.5 Hz	—
6-8	7-11 Hz	.4-.8	wildly flutuating- 0° to -270°	peak of 4×10^{-8} at ~9 Hz	peak of 3×10^{-8} at ~9 Hz	peak of 5×10^{-8} at ~9 Hz	broadband resonance around 13 to 14 Hz (C=.1-.2)
7-8	7-10 Hz	.4-.6	increases from 0° to 45°	peak of 4×10^{-8} at 8.5 Hz	peak of 3×10^{-8} at 8.5 Hz	peak of 7×10^{-8} at 8.5 Hz	2 spikes about 6 Hz (C=.5), broadband resonance around 12-13 Hz (C=.4)

UPPER CHAMBERS - TEC FIELD DATA MOC 5 (UNIT 2)

Pairs	Freq. Band	Coherence	Phase	CPSD value	PSD2 value	PSD1 value	Observations
5-7	9-11 Hz	.3-.6	-90°	decreasing- 10^{-8} to 3×10^{-10}	decreasing- 3×10^{-8} to 10^{-9}	decreasing- 10^{-8} to 2×10^{-9}	resonance around 7.5 to 8.5 Hz (C=.1-.2); also about 13 Hz (C=.2)
6-8	8-10 Hz	.5-.8	fluctuates from 90° to -270° 5 times	peak of 3×10^{-8} at 8.5 Hz	peak of 2×10^{-8} at 8.5 Hz	peak of 5×10^{-8} at 8.5 Hz	spike at 6 Hz (C=.2), resonance around 12 to 14 Hz (C≃.1)
6-7	6.5-10 Hz	.2-.55	fluctuates about 0°	peak of 3×10^{-8} at 8.5 Hz	peak of 5×10^{-8} at 8.5 Hz	peak of 4×10^{-8} at 8.5 Hz	spikes at 11 Hz (C=.3) and 12.5 Hz (C=.2)

17.9 Hz

DATA SET NAME:

LOWER CHAMBERS - TEC FIELD DATA MOC 5 (UNIT 2)

Pairs	Freq. Band	Coherence	Phase	CPSD value	PSD2 value	PSD1 value	Observations
5-6	17.5 Hz	.15	-180°	10^{-10}	2×10^{-10}	2×10^{-10}	—
5-7	17.5 Hz	.25	0°	10^{-10}	3×10^{-10}	2×10^{-10}	—
5-8	17.5 Hz	.2	-180°	10^{-10}	4×10^{-10}	2×10^{-10}	—
6-7	17.5 Hz	.2	-180°	10^{-10}	3×10^{-10}	2×10^{-10}	—
6-8	~17 Hz	.4	0°	2×10^{-10}	3×10^{-10}	2×10^{-10}	—
7-8	17.5 Hz	.25	-180°	2×10^{-10}	4×10^{-10}	3×10^{-10}	—

UPPER CHAMBERS - TEC FIELD DATA MOC 5 (UNIT 2)

Pairs	Freq. Band	Coherence	Phase	CPSD value	PSD2 value	PSD1 value	Observations
5-7	16.5-17.5 Hz	.4-.5	0°	2×10^{-10}	4×10^{-10}	3×10^{-10}	—
6-8	17-17.5 Hz	.6	0°	3×10^{-10}	4×10^{-10}	3×10^{-10}	—
6-7	17.5 Hz	.3	-180°	2×10^{-10}	4×10^{-10}	4×10^{-10}	—

19 Hz

DATA SET NAME:

LOWER CHAMBERS-TEC FIELD DATA MOC5 (UNIT 2)

Pairs	Freq. Band	Coherence	Phase	CPSD value	PSD2 value	PSD1 value	Observations
5-6	19 Hz	.2	-180°	7×10^{-11}	2×10^{-10}	2×10^{-10}	—
5-7	18.5-19.5 Hz	.2-.3	0°	7×10^{-11}	2×10^{-10}	2×10^{-10}	—
5-8	~19 Hz	.25	-180°	10^{-10}	2×10^{-10}	2×10^{-10}	—
6-7	19 Hz	.3	-180°	10^{-10}	2×10^{-10}	2×10^{-10}	—
6-8	~19 Hz	.2-.4	0°	10^{-10}	2×10^{-10}	2×10^{-10}	—
7-8	18.5-19.5 Hz	.1-.25	-180°	7×10^{-11}	1.5×10^{-10}	2×10^{-10}	—

UPPER CHAMBERS-TEC FIELD DATA MOC5 (UNIT 2)

Pairs	Freq. Band	Coherence	Phase	CPSD value	PSD2 value	PSD1 value	Observations
5-7	18.5-19.5 Hz	.4	0°	1.5×10^{-10}	3×10^{-10}	3×10^{-10}	—
6-8	19 Hz	.7	0°	2×10^{-10}	3×10^{-10}	3×10^{-10}	—
6-7	19 Hz	.4	-180°	2×10^{-10}	3×10^{-10}	3×10^{-10}	—

FUEL MOTION BAND (2-5 Hz)

DATA SET NAME:

LOWER AND UPPER CHAMBERS - TEC FIELD DATA MOC 5 (UNIT 2)

Pairs	Freq. Band	Coherence	Phase	CPSD value	PSD2 value	PSD1 value	Observations
5-6	1.5-4 Hz	.1-.3	0°	2×10^{-8}	5×10^{-8}	decreasing - 10^{-7} to 2×10^{-8}	—
5-7	1-4 Hz	.3-.45	-180°	decreasing - 3×10^{-7} to 2×10^{-8}	decreasing - 5×10^{-7} to 5×10^{-8}	decreasing - 6×10^{-7} to 2×10^{-8}	—
5-8	2.5-4 Hz	.1-.2	-180°	peak of 3×10^{-8} at 3 Hz	5×10^{-8}	5×10^{-8}	—
6-7	—	—	—	—	—	—	no activity in this band
6-8	2.5-4 Hz	.4-.6	-180°	peak of 5×10^{-8} at 3 Hz	peak of 6×10^{-8} at 3 Hz	peak of 7×10^{-8} at 3.5 Hz	—
7-8	1.5-3 Hz	.2-.3	fluctuates about 0°	4×10^{-8}	6×10^{-8}	8×10^{-8}	resonance about 4.5 Hz (c=.2-.3)

CBM Band (6-12 Hz)

DATA SET NAME:

LOWER AND UPPER CHAMBERS - TEC FIELD DATA MOC5 (UNIT 2)

Pairs	Freq. Band	Coherence	Phase	CPSD value	PSD2 value	PSD1 value	Observations
5-6	5-10 Hz	.3-.65	decreases from 0° to -90°	peak of 2×10^{-8} at 8.5 Hz	peak of 6×10^{-8} at 8.5 Hz	2.5×10^{-8} (5 to 8.5 Hz) decrease to 6×10^{-9} at 10 Hz	large resonance over 12 to 16 Hz (C=.2-.5, θ=0°)
5-7	9-11 Hz	.3-.6	-110°	decreasing - 10^{-8} to 4×10^{-10}	decreasing 3×10^{-8} to 10^{-9}	decreasing - 10^{-8} to 2×10^{-9}	broadband resonance at 13 Hz (C=.2)
5-8	9-11 Hz	.2-.5	decreases from 45° to 0°	5×10^{-8}	decreasing - 2×10^{-8} to 3×10^{-9}	decreasing - 2×10^{-8} to 2×10^{-9}	spikes at 6, 7.5, and 12.5 Hz (C=.15)
6-7	7-10 Hz	.2-.6	0°	peak of 4×10^{-8} at 8.5 Hz	peak of 7×10^{-8} at 8.5 Hz	peak of 5×10^{-8} at 8.5 Hz	resonance over 11 to 12.5 Hz (C=.1-.15)
6-8	7.5-11 Hz	.3-.8	fluctuates from 90° to -270°	peak of 3×10^{-8} at 8.5 Hz	peak of 2×10^{-8} at 8.5 Hz	peak of 4×10^{-8} at 8.5 Hz	spike at 6 Hz (C=.2) broadband resonance about 13.5 Hz (C=.1-.2)
7-8	7-10 Hz	.4-.7	45°	peak of 3×10^{-8} at 8.5 Hz	peak of 2×10^{-8} at 8.5 Hz	peak of 6×10^{-8} at 8.5 Hz	large resonances around 6 Hz (C=.4-.5, θ=0°) and 12.5 Hz (C=.4, θ=0°)

17.9 Hz

DATA SET NAME:

LOWER AND UPPER CHAMBERS - TEC FIELD DATA MOC 5 (UNIT Z)

Pairs	Freq. Band	Coherence	Phase	CPSD value	PSD2 value	PSD1 value	Observations
5-6	17.5 Hz	.2	-180°	—	2.5×10^{-10}	1.5×10^{-10}	CPSD values go off-scale ($<10^{-10}$) at ~15 Hz
5-7	17-17.5 Hz	.45	0°	1.5×10^{-10}	3×10^{-10}	1.5×10^{-10}	—
5-8	17.5 Hz	.25	-180°	10^{-10}	3×10^{-10}	1.5×10^{-10}	—
6-7	~17.5 Hz	.35	-180°	1.5×10^{-10}	2×10^{-10}	3×10^{-10}	—
6-8	17-17.5 Hz	.6	0°	2×10^{-10}	3×10^{-10}	3×10^{-10}	—
7-8	~17.5 Hz	.3	-180°	1.5×10^{-10}	3×10^{-10}	3×10^{-10}	—

19 Hz

DATA SET NAME:

LOWER AND UPPER CHANNELS - TEC FIELD DATA MOC 5 (UNIT Z)

Pairs	Freq. Band	Coherence	Phase	CPSD value	PSD2 value	PSD1 value	Observations
5-6	19 Hz	.35	$-180°$	—	1.5×10^{-10}	10^{-10}	—
5-7	~19 Hz	.5	$0°$	—	2×10^{-10}	1.5×10^{-10}	—
5-8	19 Hz	.35	$-180°$	—	1.5×10^{-10}	1.5×10^{-10}	—
6-7	19 Hz	.4	$-180°$	10^{-10}	2×10^{-10}	2×10^{-10}	—
6-8	18.5-20 Hz	.4-.6	$0°$	1.5×10^{-10}	1.5×10^{-10}	1.5×10^{-10}	—
7-8	19 Hz	.4	$-180°$	—	1.5×10^{-10}	1.5×10^{-10}	—

FUEL MOTION BAND (2-5 Hz)

DATA SET NAME:

LOWER CHAMBERS – TEC CURRENT DATA (UNIT 2)

Pairs	Freq. Band	Coherence	Phase	CPSD value	PSD2 value	PSD1 value	Observations
5-7	1-4.5 Hz	.3-.5	-180°	decreasing- 10^{-8} to 3×10^{-10}	decreasing- 2×10^{-8} to 10^{-9}	decreasing- 2×10^{-8} to 6×10^{-10}	—
6-8	2-4 Hz	.45	-180°	peak of 10^{-9} at 3.5 Hz	2×10^{-9}	peak of 2×10^{-9} at 3.5 Hz	—
5-6	2-4 Hz	.2-.3	0°	10^{-9}	peak of 2×10^{-9} at 3.5 Hz	decreasing- 3×10^{-9} to 10^{-9}	—
5-8	—	—	—	—	—	—	broadband resonance about 2.5 Hz (C<.1) spikes at 1.5 & 4 Hz (C=.2)
6-7	—	—	—	—	—	—	spike at 3.5 Hz (C=.2)
7-8	1.5-6 Hz	.1-.4	0°	decreasing- 2×10^{-9} to 2×10^{-10}	2×10^{-9} (1-3.5 Hz) decrease to 4×10^{-10} at 6 Hz	decreasing- 10^{-8} to 4×10^{-10}	—

UPPER CHAMBERS – TEC CURRENT DATA (UNIT 2)

Pairs	Freq. Band	Coherence	Phase	CPSD value	PSD2 value	PSD1 value	Observations
5-7	2-4 Hz	.4	-180°	10^{-9}	2×10^{-9}	decreasing- 2×10^{-9} to 10^{-9}	broadband resonance about 1.5 Hz (C=.2)
6-B Press.	—	—	—	—	—	—	—
5-6	2-4 Hz	.15-.25	0°	7×10^{-10}	peak of 2×10^{-9} at 3.5 Hz	decreasing- 3×10^{-9} to 10^{-9}	—
5-B Press.	—	—	—	—	—	—	—
6-7	—	—	—	—	—	—	spike at 3.5 Hz (C=.2)
7-B Press.	—	—	—	—	—	—	spike at [illegible] Hz (C=.2)

CBM Band (6-12 Hz)

DATA SET NAME:

LOWER CHAMBERS - TEC CURRENT DATA (UNIT Z)

Pairs	Freq. band	Coherence	Phase	CPSD value	PSD2 value	PSD1 value	Observations
5-7	9.5-11 Hz	.45	-120°	decreasing - 2×10^{-10} to 2×10^{-11}	decreasing - 4×10^{-10} to 4×10^{-11}	decreasing - 4×10^{-10} to 6×10^{-11}	13 Hz broadband resonance (C=.2, Θ=-180°)
6-8	7.5-11 Hz	.8	90° (7.5-8.5 Hz), wild fluctuations	peak of 10^{-9} at 8.5 Hz	peak of 10^{-9} at 8.5 Hz	peak of 10^{-9} at 8.5 Hz	spikes at 6.5 Hz (C=.2) and 13.5 Hz (C=.1)
5-6	4.5-10.5 Hz	.45	0° from 4 to 6 Hz, 0° to 90° from 6 to 10	5×10^{-10} (4-6 Hz), decrease to 4×10^{-11} at 10.5 Hz	9×10^{-10} (4 to 6 Hz), decrease to 10^{-10} at 10.5 Hz	7×10^{-10} (4 to 6 Hz), decrease to 10^{-10} at 10.5 Hz	12.5 Hz broadband resonance (C=.4, Θ=0°)
5-8	9.5-10.5 Hz	.3	fluctuates about 0°	10^{-10} (decreasing)	decreasing - 4×10^{-10} to 10^{-10}	decreasing - 3×10^{-10} to 10^{-10}	spikes at 5 Hz (C=.2), 6.5 Hz (C=.2), & 12.5 Hz (C=.2)
6-7	6.5-10 Hz	.3-.6	fluctuates about 0°	peak of 2×10^{-9} at 8.5 Hz	peak of 2×10^{-9} at 8.5 Hz	peak of 2×10^{-9} at 8.5 Hz	—
7-8	6-9.5 Hz	.4-.7	0° to 45°	peak of 10^{-9} at 8.5 Hz	peak of 10^{-9} at 8.5 Hz	peak of 4×10^{-9} at 8.5 Hz	12.5 Hz broadband resonance (C=.35, Θ=0°)

UPPER CHAMBERS - TEC CURRENT DATA (UNIT Z)

Pairs	Freq. band	Coherence	Phase	CPSD value	PSD2 value	PSD1 value	Observations
5-7	9-10.5 Hz	.6	-100°	decreasing - 2×10^{-10} to 7×10^{-11}	decreasing - 5×10^{-10} to 5×10^{-11}	decreasing - 3×10^{-10} to 10^{-10}	spike at 6.5 Hz (C=.2), 13 Hz broadband resonance (C=.15, Θ=-170°)
6-B Press.	—	—	—	—	—	—	spike at 6 Hz (C=.35)
5-6	4.5-10.5 Hz	.3-.6	0° from 4 to 8 Hz, 0° to -90° from 8 to 10	4×10^{-10} (4-8.5 Hz) decrease to 2×10^{-11} at 10.5 Hz	peak of 1.5×10^{-9} at 8.5 Hz	6×10^{-10} (4-8.5 Hz) decrease to 10^{-10} at 10.5 Hz	large resonance between 11-15 Hz (C=.2)
5-B Press.	—	—	—	—	—	—	spike at 6 Hz (C=.35)
6-7	6-10.5 Hz	.25-.55	0°	peak of 10^{-9} at 8.5 Hz	peak of 2×10^{-9} at 8.5 Hz	peak of 10^{-9} at 8.5 Hz	—
7-B Press.	—	—	—	—	—	—	spike at [illegible]Hz (C=.35)

17.9 Hz

DATA SET NAME:

LOWER CHAMBERS - TEC CURRENT DATA (UNIT 2)

Pairs	Freq. Band	Coherence	Phase	CPSD value	PSD2 value	PSD1 value	Observations
5-7	17.5-17.9 Hz	.2	0°	3×10^{-12}	9×10^{-12}	5×10^{-12}	—
6-8	17-17.5 Hz	.3	-20°	5×10^{-12}	10^{-11}	10^{-11}	—
5-6	—	—	—	—	—	—	—
5-8	17.2-17.8 Hz	.15	fluctuates about -180°	3×10^{-12}	10^{-11}	4×10^{-12}	—
6-7	17.5 Hz	.25	fluctuates about -180°	5×10^{-12}	10^{-11}	7×10^{-12}	—
7-8	17.7 Hz	.3	fluctuates about -180°	5×10^{-12}	10^{-11}	7×10^{-12}	—

UPPER CHAMBERS - TEC CURRENT DATA (UNIT 2)

Pairs	Freq. Band	Coherence	Phase	CPSD value	PSD2 value	PSD1 value	Observations
5-7	17-18 Hz	.35	0°	4×10^{-12}	10^{-11}	6×10^{-12}	—
6-B Press.	—	—	—	—	—	—	—
5-6	17-17.7 Hz	.15	fluctuates about -180°	4×10^{-12}	10^{-11}	6×10^{-12}	—
5-B Press.	—	—	—	—	—	—	—
6-7	17-17.9 Hz	.25	fluctuates about -180°	5×10^{-12}	10^{-11}	10^{-11}	—
7-B Press.	—	—	—	—	—	—	—

19 Hz

DATA SET NAME:

LOWER CHAMBERS - TEC CURRENT DATA (UNIT 2)

Pairs	Freq. Band	Coherence	Phase	CPSD value	PSD2 value	PSD1 value	Observations
5-7	18.5-19.3 Hz	.25	fluctuates about 0°	2×10^{-12}	6×10^{-12}	6×10^{-12}	—
6-8	18.5-20 Hz	.1-.2	fluctuates about 0°	decreasing - 4×10^{-12} to 2×10^{-12}	4×10^{-12}	8×10^{-12}	—
5-6	18.7-19.3 Hz	.1	-180°	2×10^{-12}	10^{-11}	5×10^{-12}	spike at 18.2 Hz (c=.1)
5-8	18.5-19.2 Hz	.25	-190°	3×10^{-12}	6×10^{-12}	5×10^{-12}	—
6-7	18.6-19.3 Hz	.1-.2	-180°	2×10^{-12}	5×10^{-12}	6×10^{-12}	—
7-8	18.5-19.2 Hz	.2	-200°	3×10^{-12}	6×10^{-12}	5×10^{-12}	—

UPPER CHAMBERS - TEC CURRENT DATA (UNIT 2)

Pairs	Freq. Band	Coherence	Phase	CPSD value	PSD2 value	PSD1 value	Observations
5-7	18.5-19.5 Hz	.4	0°	4×10^{-12}	7×10^{-12}	6×10^{-12}	—
6-B Press.	—	—	—	—	—	—	—
5-6	18.6-19.3 Hz	.25	-170°	3×10^{-12}	7×10^{-12}	6×10^{-12}	—
5-B Press.	—	—	—	—	—	—	—
6-7	18.5-19.3 Hz	.1-.25	-180°	3×10^{-12}	6×10^{-12}	6×10^{-12}	—
7-B Press	—	—	—	—	—	—	—

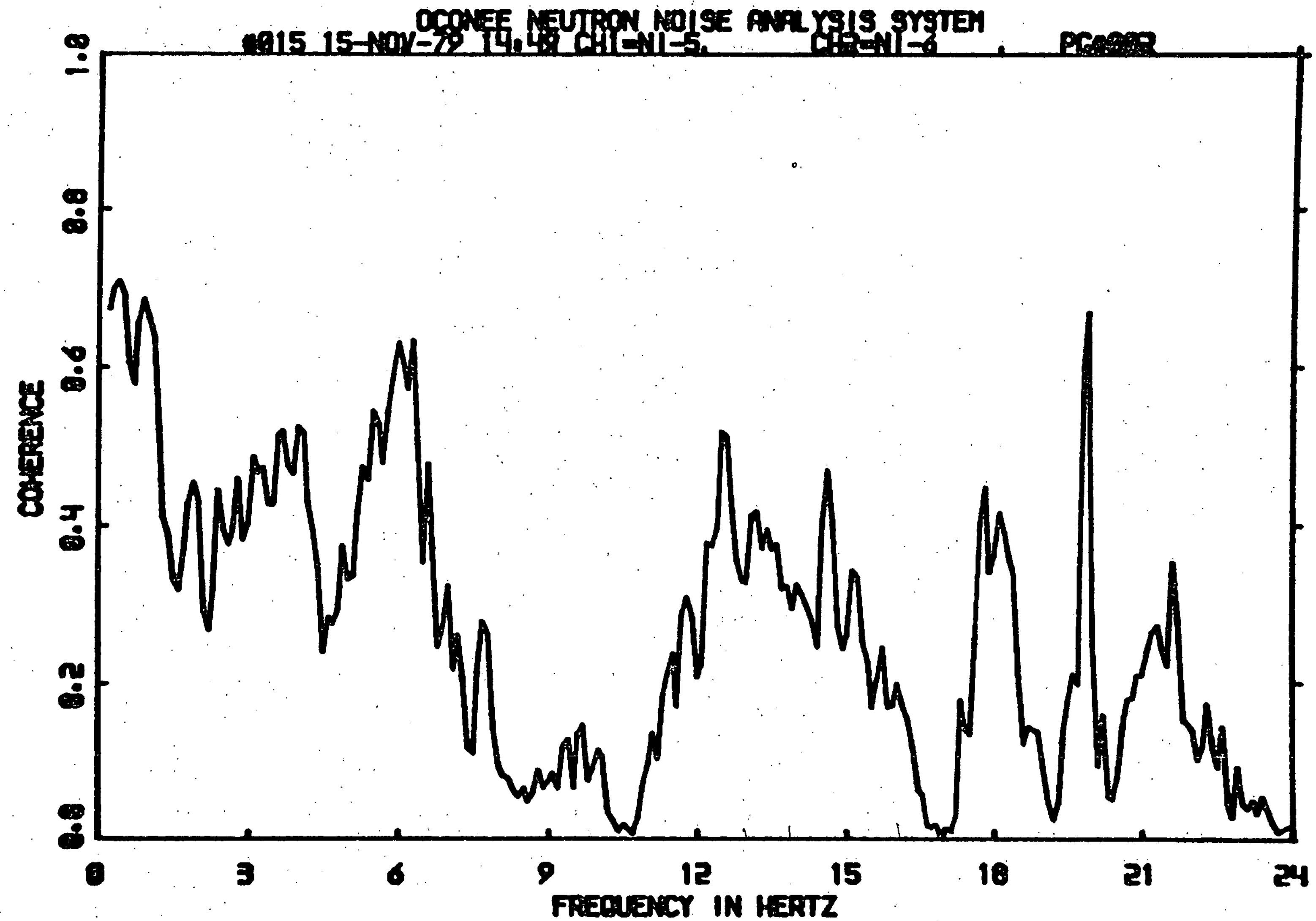
CONTENTS

Neutron noise data for EOC 5
Unit 1, taken November 15, 1979

TEST #	DETECTOR PAIRS*
015	NI-5 total x NI-6 total
016	NI-5 total x NI-7 total
017	NI-5 total x NI-8 total
018	NI-6 total x NI-7 total
019	NI-6 total x NI-8 total
020	NI-7 total x NI-8 total

*Total indicates the sum of lower and upper chambers.

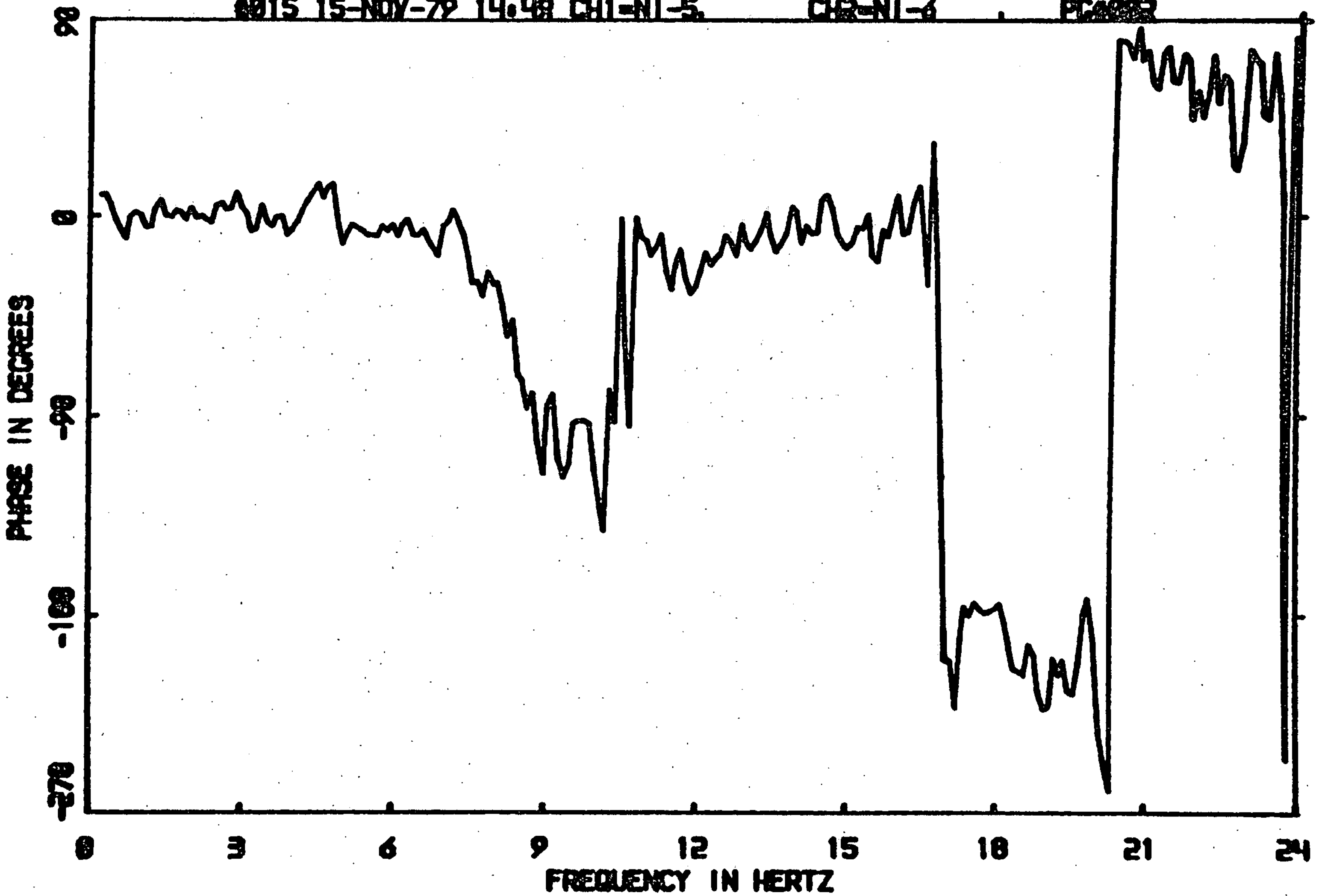
1 EOC5


OCONEE NEUTRON NOISE ANALYSIS SYSTEM
#015 15-NOV-79 14.48 CH1=NI-5, CH2=NI-6 , PC#00R
COHERENCE
0.0
0.2
0.4
0.6
0.8
1.0
0
3
6
9
12
15
18
21
24
FREQUENCY IN HERTZ

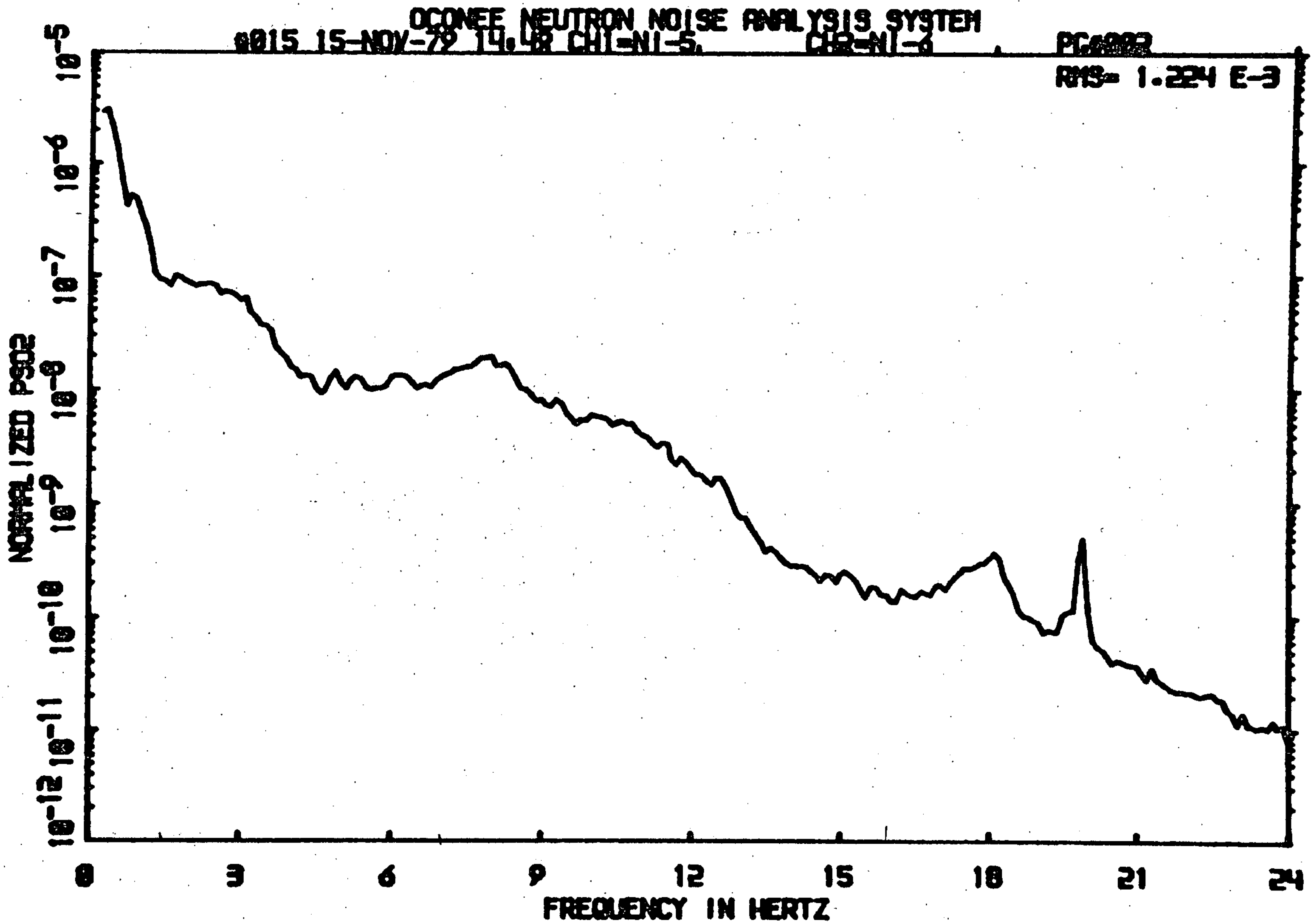
1 EOC5

OCONEE NEUTRON NOISE ANALYSIS SYSTEM

#015 15-NOV-79 14:48 CH1=NI-5, CH2=NI-6 , PC002R

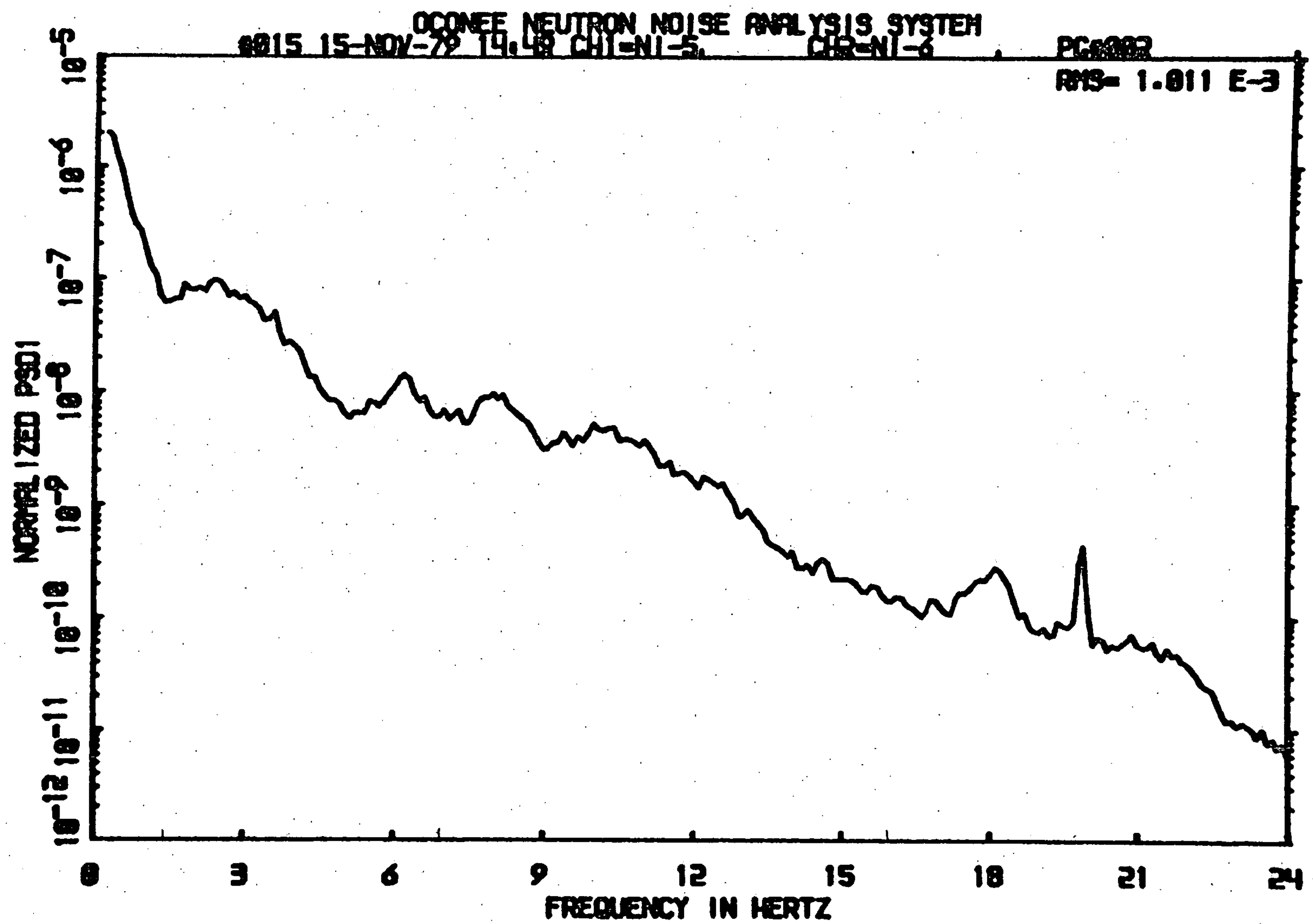


1 EOC5

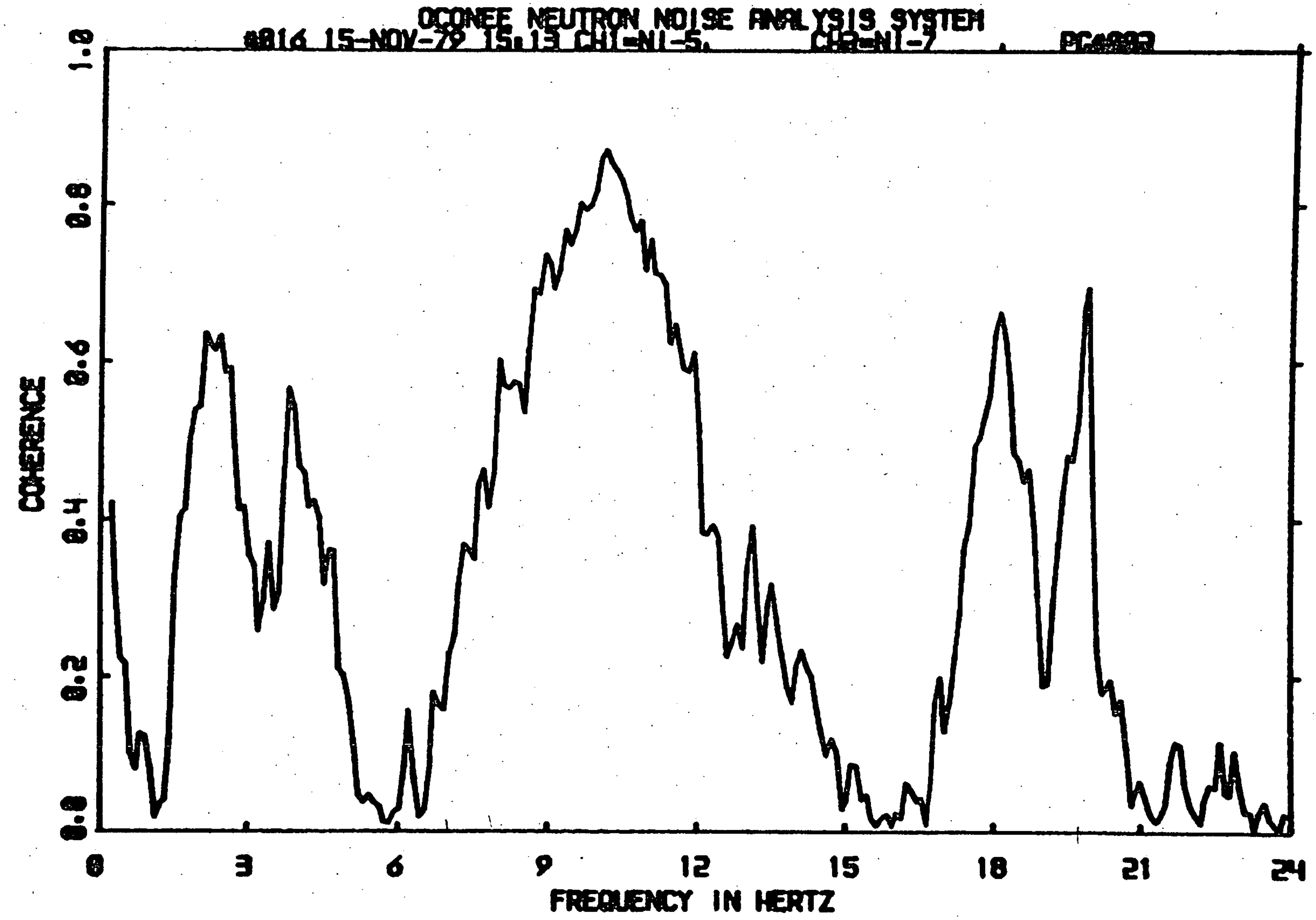


OCONEE NEUTRON NOISE ANALYSIS SYSTEM
0015 15-NOV-79 14.48 CH1=NI-5, CH2=NI-6 , PG#002
RMS= 1.224 E-3
NORMALIZED PSD2
10^-12 10^-11 10^-10 10^-9 10^-8 10^-7 10^-6 10^-5
0 3 6 9 12 15 18 21 24
FREQUENCY IN HERTZ

1-EOC5

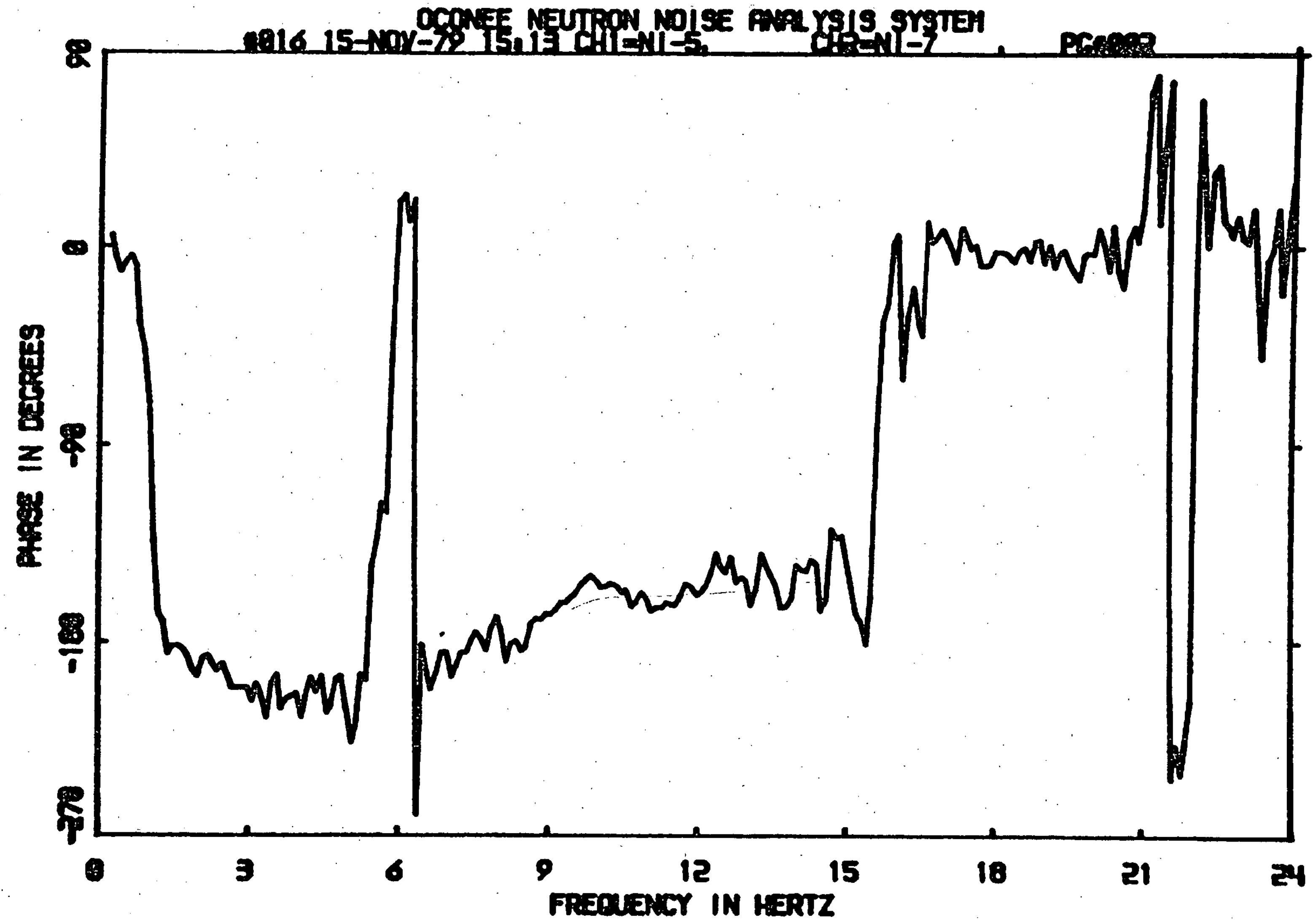

OCONEE NEUTRON NOISE ANALYSIS SYSTEM
0015 15-NOV-79 14:40 CH1=NI-5, CH2=NI-6 , PC#002
RMS= 1.011 E-3
NORMALIZED PSD1
10^-5
10^-6
10^-7
10^-8
10^-9
10^-10
10^-11
10^-12
0
3
6
9
12
15
18
21
24
FREQUENCY IN HERTZ

1 Eoc5

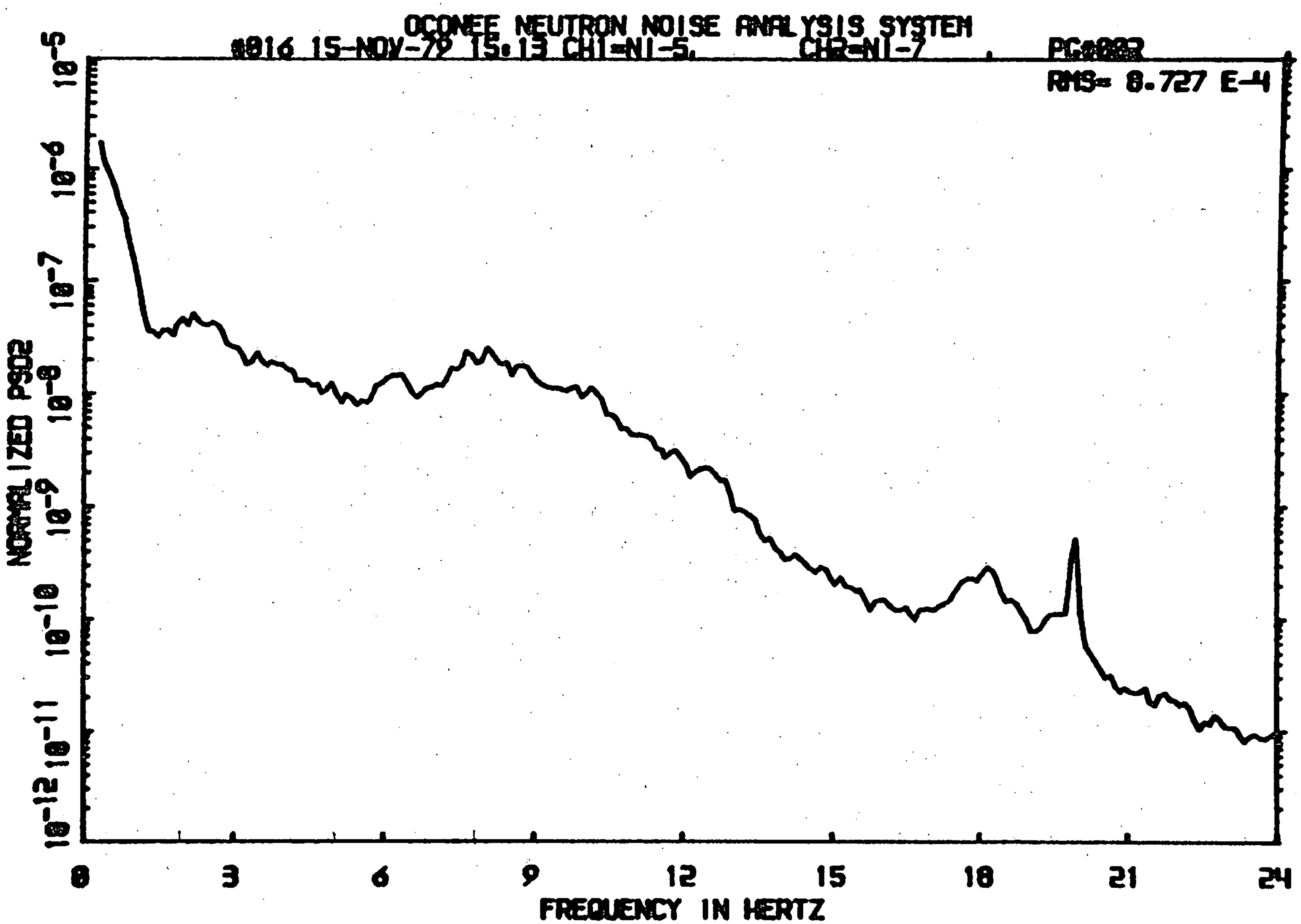


OCONEE NEUTRON NOISE ANALYSIS SYSTEM
#016 15-NOV-79 15:13 CH1=NI-5, CH2=NI-7 , PC#002
COHERENCE
0.0
0.2
0.4
0.6
0.8
1.0
0
3
6
9
12
15
18
21
24
FREQUENCY IN HERTZ

1 - EOC5

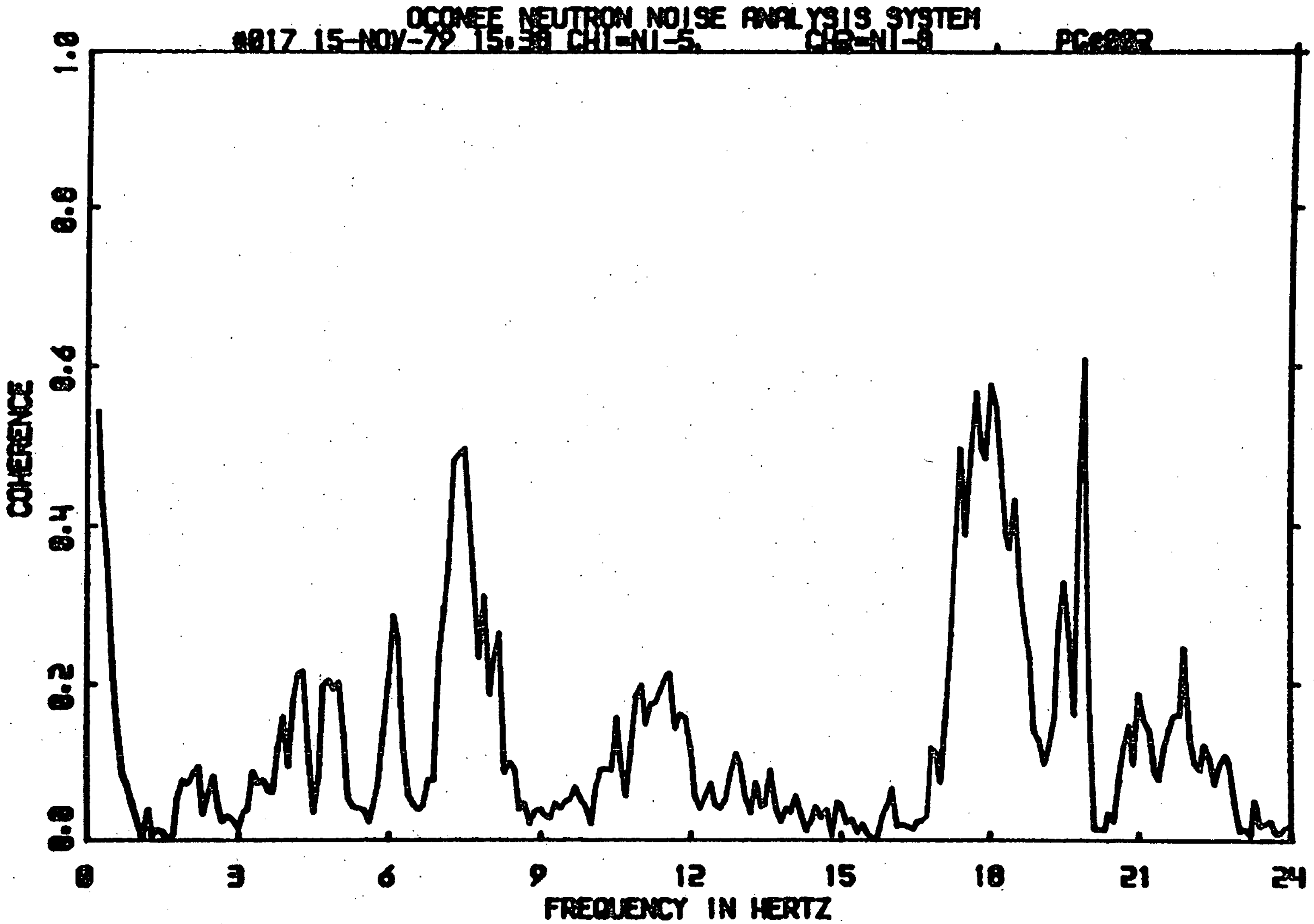

OCONEE NEUTRON NOISE ANALYSIS SYSTEM
#016 15-NOV-79 15:13 CH1=NI-5, CH2=NI-7 , PC#002
PHASE IN DEGREES
90
0
-90
-180
-270
0
3
6
9
12
15
18
21
24
FREQUENCY IN HERTZ

1 EOC 5



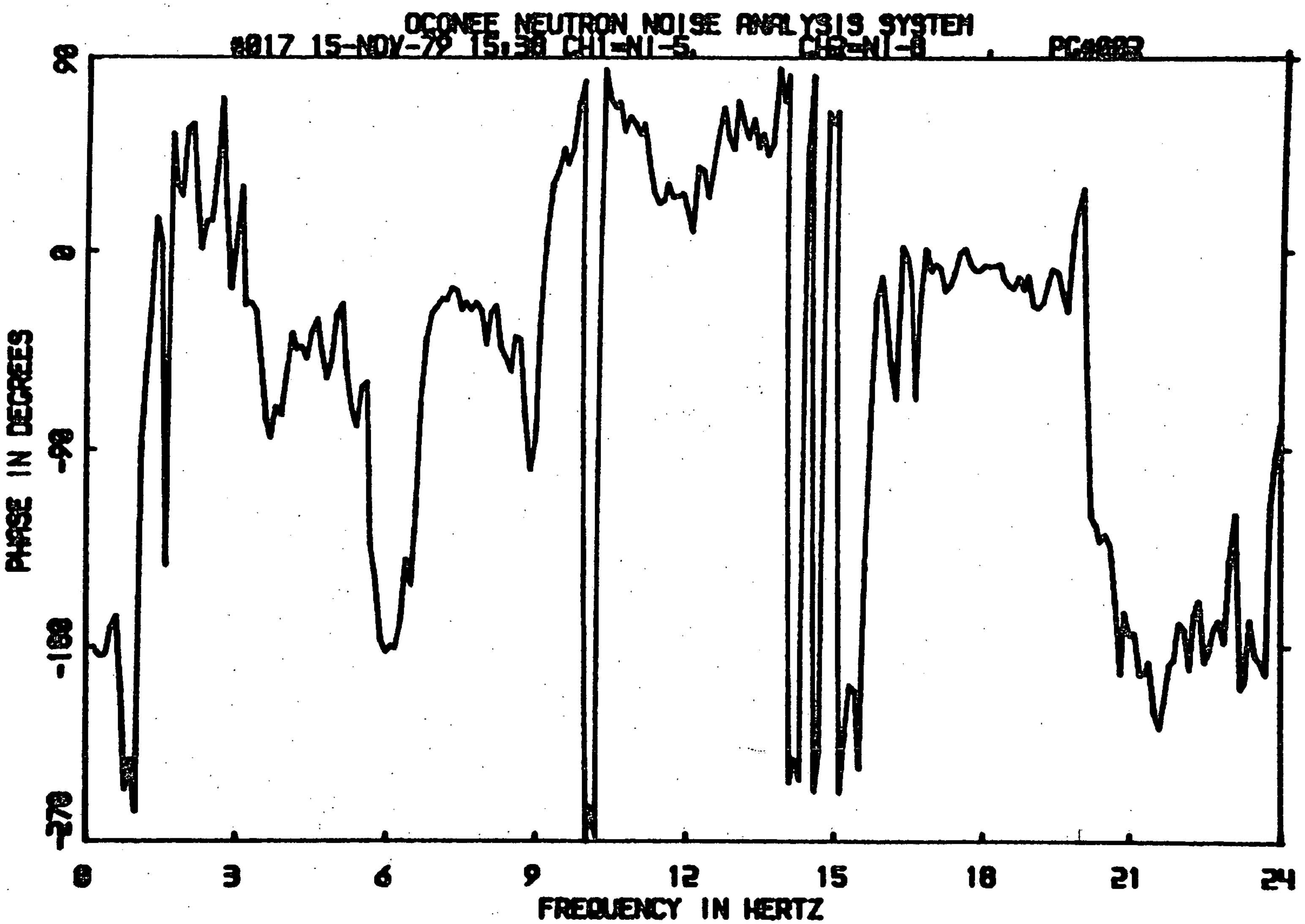
OCONEE NEUTRON NOISE ANALYSIS SYSTEM
#016 15-NOV-79 15:13 CH1=NI-5, CH2=NI-7 , PC#002
RMS= 8.727 E-4
NORMALIZED PSD2
10^-12 10^-11 10^-10 10^-9 10^-8 10^-7 10^-6 10^-5
0 3 6 9 12 15 18 21 24
FREQUENCY IN HERTZ

1 Exc 5



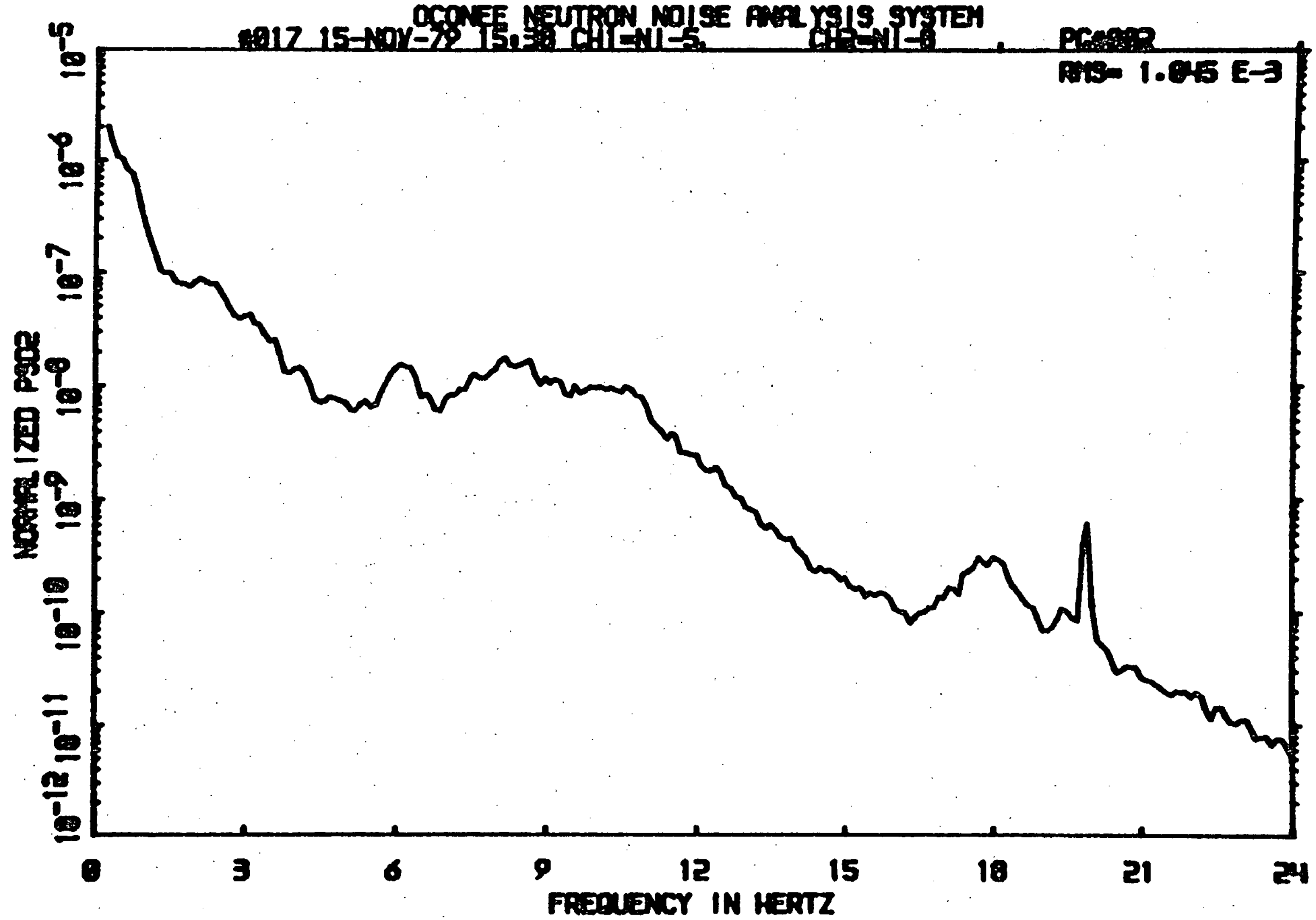
OCONEE NEUTRON NOISE ANALYSIS SYSTEM
#017 15-NOV-79 15:30 CH1=NI-5, CH2=NI-8 , PC#002
COHERENCE
0.0
0.2
0.4
0.6
0.8
1.0
0
3
6
9
12
15
18
21
24
FREQUENCY IN HERTZ

1 EOC5



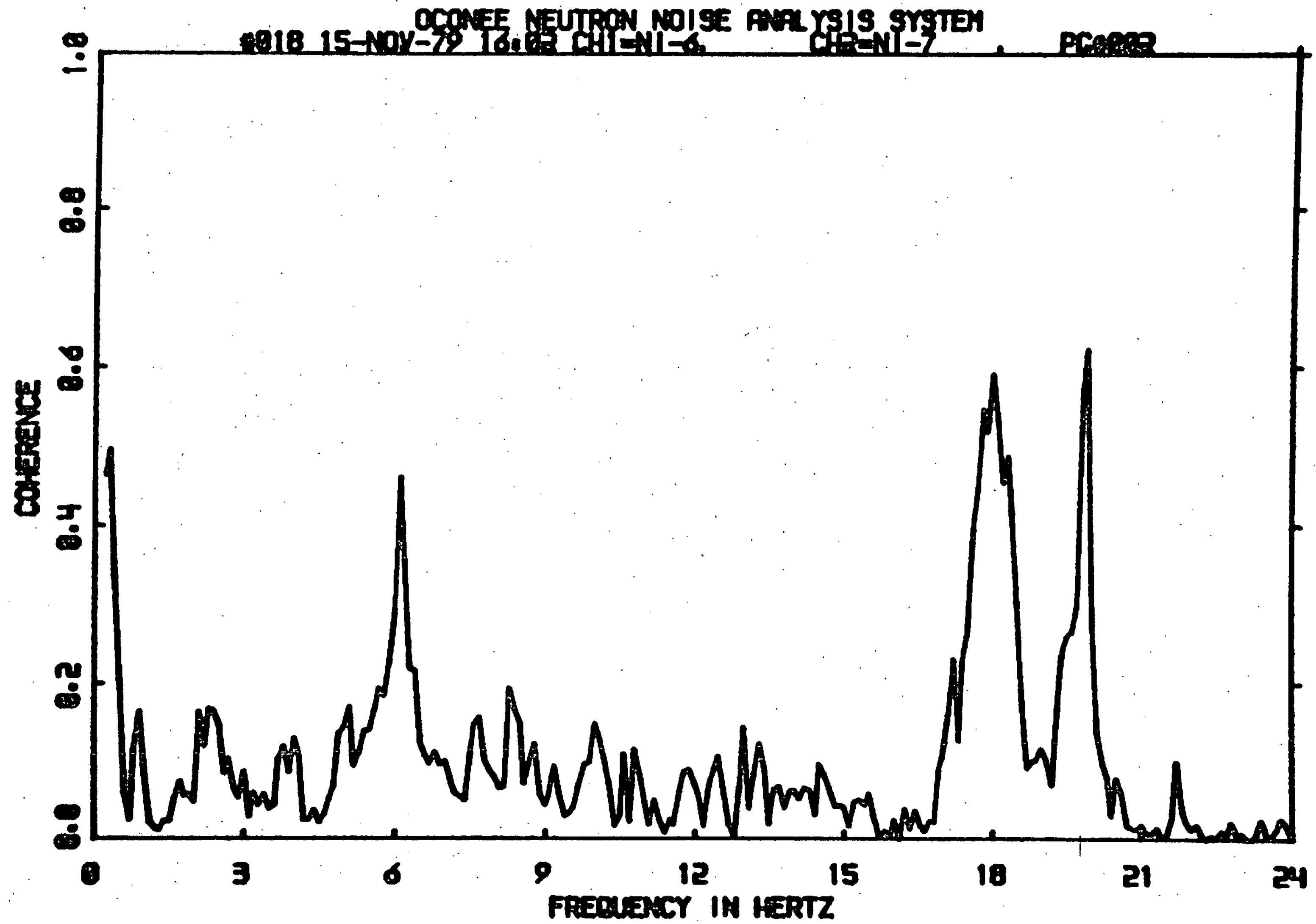
OCONEE NEUTRON NOISE ANALYSIS SYSTEM
#017 15-NOV-79 15:38 CH1=NI-5, CH2=NI-6 , PG#002
PHASE IN DEGREES
90
0
-90
-180
-270
0
3
6
9
12
15
18
21
24
FREQUENCY IN HERTZ

I-EOC5



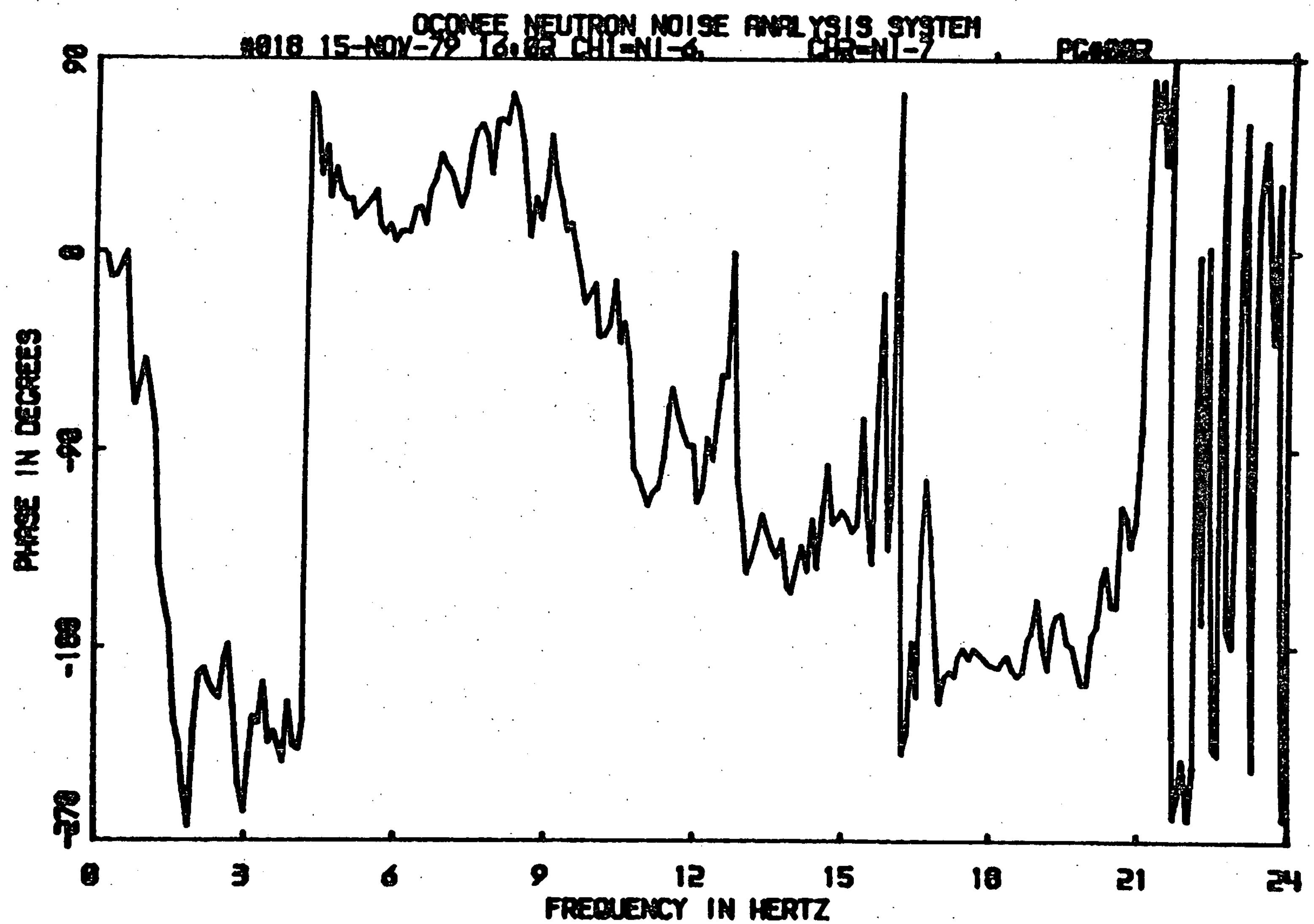
OCONEE NEUTRON NOISE ANALYSIS SYSTEM
#017 15-NOV-79 15:38 CH1=NI-5, CH2=NI-8 , PC#00R
RMS= 1.045 E-3
NORMALIZED PSD2
10^-5
10^-6
10^-7
10^-8
10^-9
10^-10
10^-11
10^-12
0
3
6
9
12
15
18
21
24
FREQUENCY IN HERTZ

1 EOC5



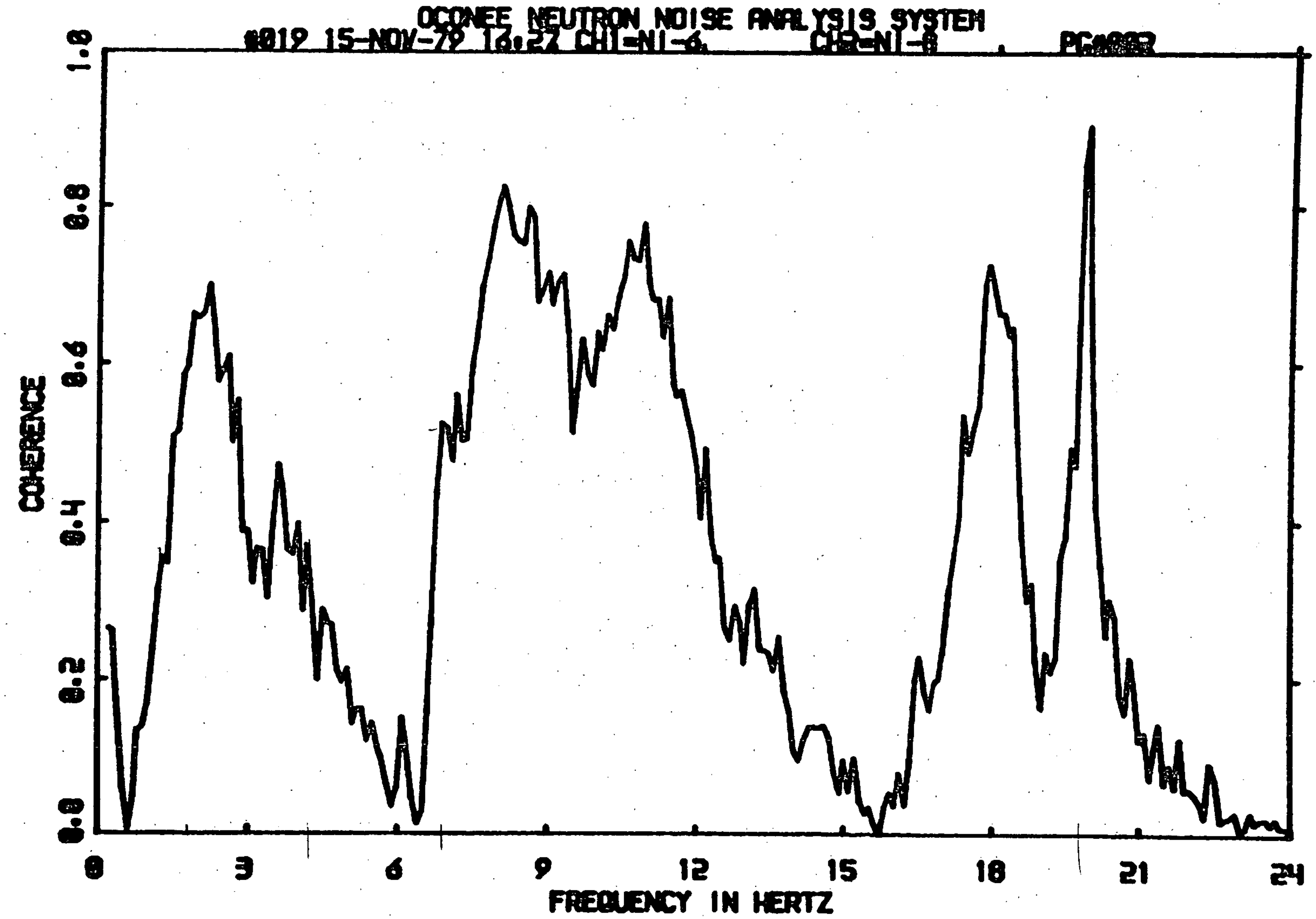
OCONEE NEUTRON NOISE ANALYSIS SYSTEM
#018 15-NOV-79 16:03 CH1=NI-6. CH2=NI-7 . PC#002
COHERENCE
0.0
0.2
0.4
0.6
0.8
1.0
0
3
6
9
12
15
18
21
24
FREQUENCY IN HERTZ

1 EOC5



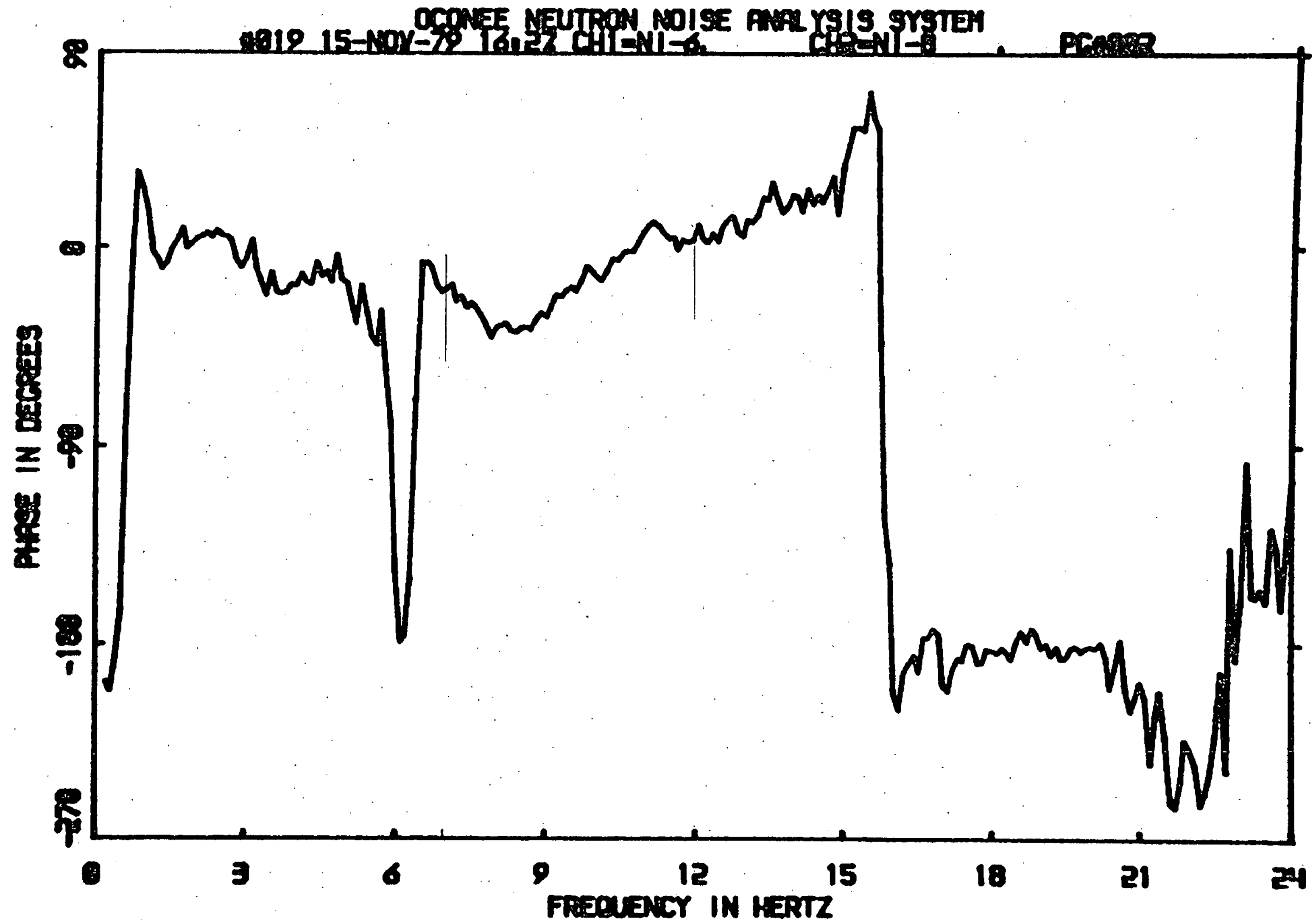
OCONEE NEUTRON NOISE ANALYSIS SYSTEM
#018 15-NOV-79 16:03 CH1=NI-6, CHR=NI-7
PHASE IN DEGREES
90
0
-90
-180
-270
0
3
6
9
12
15
18
21
24
FREQUENCY IN HERTZ

1 EOCS

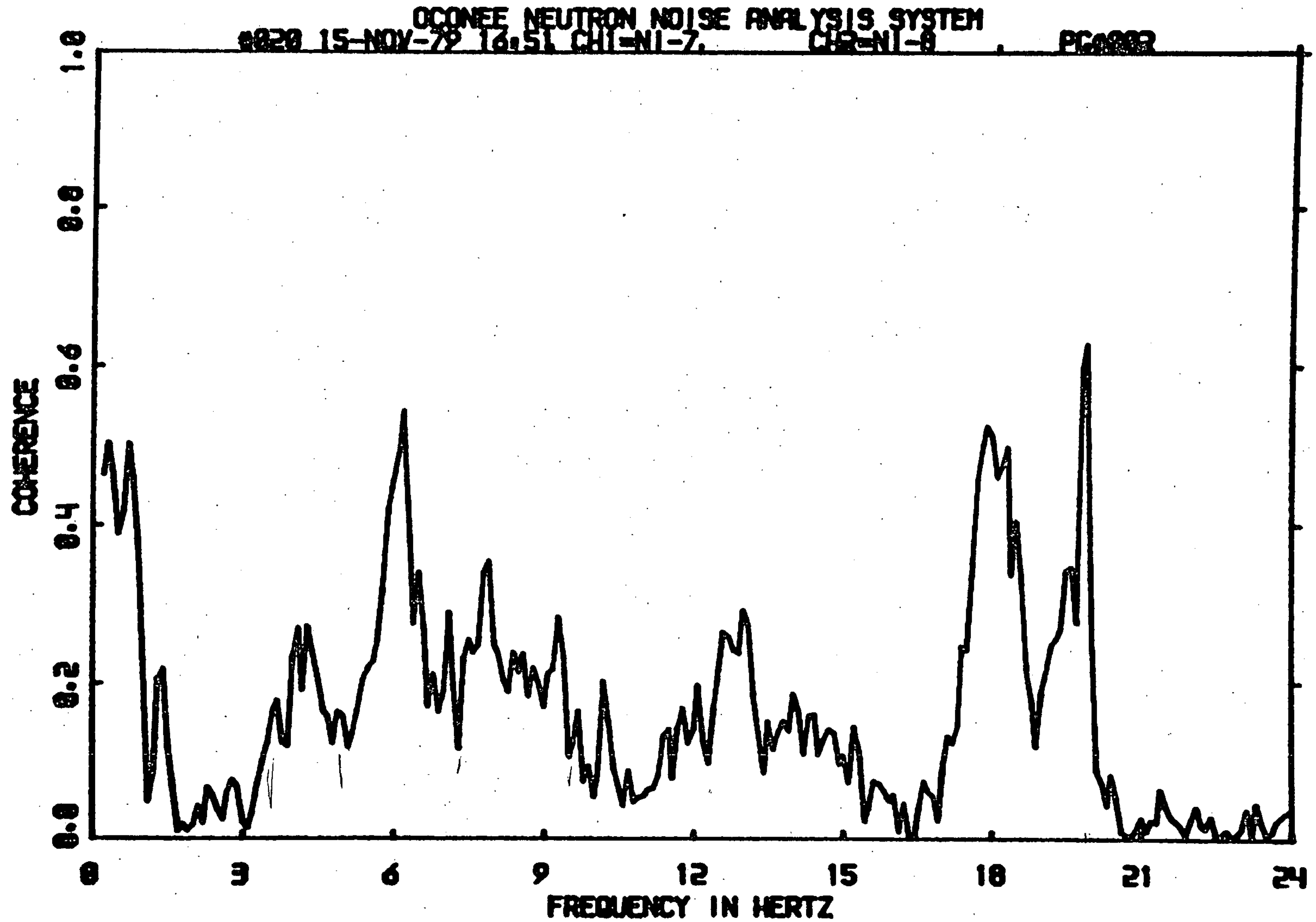


OCONEE NEUTRON NOISE ANALYSIS SYSTEM
#019 15-NOV-79 16:27 CH1=NI-6, CH2=NI-8 , PG#
COHERENCE
0.0
0.2
0.4
0.6
0.8
1.0
0
3
6
9
12
15
18
21
24
FREQUENCY IN HERTZ

1 EOC5   Ch 8 - Suspected of being inverted



1 EOC5



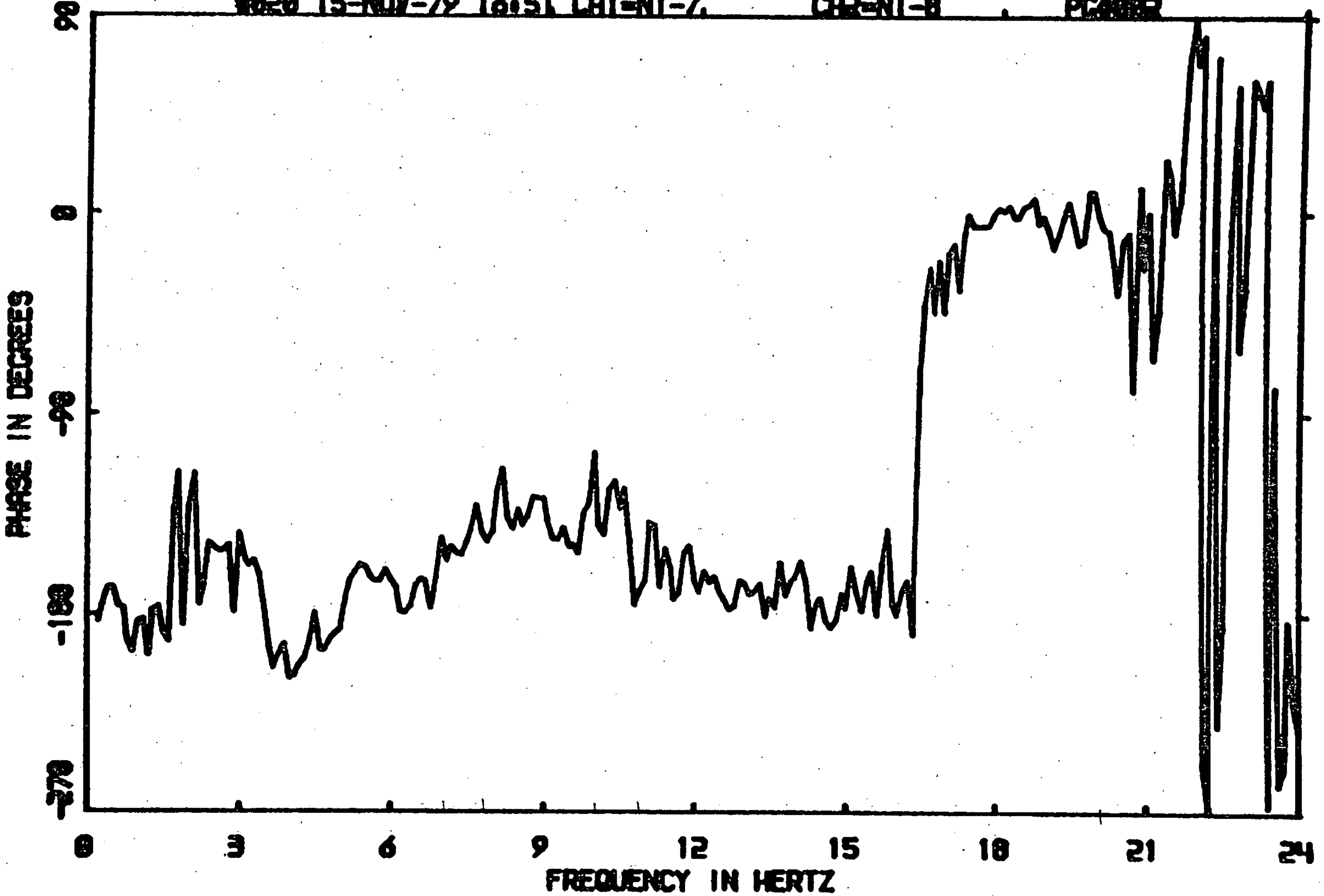
OCONEE NEUTRON NOISE ANALYSIS SYSTEM
#020 15-NOV-79 16:51 CH1=NI-7, CH2=NI-8 , PG#002
COHERENCE
0.0
0.2
0.4
0.6
0.8
1.0
0
3
6
9
12
15
18
21
24
FREQUENCY IN HERTZ

1 EOCS

ch 8 ~~Suspected~~ sup. Inver.

OCONEE NEUTRON NOISE ANALYSIS SYSTEM

#020 15-NOV-79 16:51 CH1=NI-7, CH2=NI-8 , PC#002



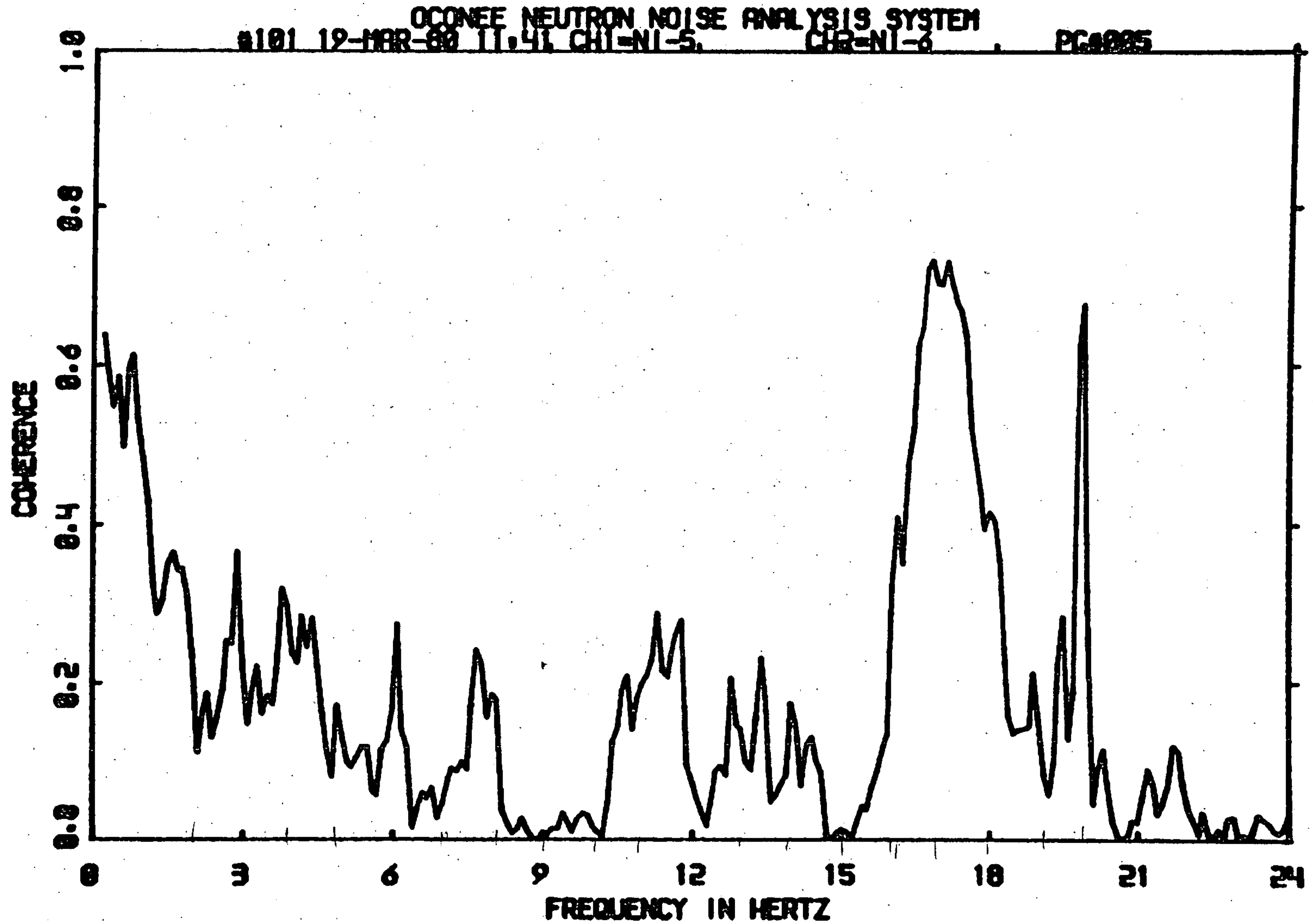
CONTENTS

Neutron noise data for BOC 6
Unit 1, taken March 3, 1980

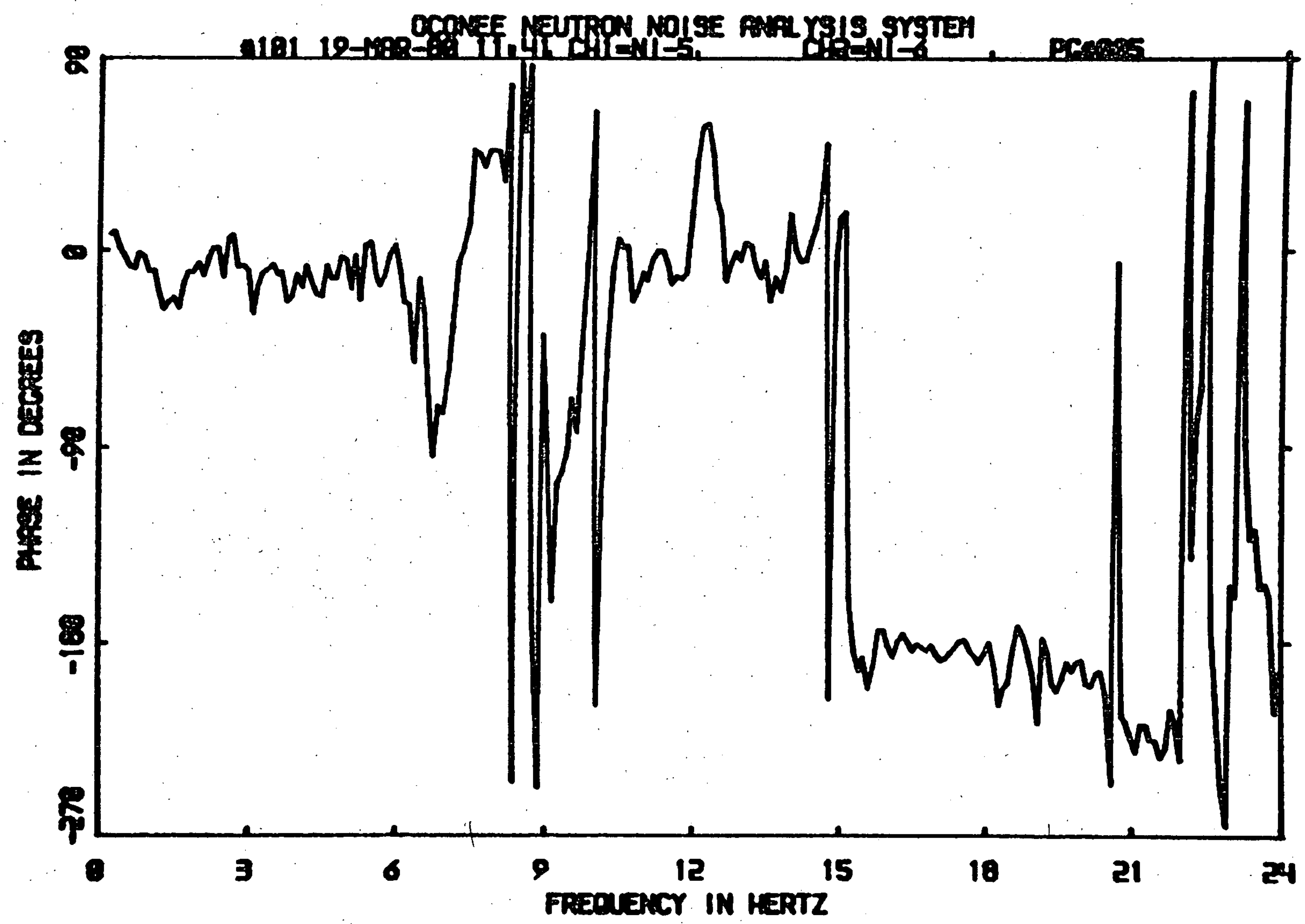
TEST #	DETECTOR PAIRS*
101	NI-5 total x NI-6 total
102	NI-5 total x NI-7 total
103	NI-5 total x NI-8 total
104	NI-6 total x NI-7 total
105	NI-6 total x NI-8 total
106	NI-7 total x NI-8 total

*Total indicates the sum of lower and upper chambers.

BOC I

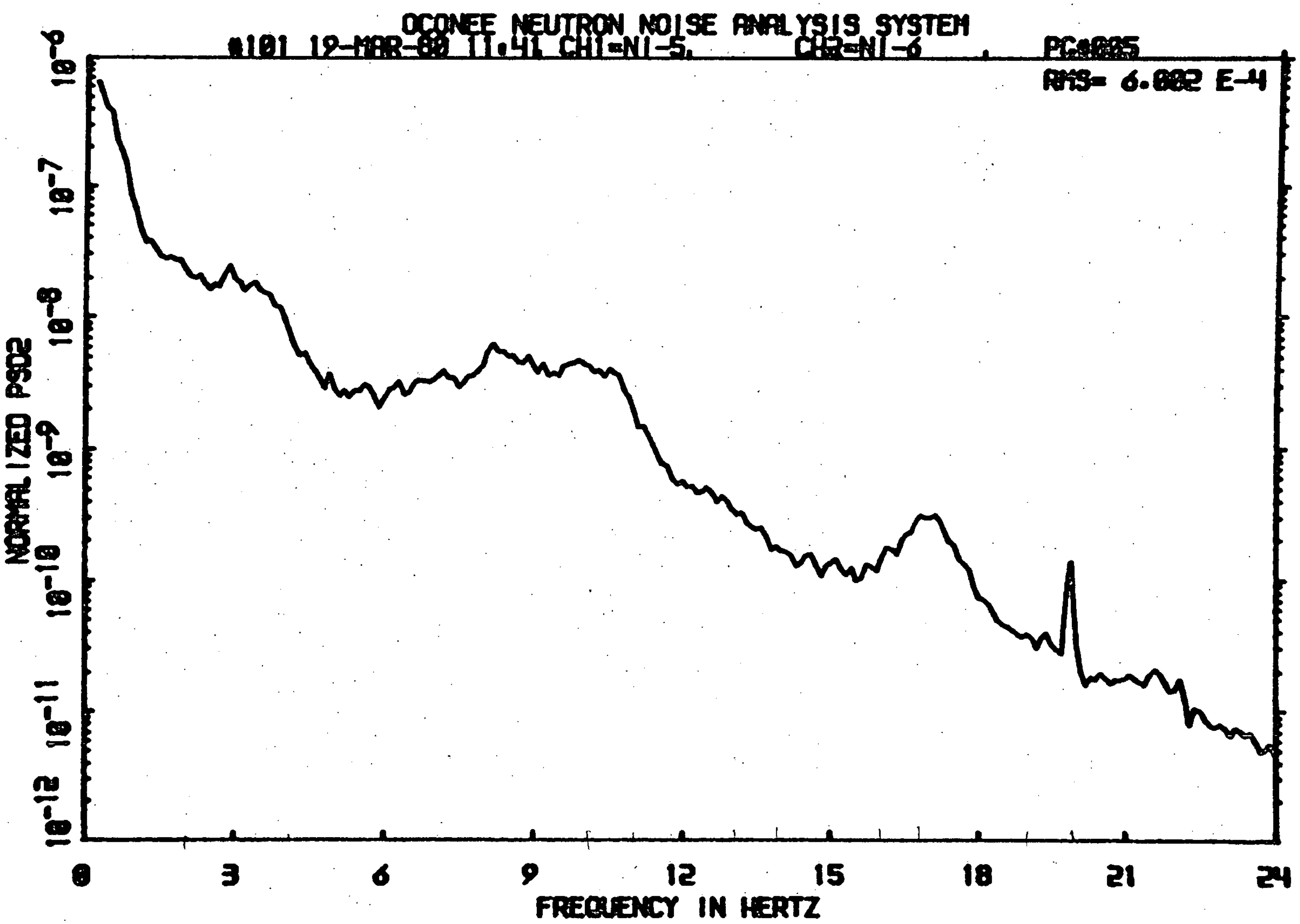

OCONEE NEUTRON NOISE ANALYSIS SYSTEM
#101 19-MAR-80 11:41 CH1=NI-5, CH2=NI-6 , PG#005
COHERENCE
0.0
0.2
0.4
0.6
0.8
1.0
0
3
6
9
12
15
18
21
24
FREQUENCY IN HERTZ

Boc I

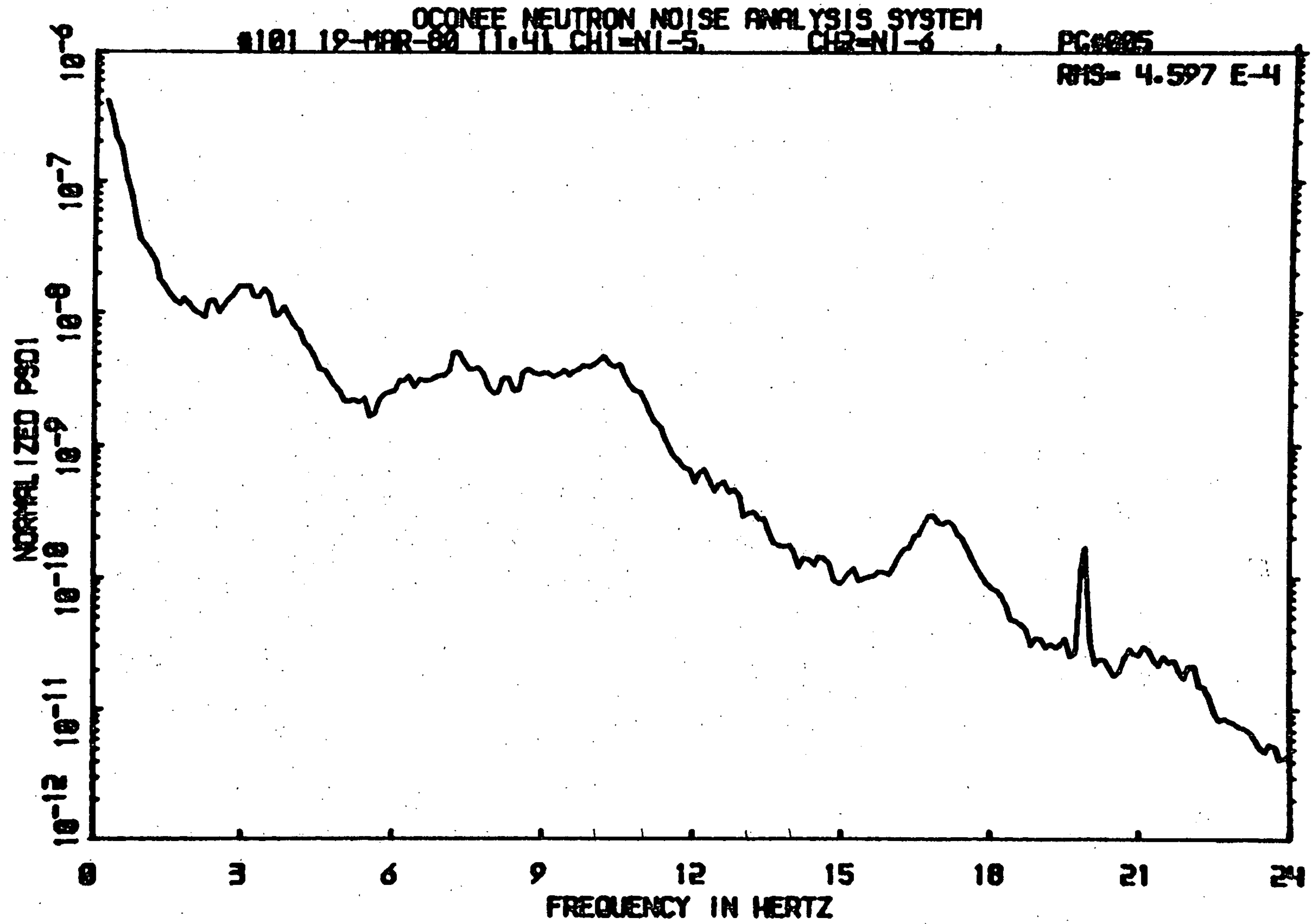


OCONEE NEUTRON NOISE ANALYSIS SYSTEM
#101 19-MAR-80 11:41 CH1=NI-5, CH2=NI-6 , PG#005
PHASE IN DEGREES
90
0
-90
-180
-270
0
3
6
9
12
15
18
21
24
FREQUENCY IN HERTZ

B&C I

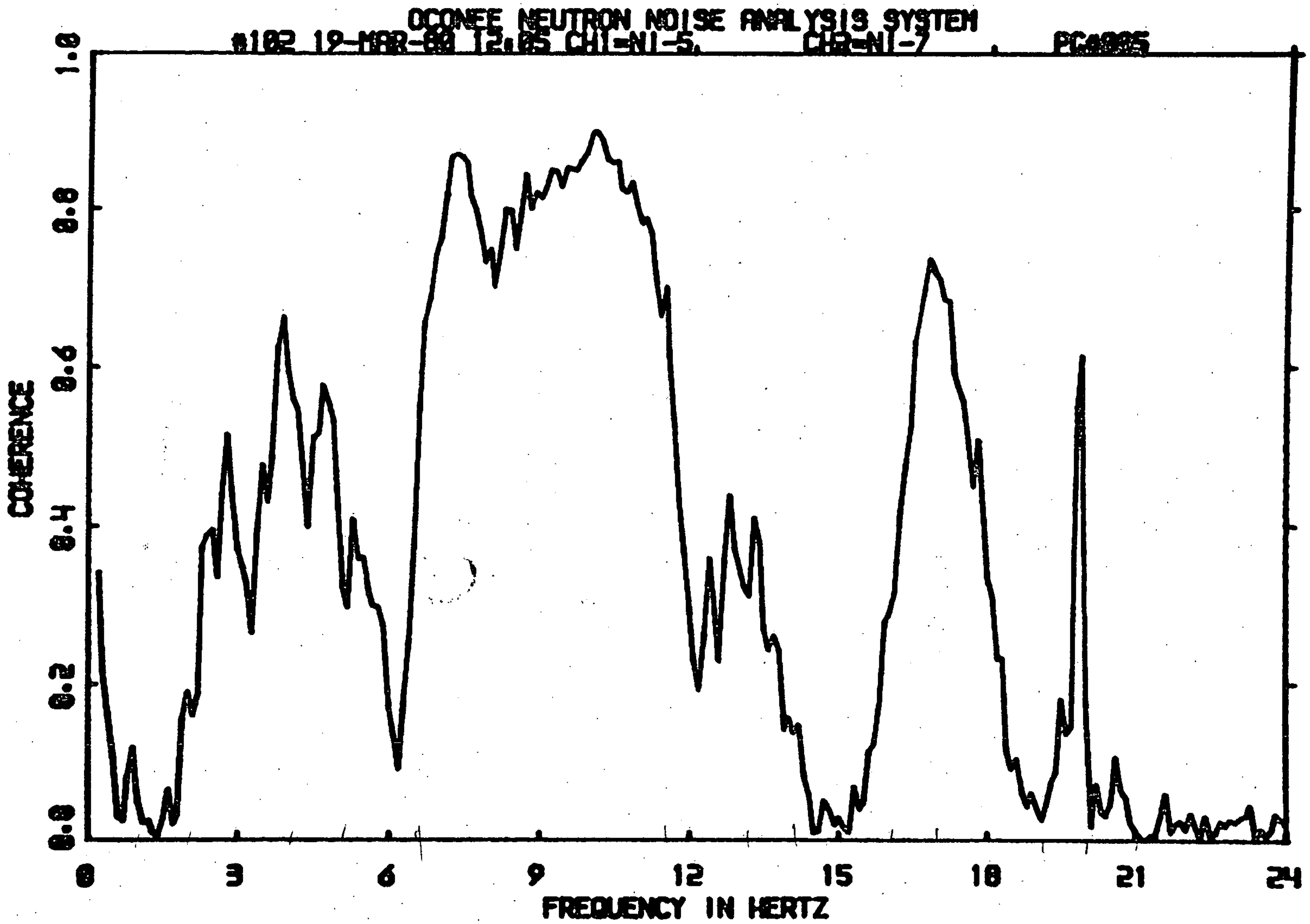

OCONEE NEUTRON NOISE ANALYSIS SYSTEM
#101 19-MAR-80 11.41 CH1=NI-5, CH2=NI-6 , PC#005
RMS= 6.002 E-4
NORMALIZED PSD2
10^-12
10^-11
10^-10
10^-9
10^-8
10^-7
10^-6
0
3
6
9
12
15
18
21
24
FREQUENCY IN HERTZ

BOC-1



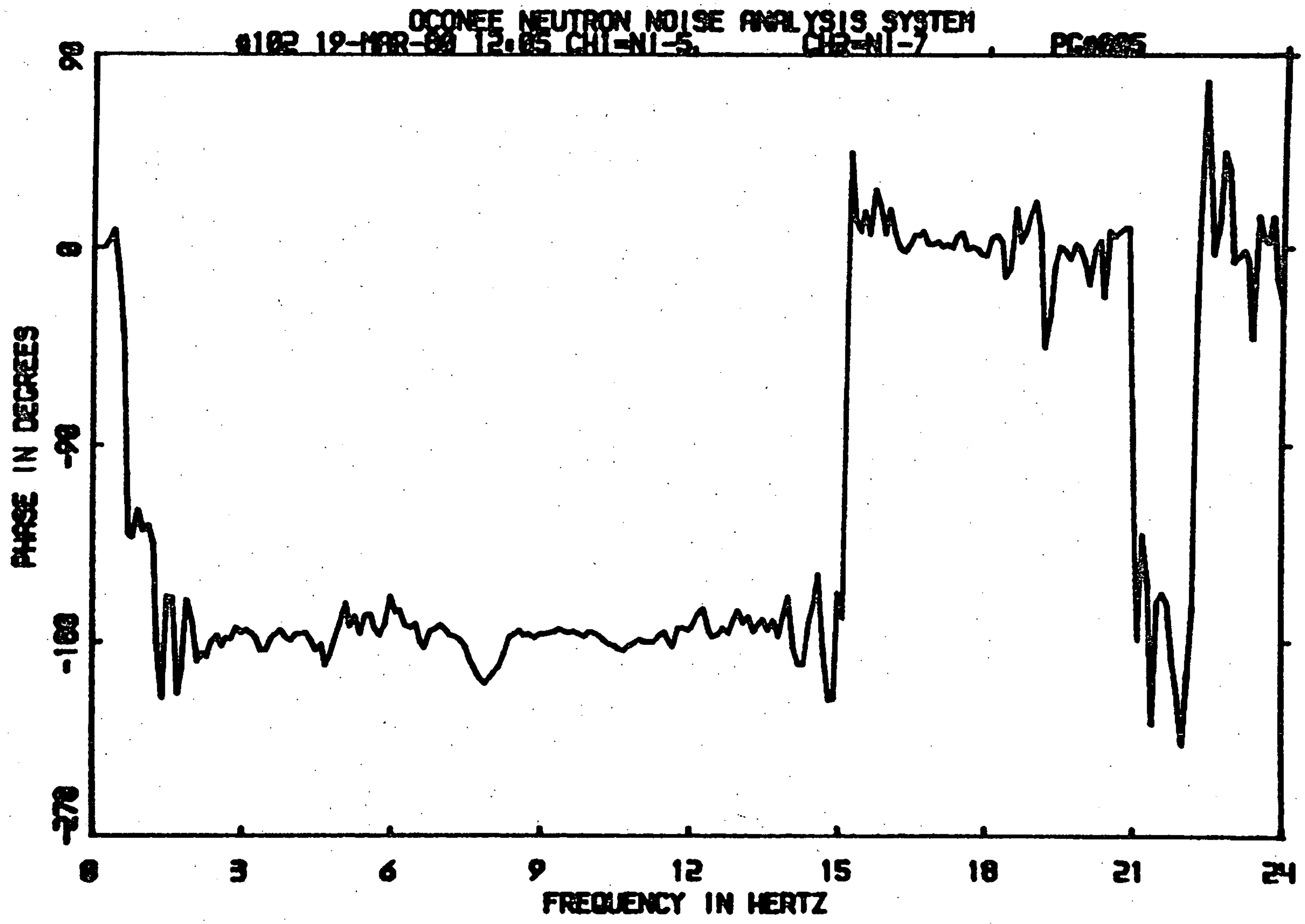
OCONEE NEUTRON NOISE ANALYSIS SYSTEM
#101 19-MAR-80 11.41 CH1=NI-5. CH2=NI-6 , PG#005
RMS= 4.597 E-4
NORMALIZED PSD1
10^-12
10^-11
10^-10
10^-9
10^-8
10^-7
10^-6
0
3
6
9
12
15
18
21
24
FREQUENCY IN HERTZ

Boc 1



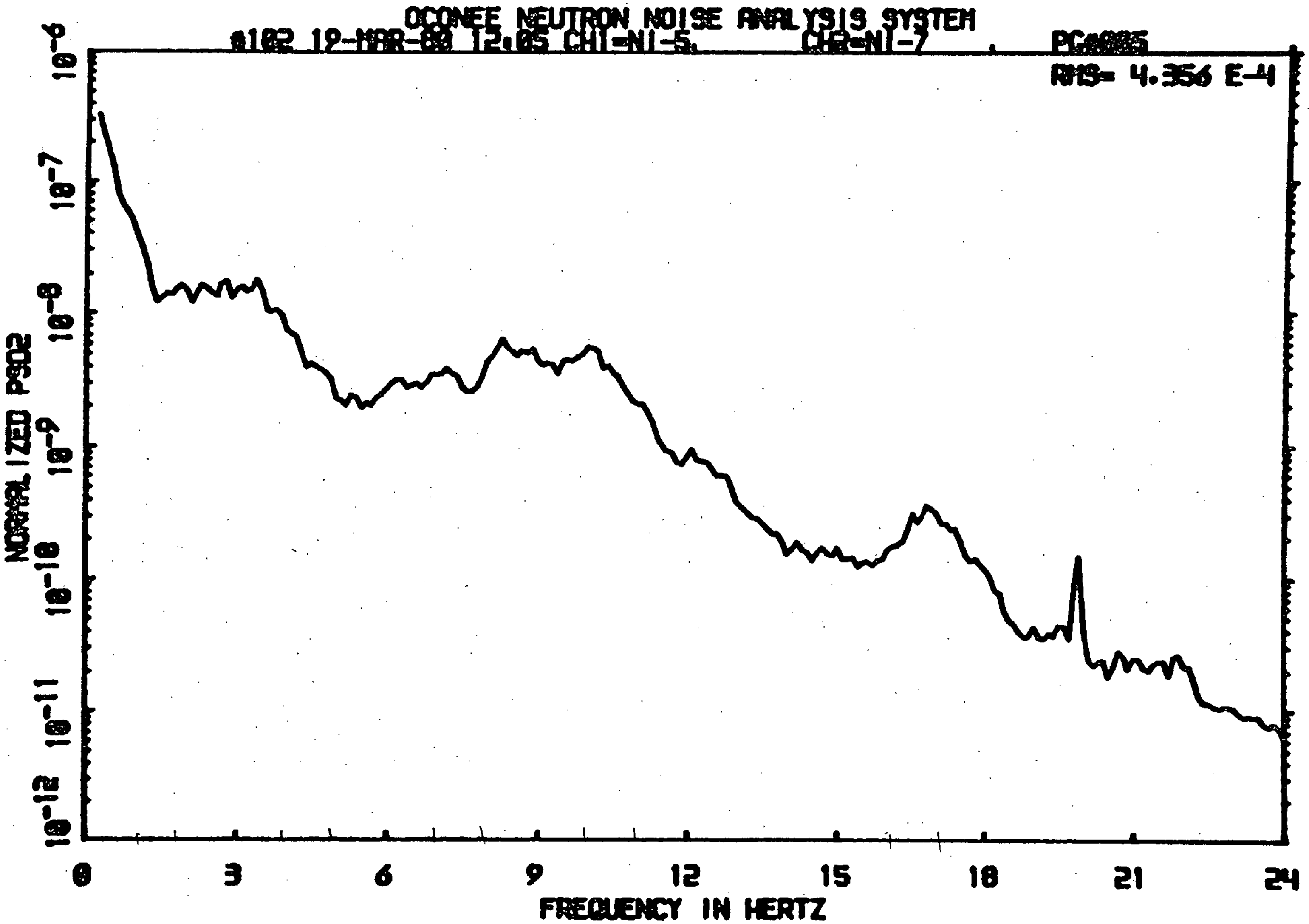
OCONEE NEUTRON NOISE ANALYSIS SYSTEM
#102 19-MAR-80 12:05 CH1=NI-5, CH2=NI-7 , PG#005
COHERENCE
0.0
0.2
0.4
0.6
0.8
1.0
0
3
6
9
12
15
18
21
24
FREQUENCY IN HERTZ

Boc 1



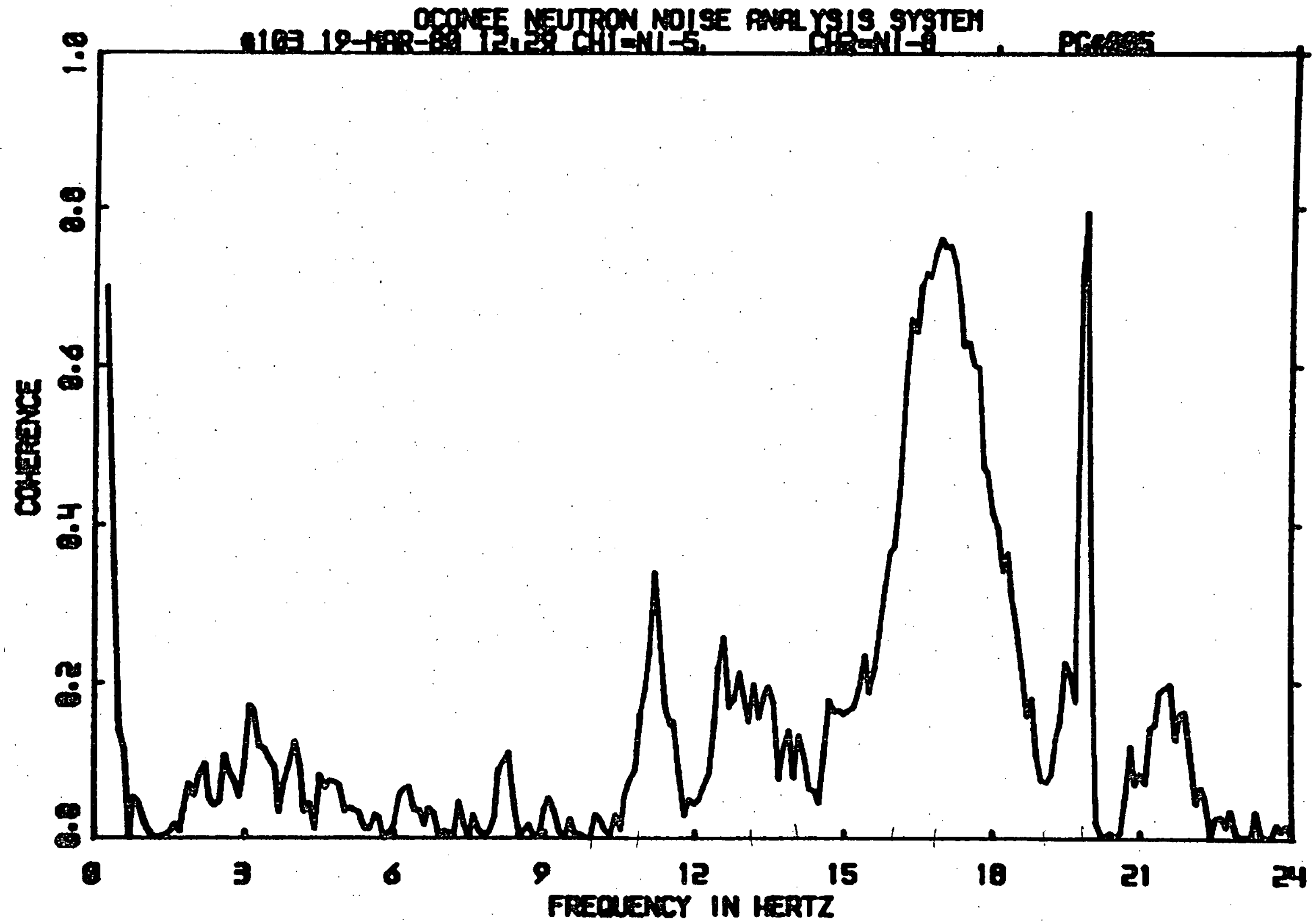
OCONEE NEUTRON NOISE ANALYSIS SYSTEM
#102 19-MAR-80 12:05 CH1=NI-5, CH2=NI-7 , PG#005
PHASE IN DEGREES
90
0
-90
-180
-270
0
3
6
9
12
15
18
21
24
FREQUENCY IN HERTZ

B6C 1



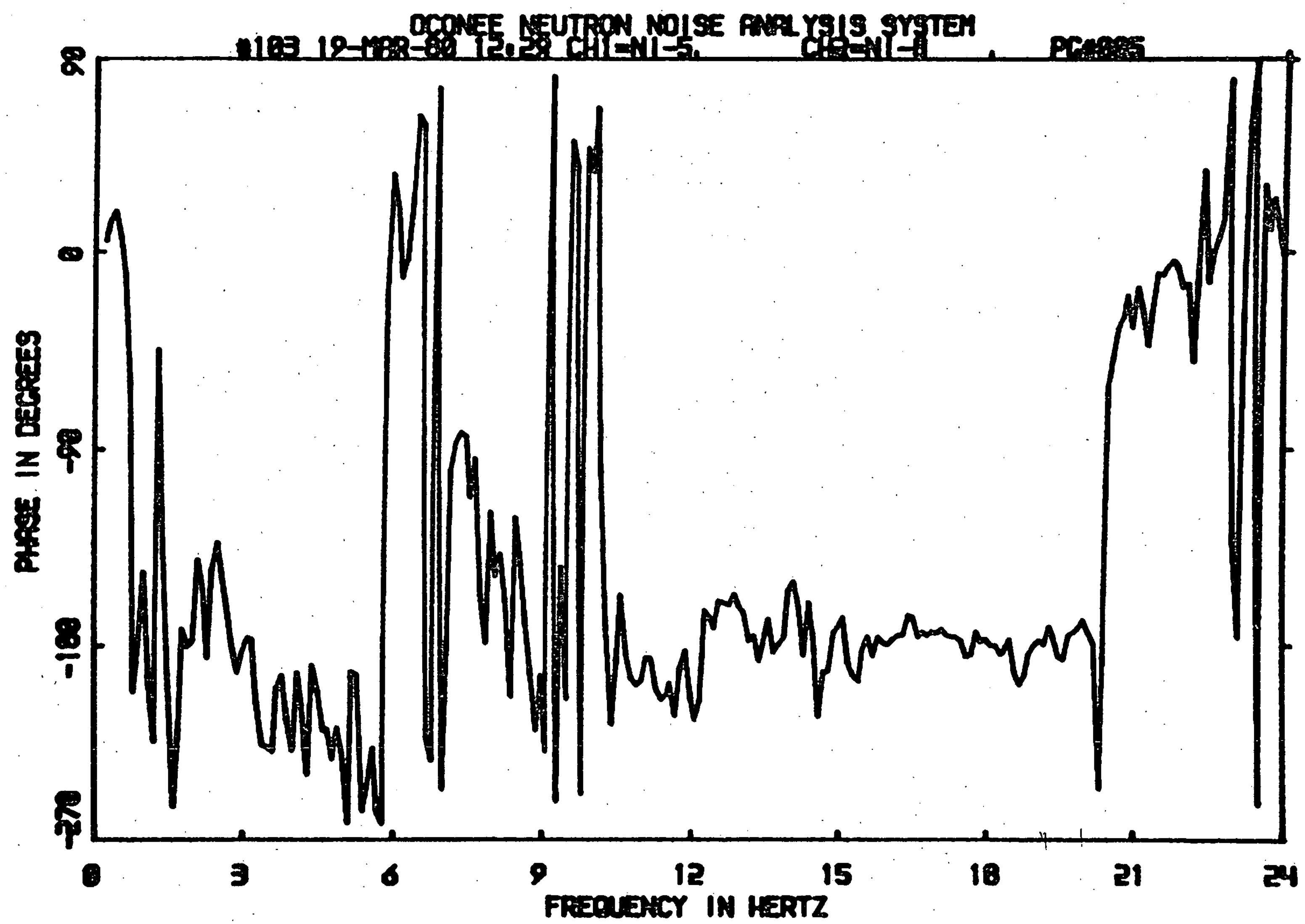
OCONEE NEUTRON NOISE ANALYSIS SYSTEM
#102 19-MAR-80 12:05 CH1=NI-5, CH2=NI-7 , PC#005
RMS= 4.356 E-4
NORMALIZED PSD2
10^{-6}
10^{-7}
10^{-8}
10^{-9}
10^{-10}
10^{-11}
10^{-12}
0
3
6
9
12
15
18
21
24
FREQUENCY IN HERTZ

Boc 7



OCONEE NEUTRON NOISE ANALYSIS SYSTEM
#103 19-MAR-80 12:29 CH1=NI-5, CH2=NI-8 , PG#005
COHERENCE
0.0
0.2
0.4
0.6
0.8
1.0
0
3
6
9
12
15
18
21
24
FREQUENCY IN HERTZ

Boc 1



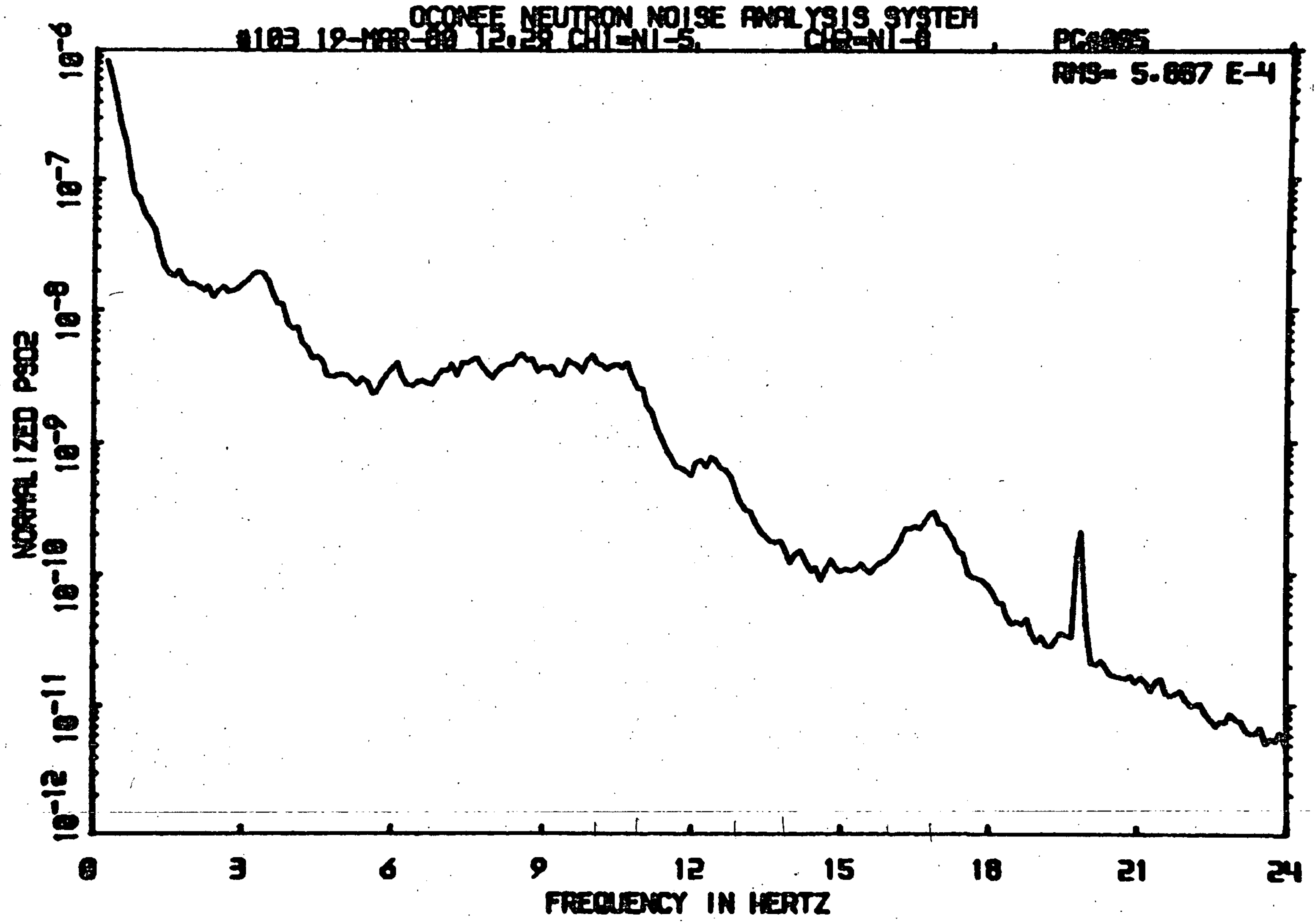
OCONEE NEUTRON NOISE ANALYSIS SYSTEM
#103 19-MAR-80 12:28 CH1=NI-5, CH2=NI-8 , PC#005
PHASE IN DEGREES
90
0
-90
-180
-270
0
3
6
9
12
15
18
21
24
FREQUENCY IN HERTZ

INDEX

SECTION	CONTENTS*
A	EOC 5, Unit 1
B	BOC 6, Unit 1
C	MOC 6, Unit 1
D	EOC 6, Unit 1
E	EOC 4, Unit 2
F	BOC 5, Unit 2
G	MOC 5, Unit 2
H	MOC 5, Unit 2
I	MOC 5, Unit 2
J	MOC 5, Unit 2
K	EOC 5, Unit 2
L	BOC 6, Unit 3
M	MOC 6, Unit 3
N	MOC 6, Unit 3

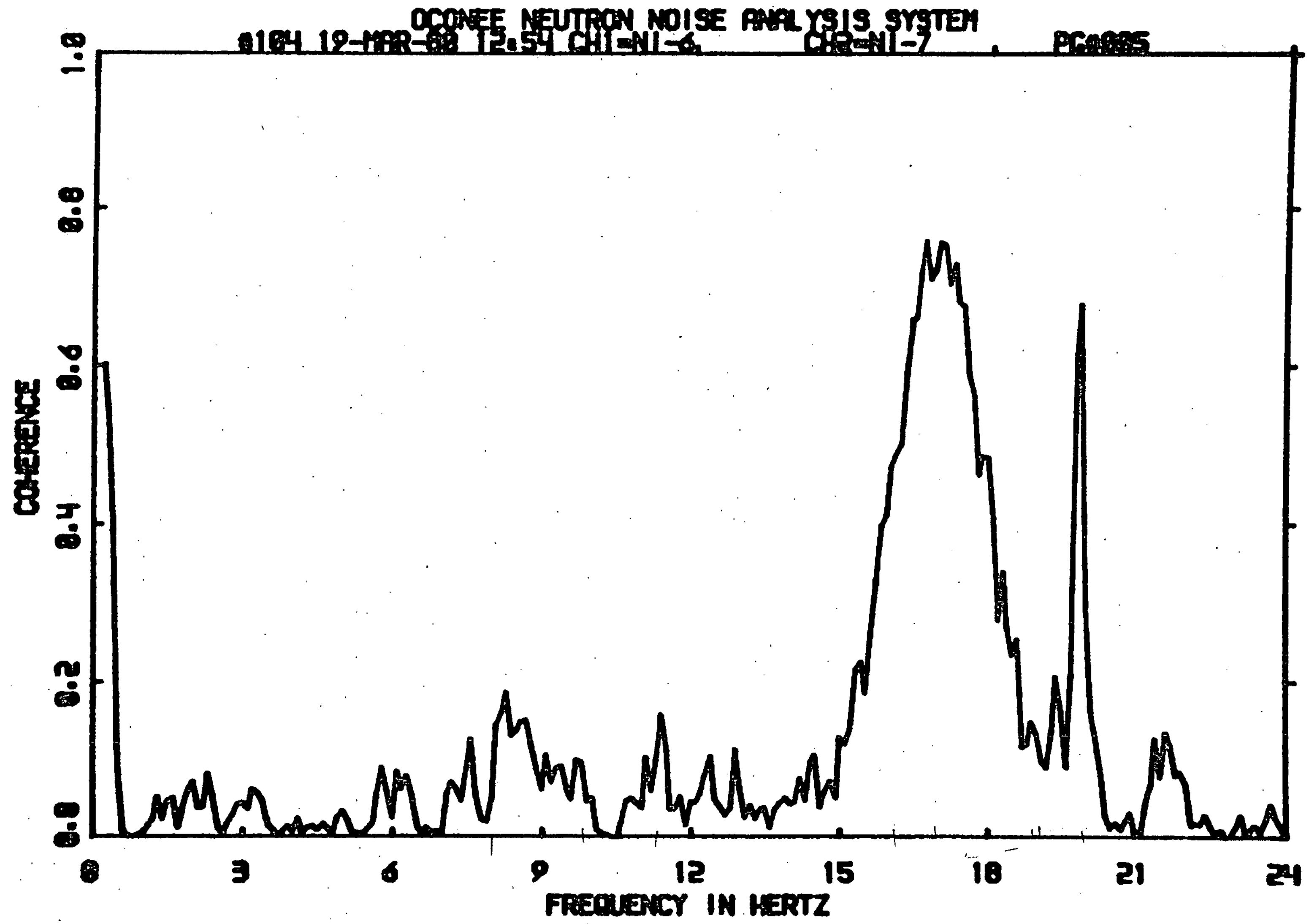
* This data compiled by either TEC or Duke personnel

BOC 1



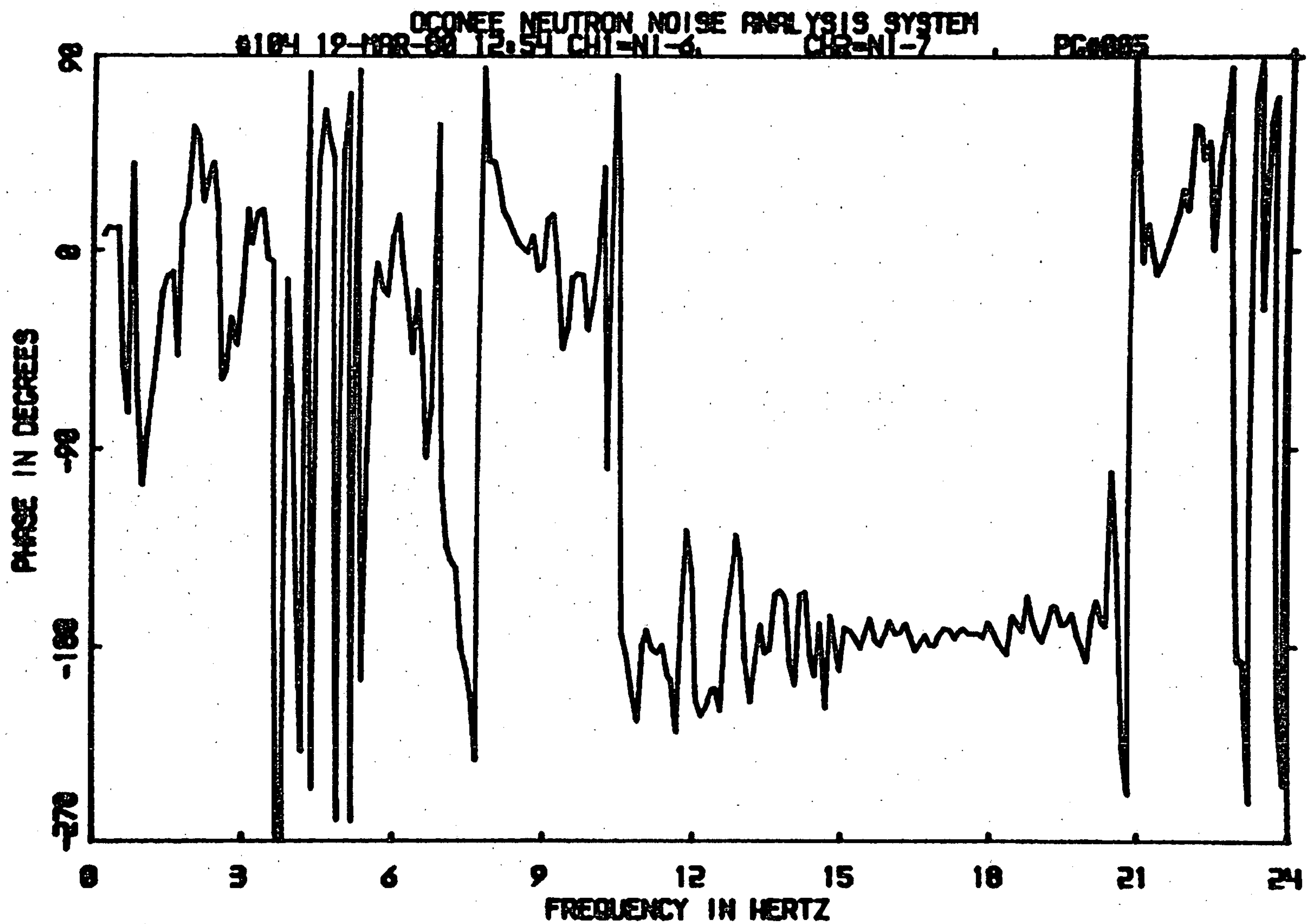
OCONEE NEUTRON NOISE ANALYSIS SYSTEM
#103 19-MAR-80 12.28 CH1=NI-5, CH2=NI-6 , PC#005
RMS= 5.087 E-4
NORMALIZED PSD2
10^-6
10^-7
10^-8
10^-9
10^-10
10^-11
10^-12
0
3
6
9
12
15
18
21
24
FREQUENCY IN HERTZ

Boc 1



OCONEE NEUTRON NOISE ANALYSIS SYSTEM
#104 19-MAR-88 12:54 CH1=NI-6, CH2=NI-7 , PG#005
COHERENCE
0.0
0.2
0.4
0.6
0.8
1.0
0
3
6
9
12
15
18
21
24
FREQUENCY IN HERTZ

Boo 1

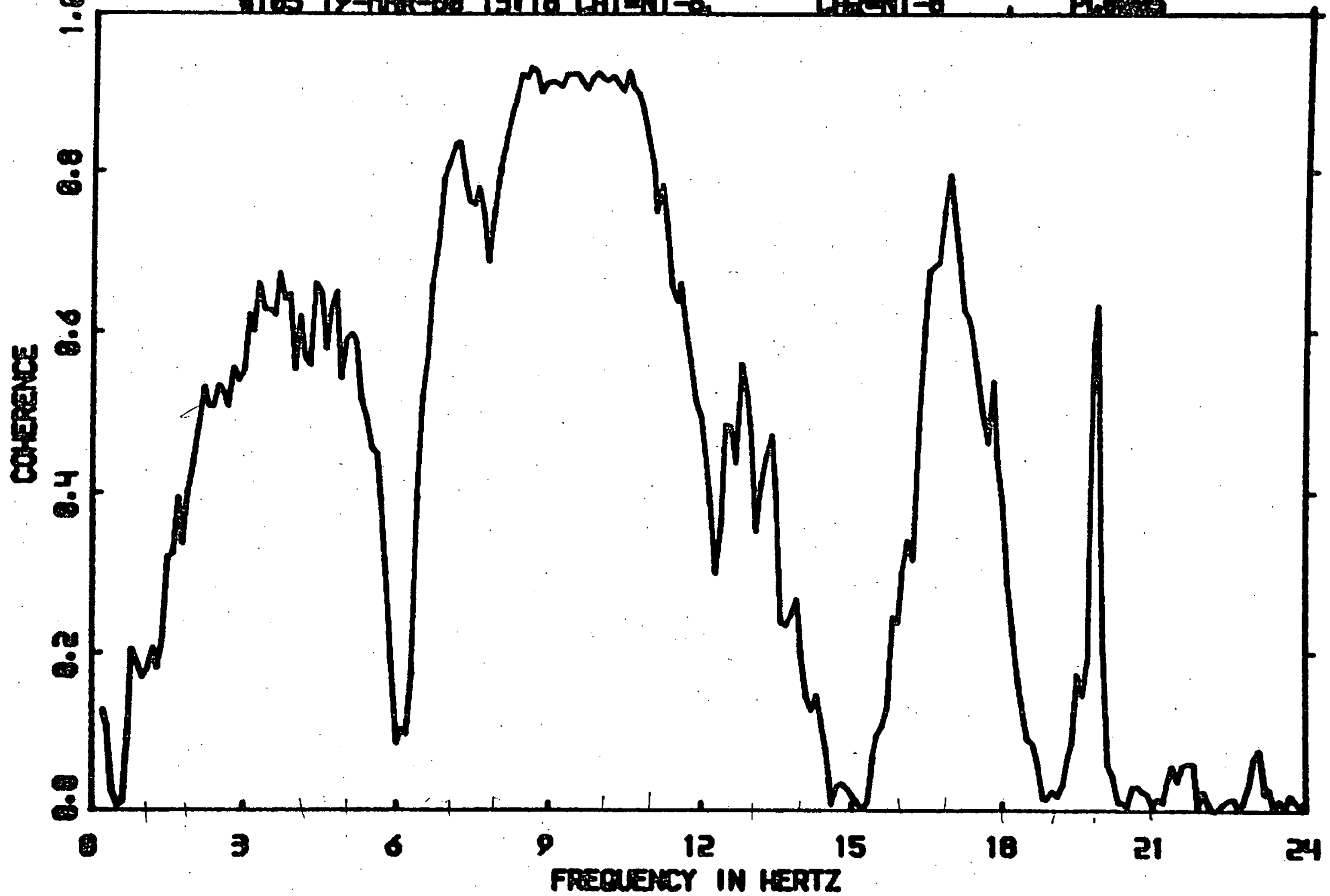


OCONEE NEUTRON NOISE ANALYSIS SYSTEM
#104 19-MAR-80 12:54 CH1=NI-6, CH2=NI-7 , PG#005
PHASE IN DEGREES
90
0
-90
-180
-270
0
3
6
9
12
15
18
21
24
FREQUENCY IN HERTZ

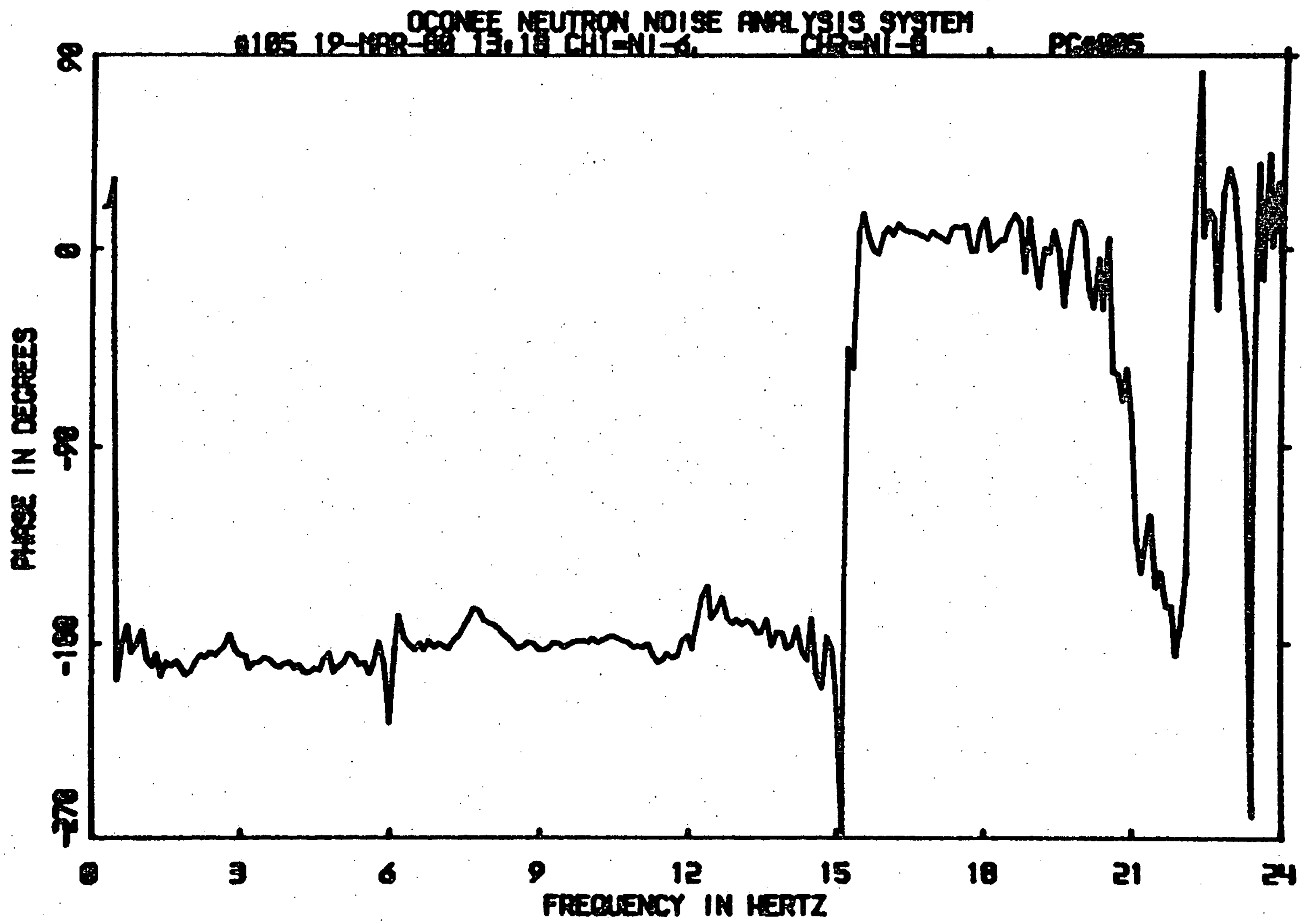
BOC 1 – Cycle 6

OCONEE NEUTRON NOISE ANALYSIS SYSTEM

#105 19-MAR-80 13:18 CH1=NI-6, CH2=NI-8 , PG#005

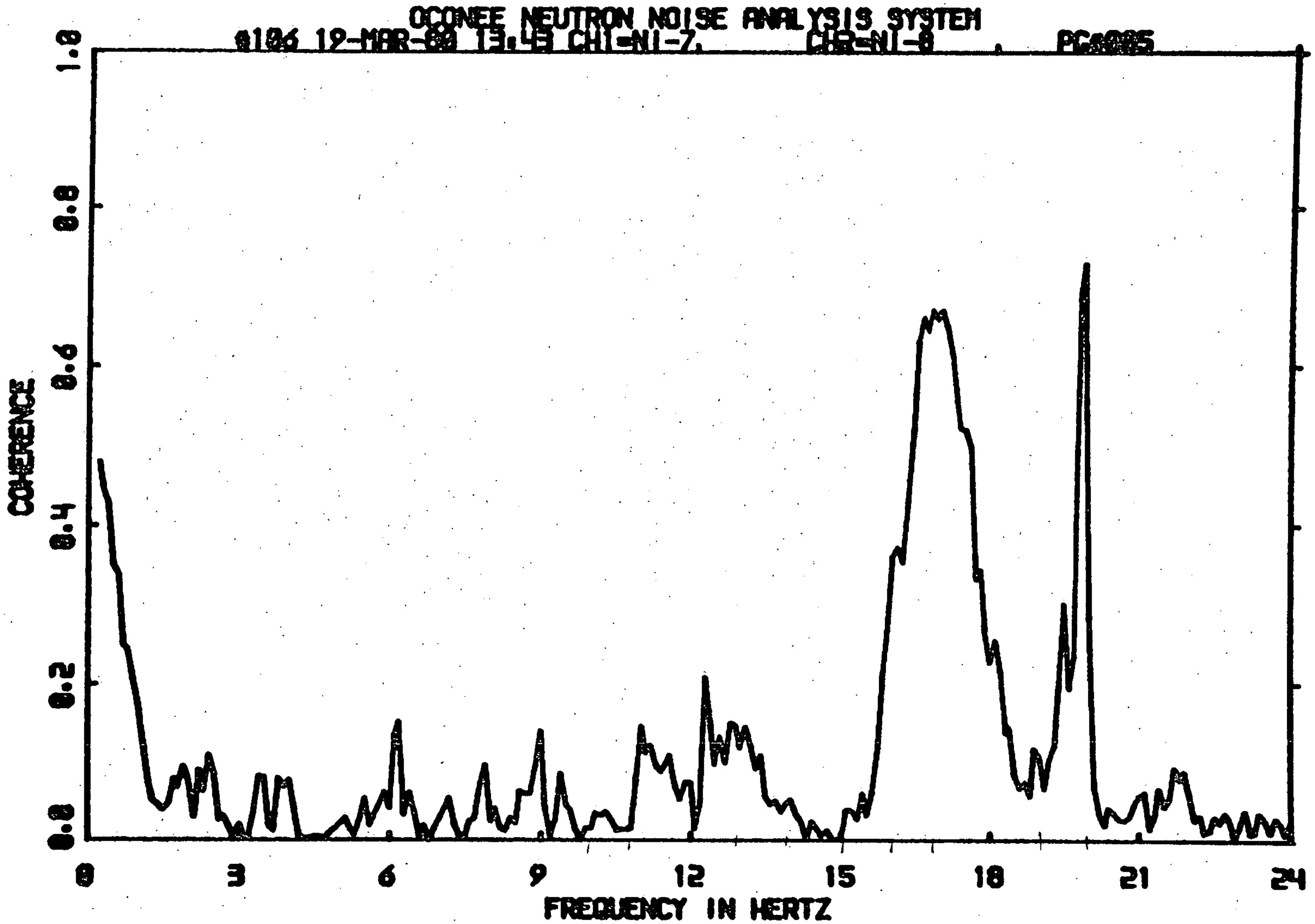


Boc 1 #6

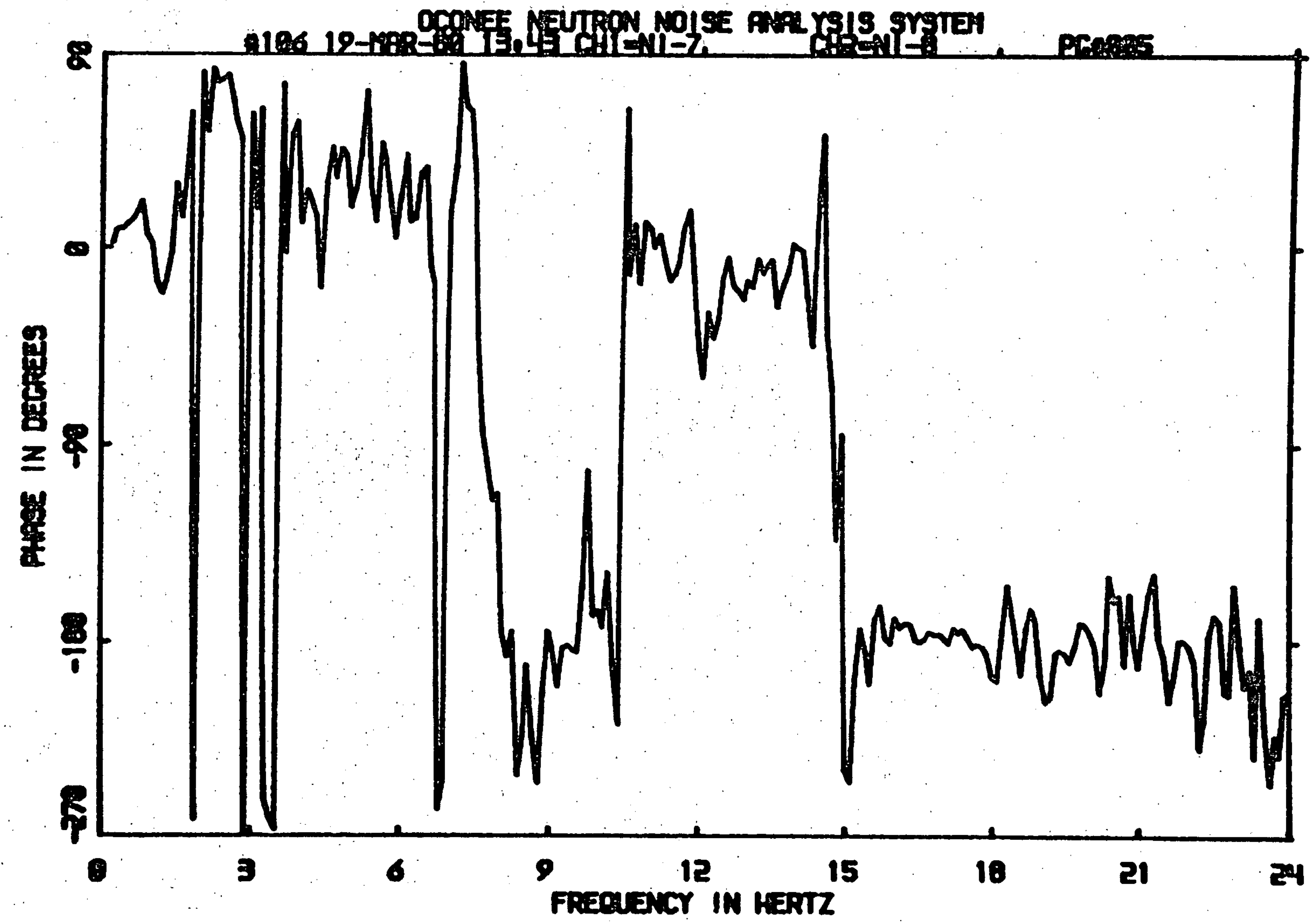


OCONEE NEUTRON NOISE ANALYSIS SYSTEM
#105 19-MAR-80 13:10 CH1=NI-6, CH2=NI-8 , PC=005
PHASE IN DEGREES
90
0
-90
-180
-270
0
3
6
9
12
15
18
21
24
FREQUENCY IN HERTZ

BOC I #6


OCONEE NEUTRON NOISE ANALYSIS SYSTEM
#106 19-MAR-80 13:43 CH1=NI-7, CH2=NI-8 , PG#005
COHERENCE
0.0
0.2
0.4
0.6
0.8
1.0
0
3
6
9
12
15
18
21
24
FREQUENCY IN HERTZ

BOC-1 #6



OCONEE NEUTRON NOISE ANALYSIS SYSTEM
#106 19-MAR-80 13.43 CH1=NI-7, CH2=NI-8 , PC#005
PHASE IN DEGREES
90
0
-90
-180
-270
0
3
6
9
12
15
18
21
24
FREQUENCY IN HERTZ

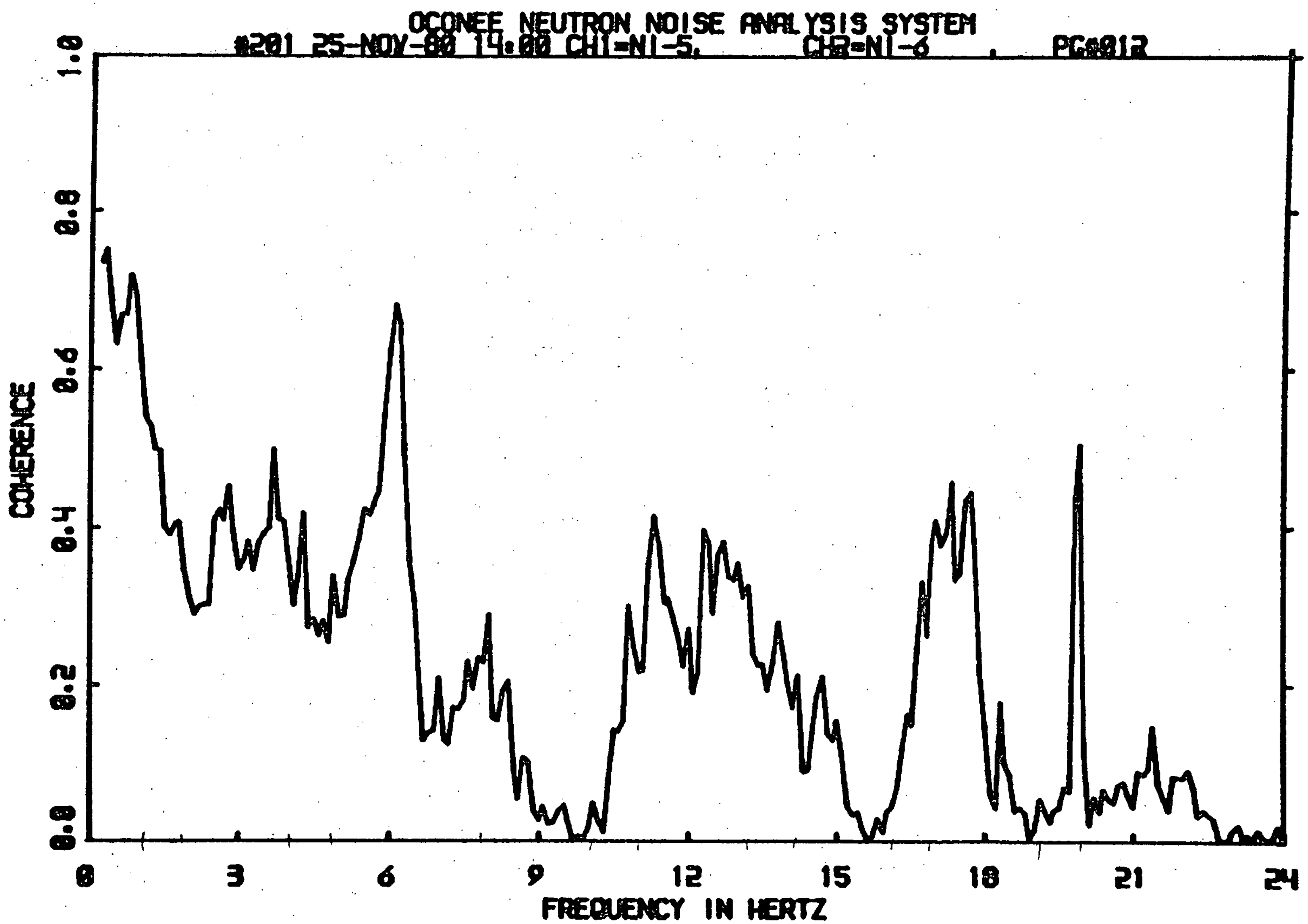
CONTENTS

Neutron noise data for MOC 6
Unit 1, taken November 25, 1980

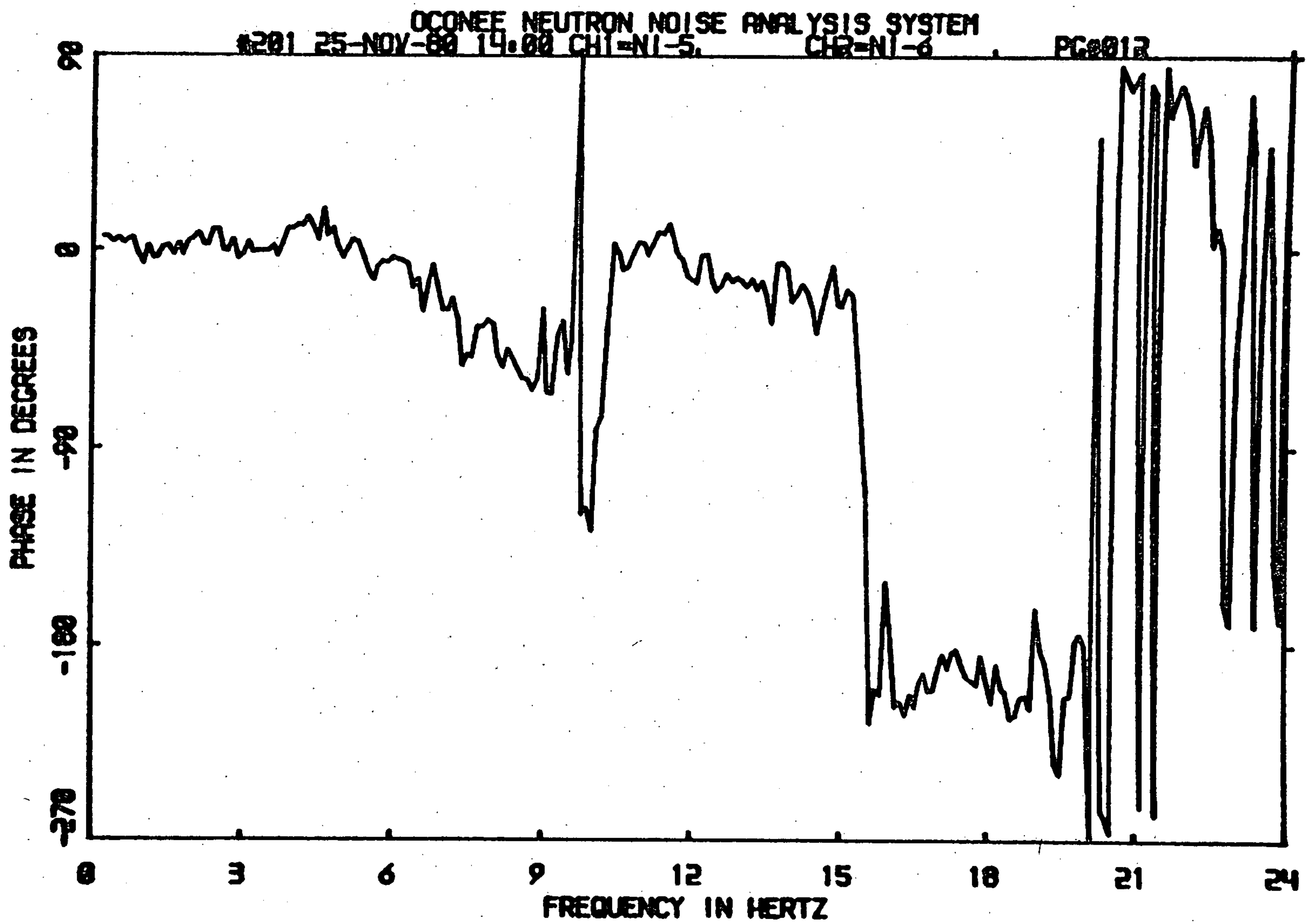
TEST #	DETECTOR PAIRS*
201	NI-5 total x NI-6 total
202	NI-5 total x NI-7 total
203	NI-5 total x NI-8 total
104	NI-6 total x NI-7 total
105	NI-6 total x NI-8 total
106	NI-7 total x NI-8 total

*Total indicates the sum of lower and upper chambers.

0IC6-MOC

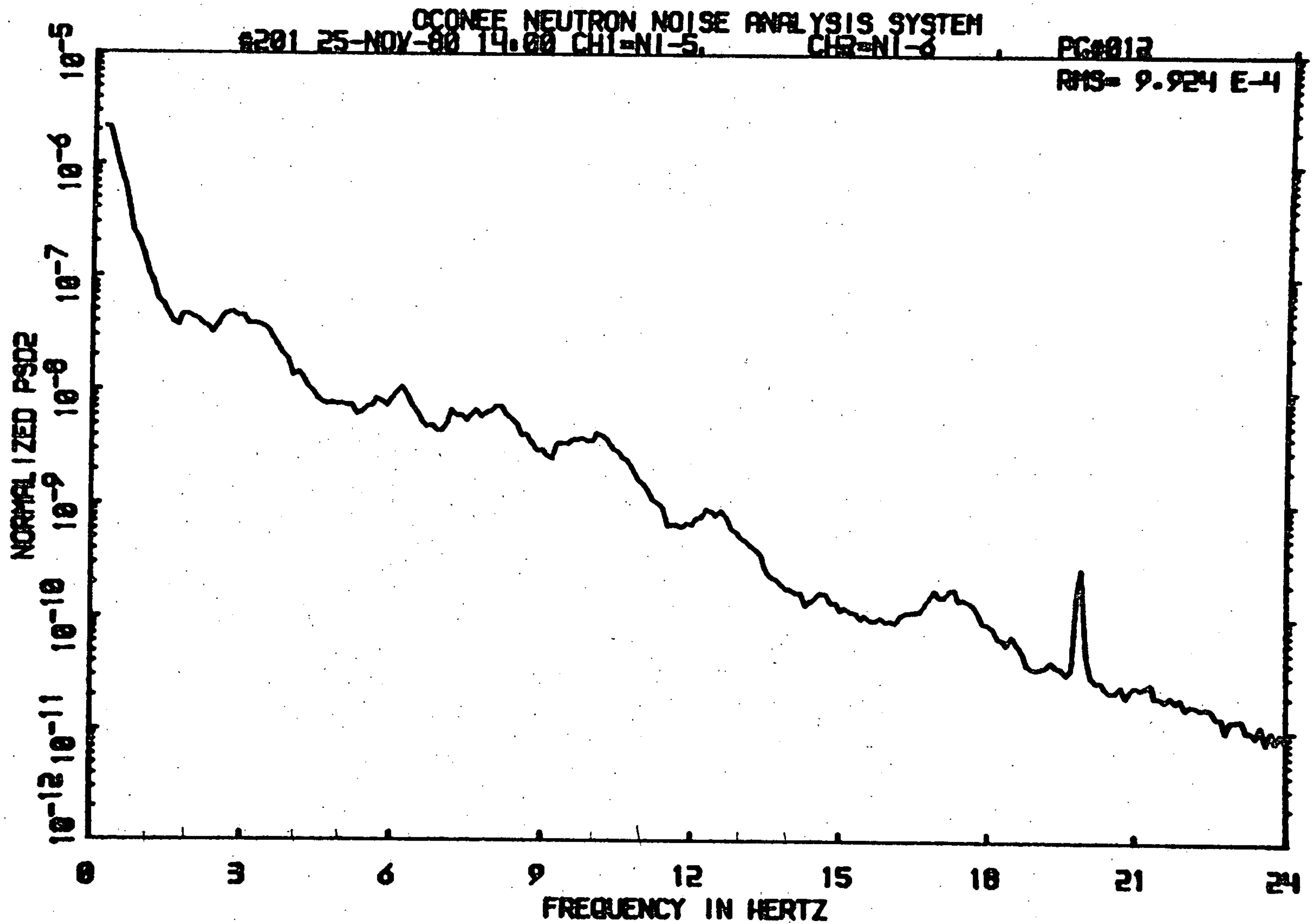

OCONEE NEUTRON NOISE ANALYSIS SYSTEM
#201 25-NOV-80 14:00 CH1=NI-5, CH2=NI-6 , PG#012
COHERENCE
0.0
0.2
0.4
0.6
0.8
1.0
0
3
6
9
12
15
18
21
24
FREQUENCY IN HERTZ

01C6-MOC



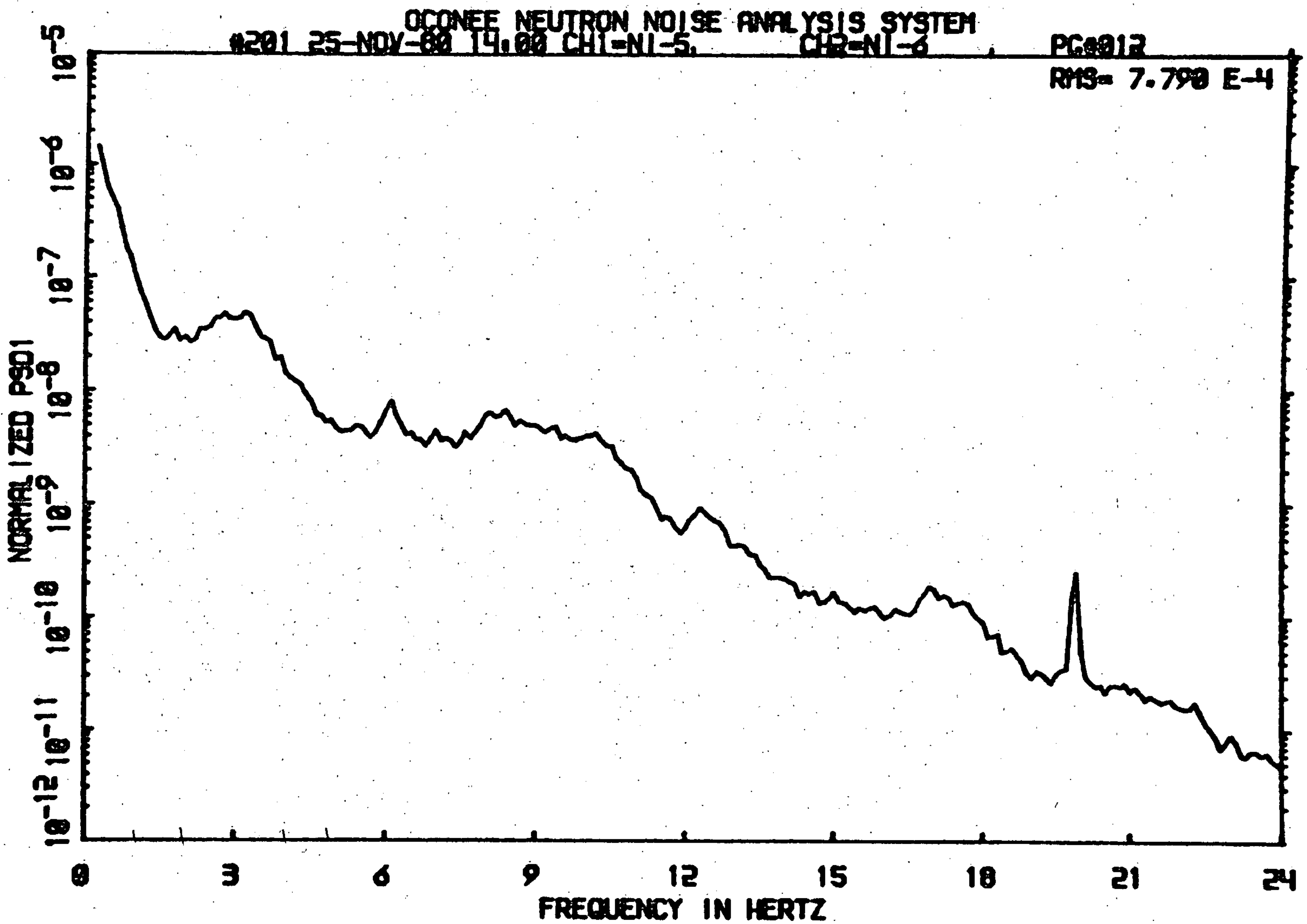
OCONEE NEUTRON NOISE ANALYSIS SYSTEM
#201 25-NOV-80 14:00 CH1=NI-5, CH2=NI-6 , PG0012
PHASE IN DEGREES
90
0
-90
-180
-270
0
3
6
9
12
15
18
21
24
FREQUENCY IN HERTZ

0IC6 - MOC

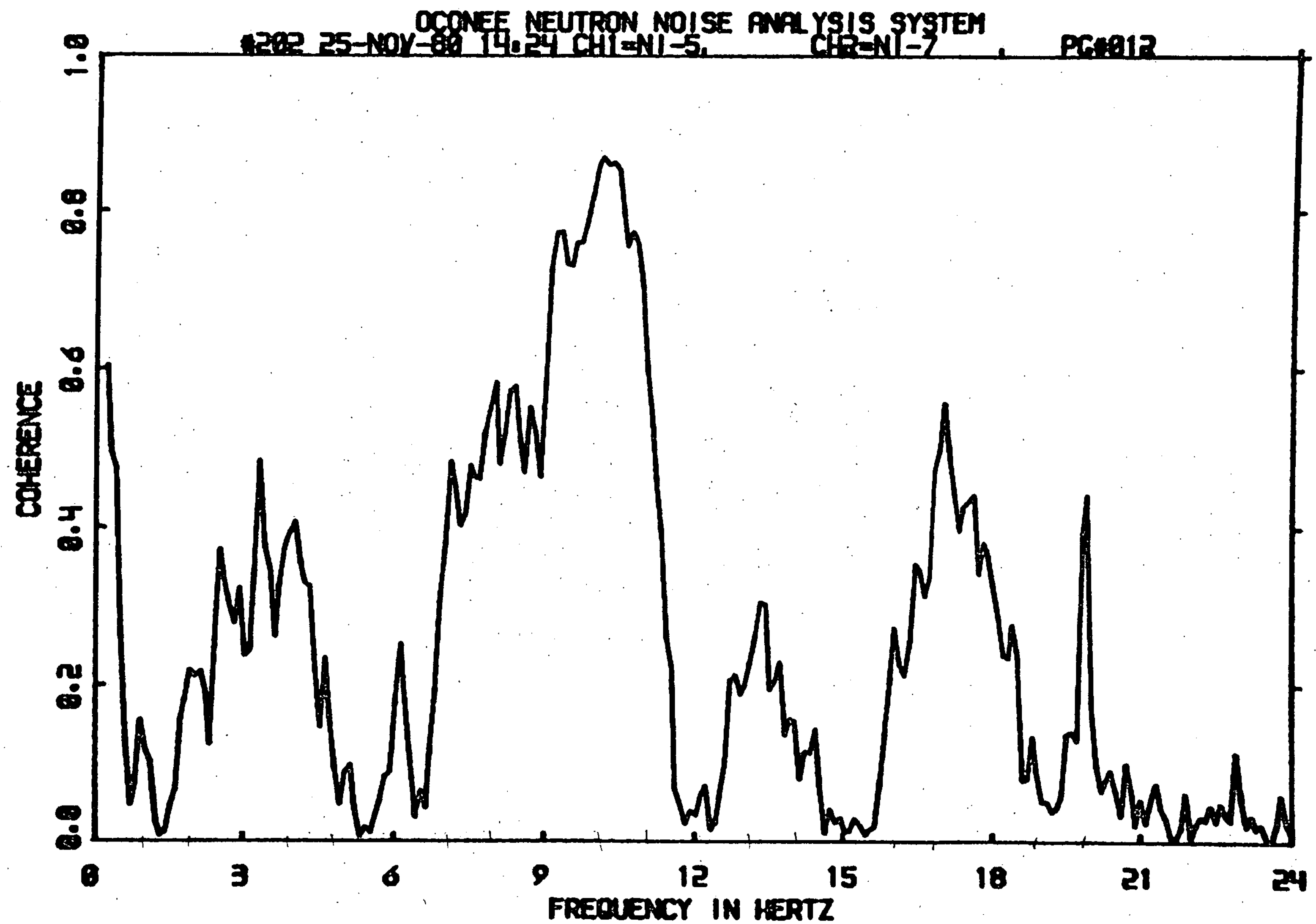


OCONEE NEUTRON NOISE ANALYSIS SYSTEM
#201 25-NOV-80 14:00 CH1=NI-5, CH2=NI-6 , PG#012
RMS= 9.924 E-4
NORMALIZED PSD2
10^-5
10^-6
10^-7
10^-8
10^-9
10^-10
10^-11
10^-12
0
3
6
9
12
15
18
21
24
FREQUENCY IN HERTZ

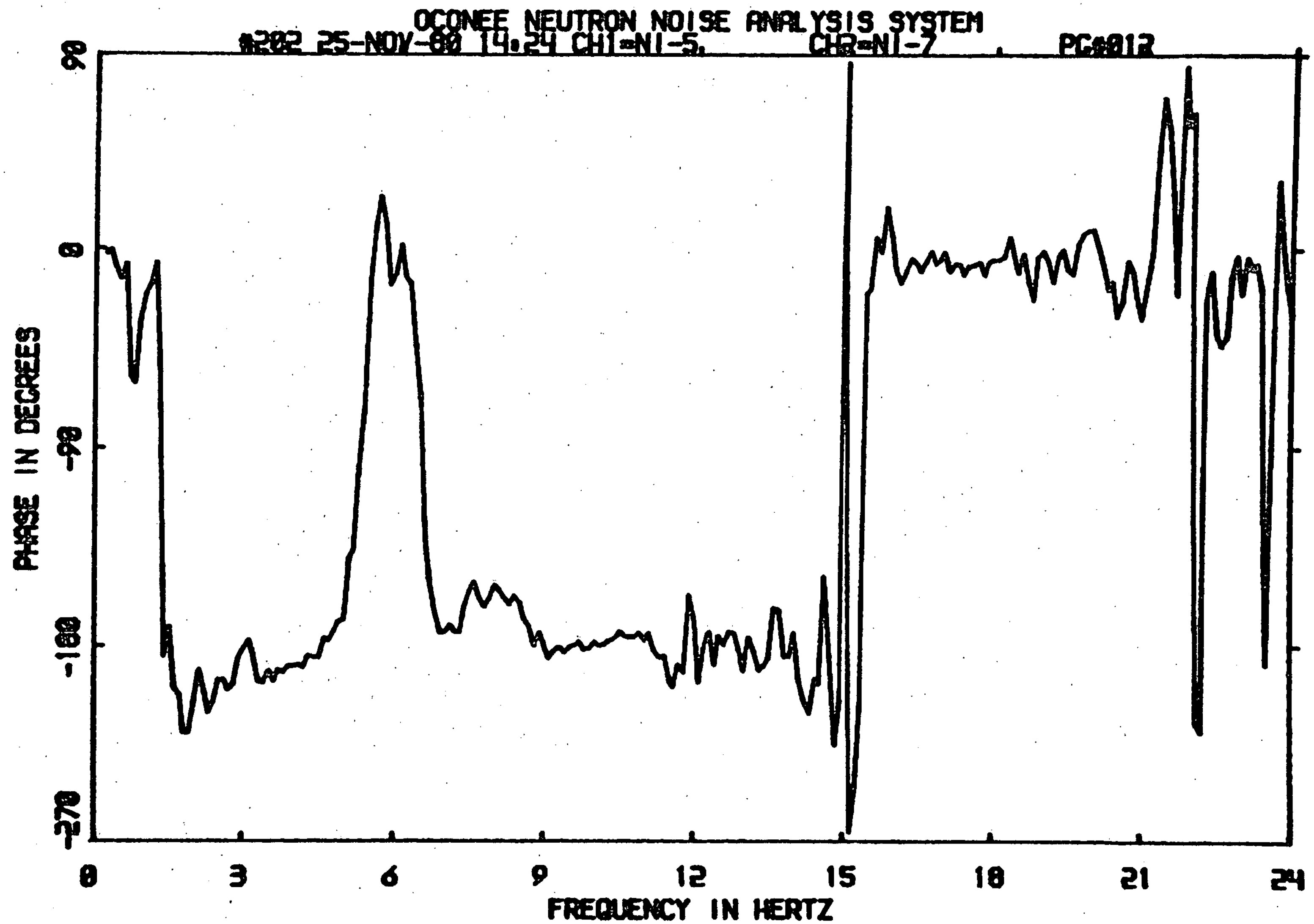
O1C6 - MOC (6) - Unit 1 - 210 EFPD
3-pump operatio ~ 45-100 EFPD's



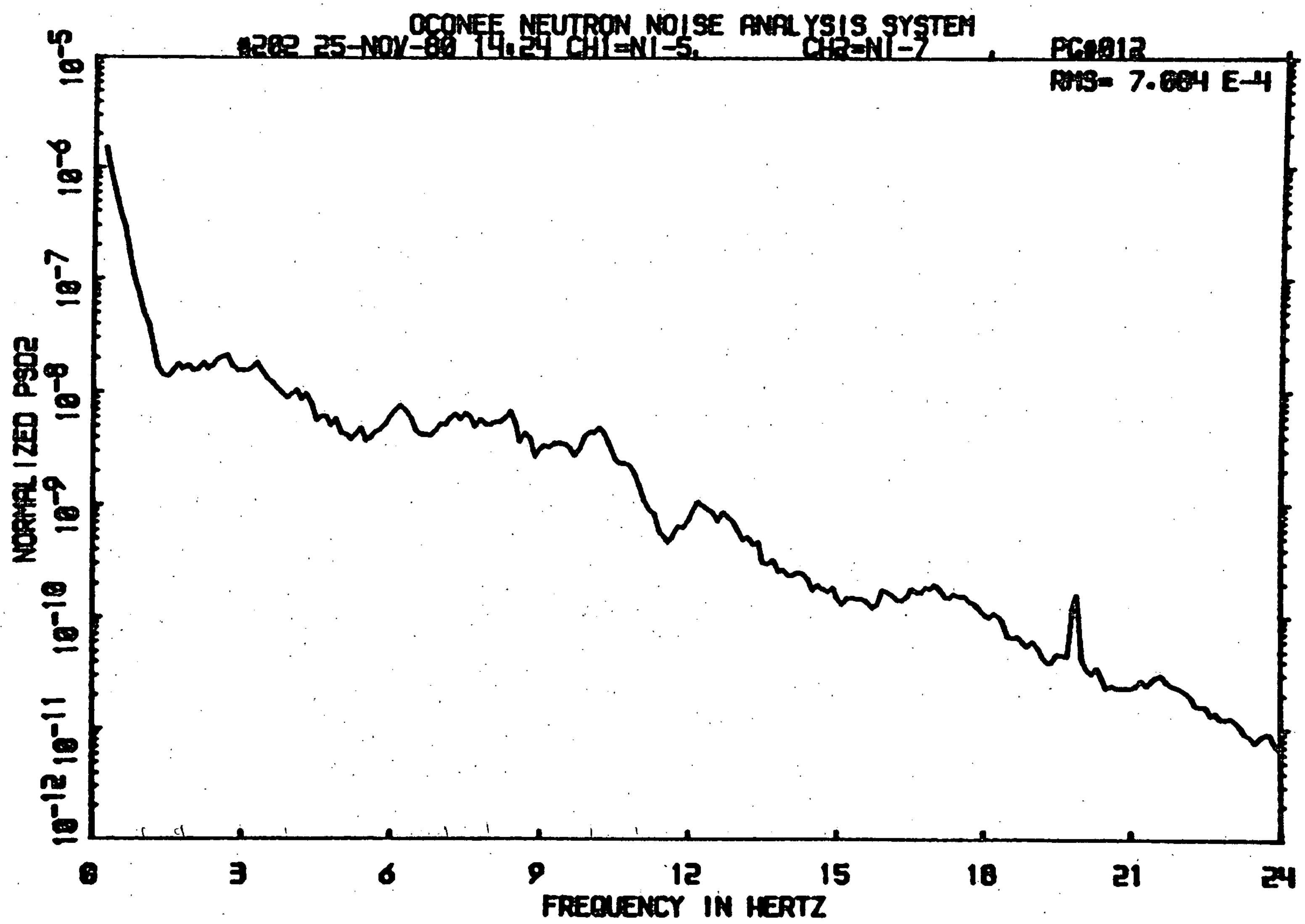
0106 - MOC


OCONEE NEUTRON NOISE ANALYSIS SYSTEM
#202 25-NOV-80 14:24 CH1=NI-5, CH2=NI-7 , PG#012
COHERENCE
0.0
0.2
0.4
0.6
0.8
1.0
0
3
6
9
12
15
18
21
24
FREQUENCY IN HERTZ

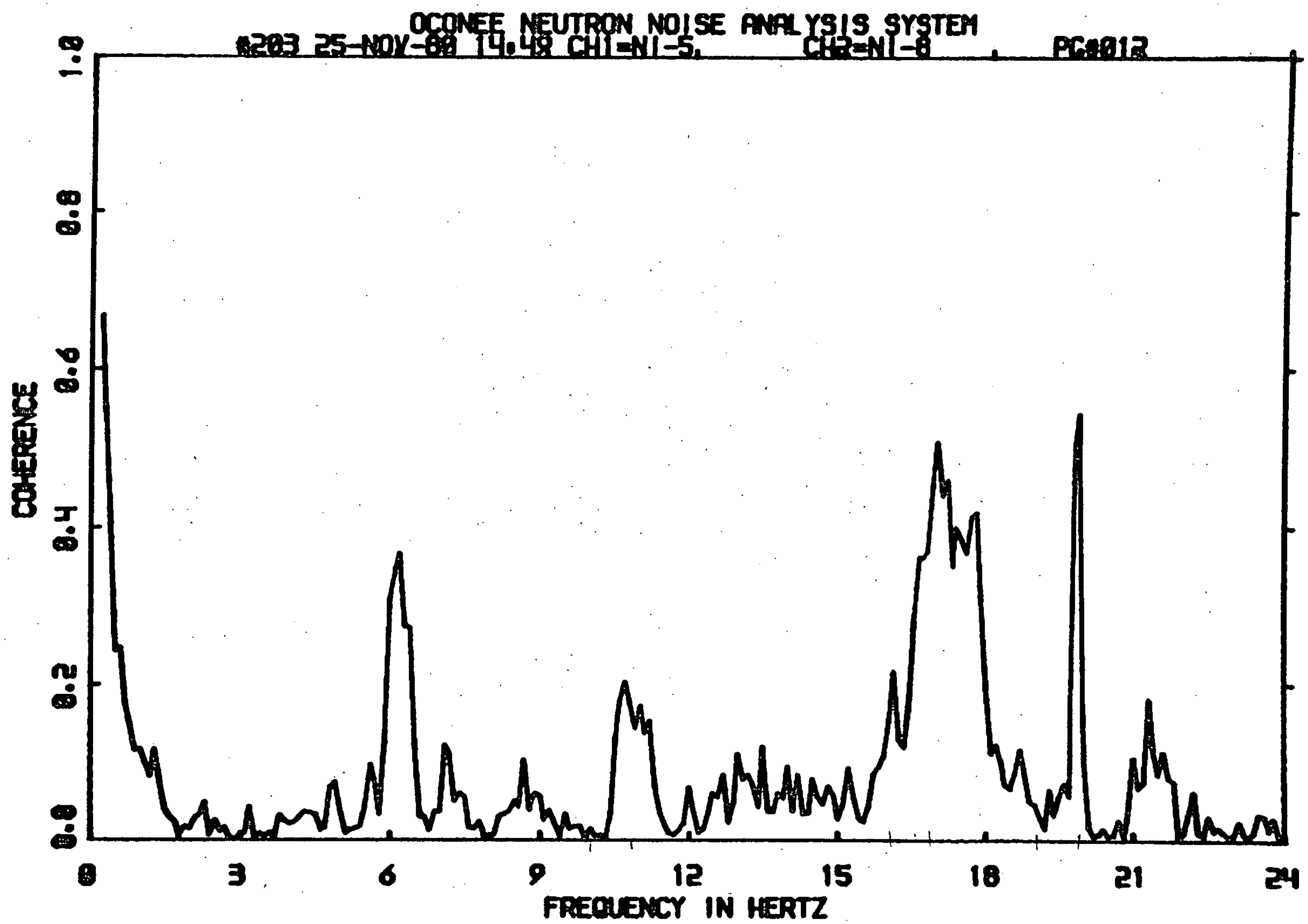
0IC6-MOC


OCONEE NEUTRON NOISE ANALYSIS SYSTEM
#202 25-NOV-80 14:24 CH1=NI-5, CH2=NI-7 , PG#012
PHASE IN DEGREES
90
0
-90
-180
-270
0
3
6
9
12
15
18
21
24
FREQUENCY IN HERTZ

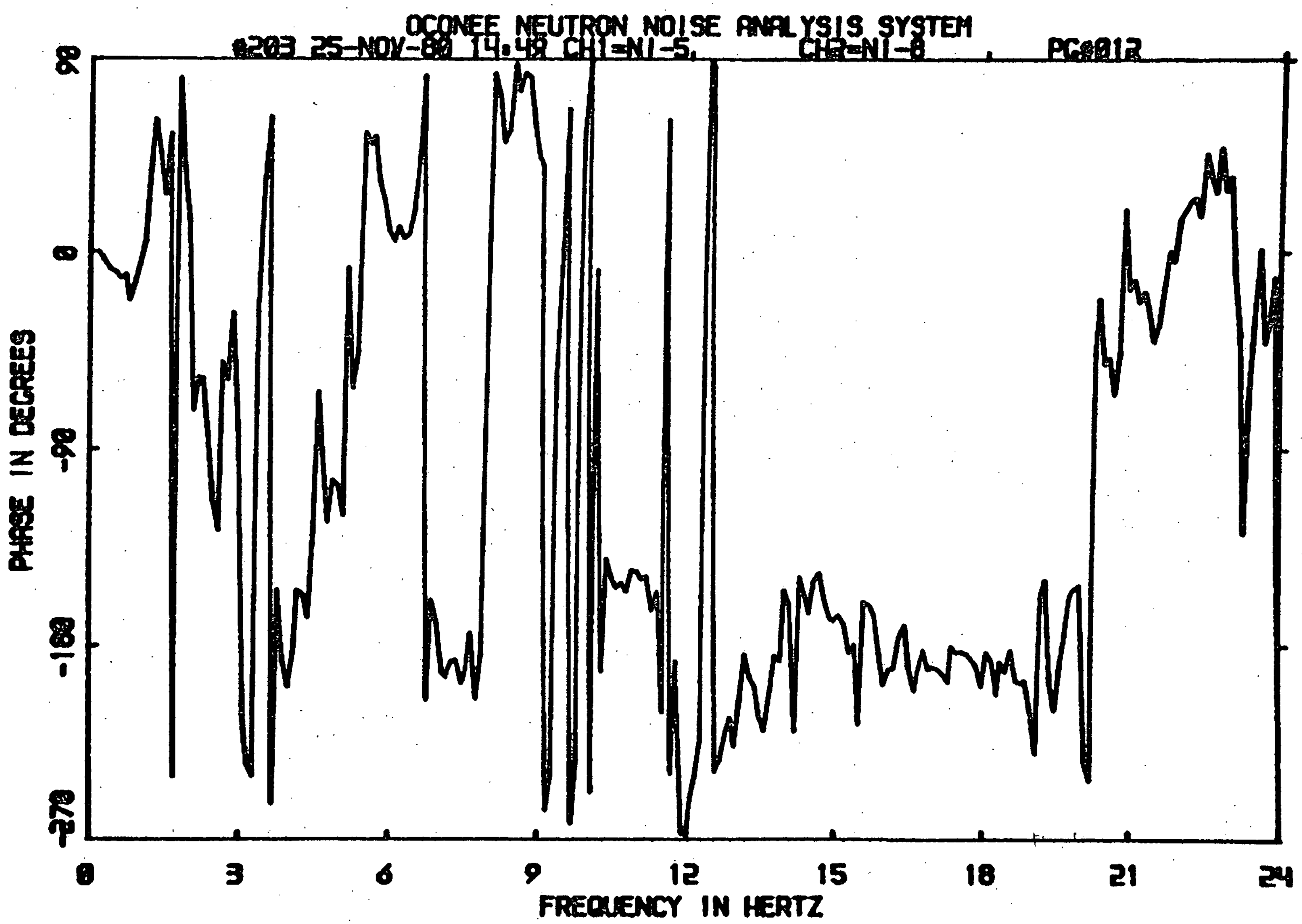
0IC6-MOC


OCONEE NEUTRON NOISE ANALYSIS SYSTEM
#202 25-NOV-80 14:24 CH1=NI-5, CH2=NI-7 , PC#012
RMS= 7.004 E-4
NORMALIZED PSD2
10^-5
10^-6
10^-7
10^-8
10^-9
10^-10
10^-11
10^-12
0
3
6
9
12
15
18
21
24
FREQUENCY IN HERTZ

0IC6-MOC

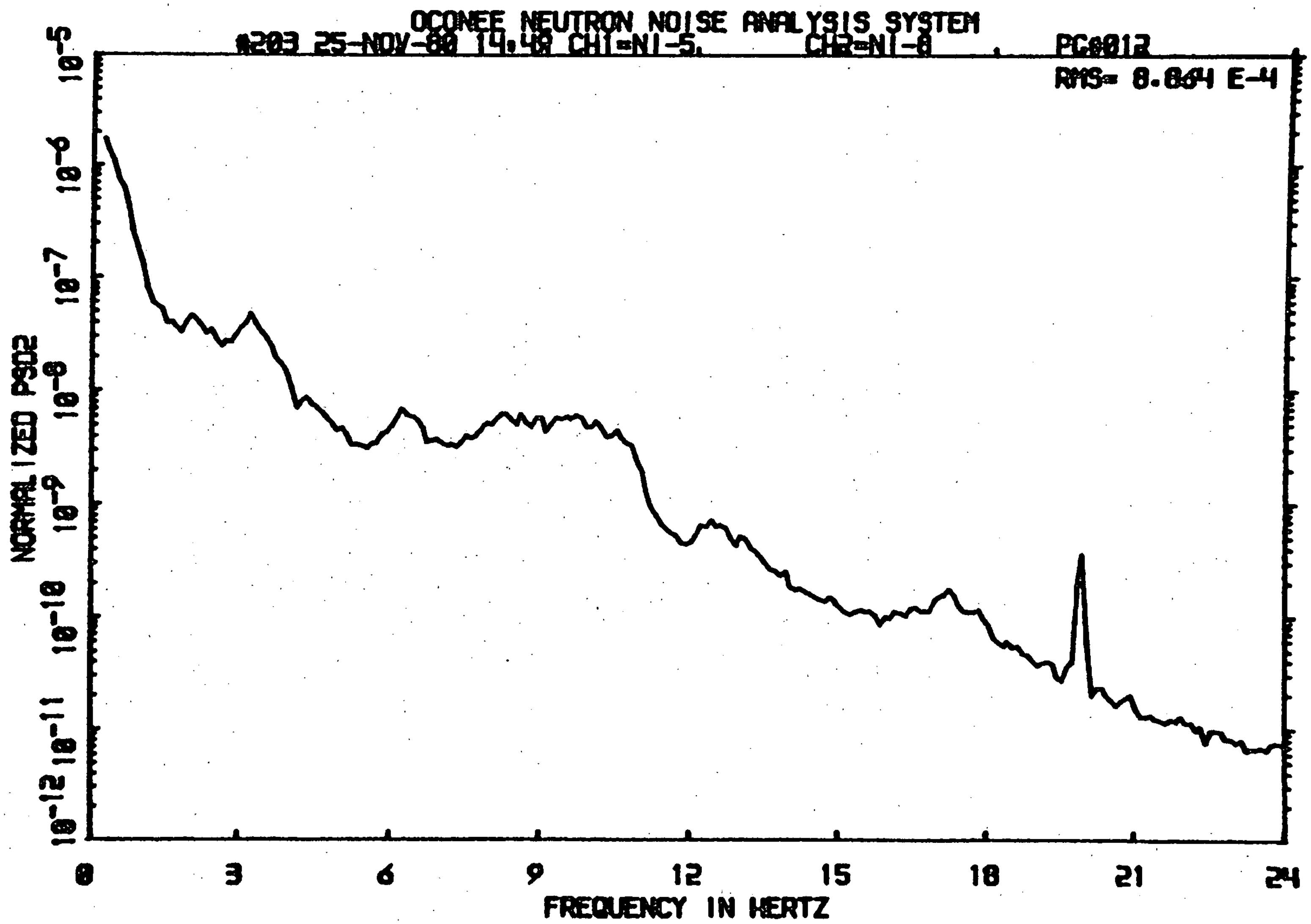

OCONEE NEUTRON NOISE ANALYSIS SYSTEM
#203 25-NOV-80 14.48 CH1=NI-5, CH2=NI-8 , PG#012
COHERENCE
0.0
0.2
0.4
0.6
0.8
1.0
0
3
6
9
12
15
18
21
24
FREQUENCY IN HERTZ

01C6 – MOC



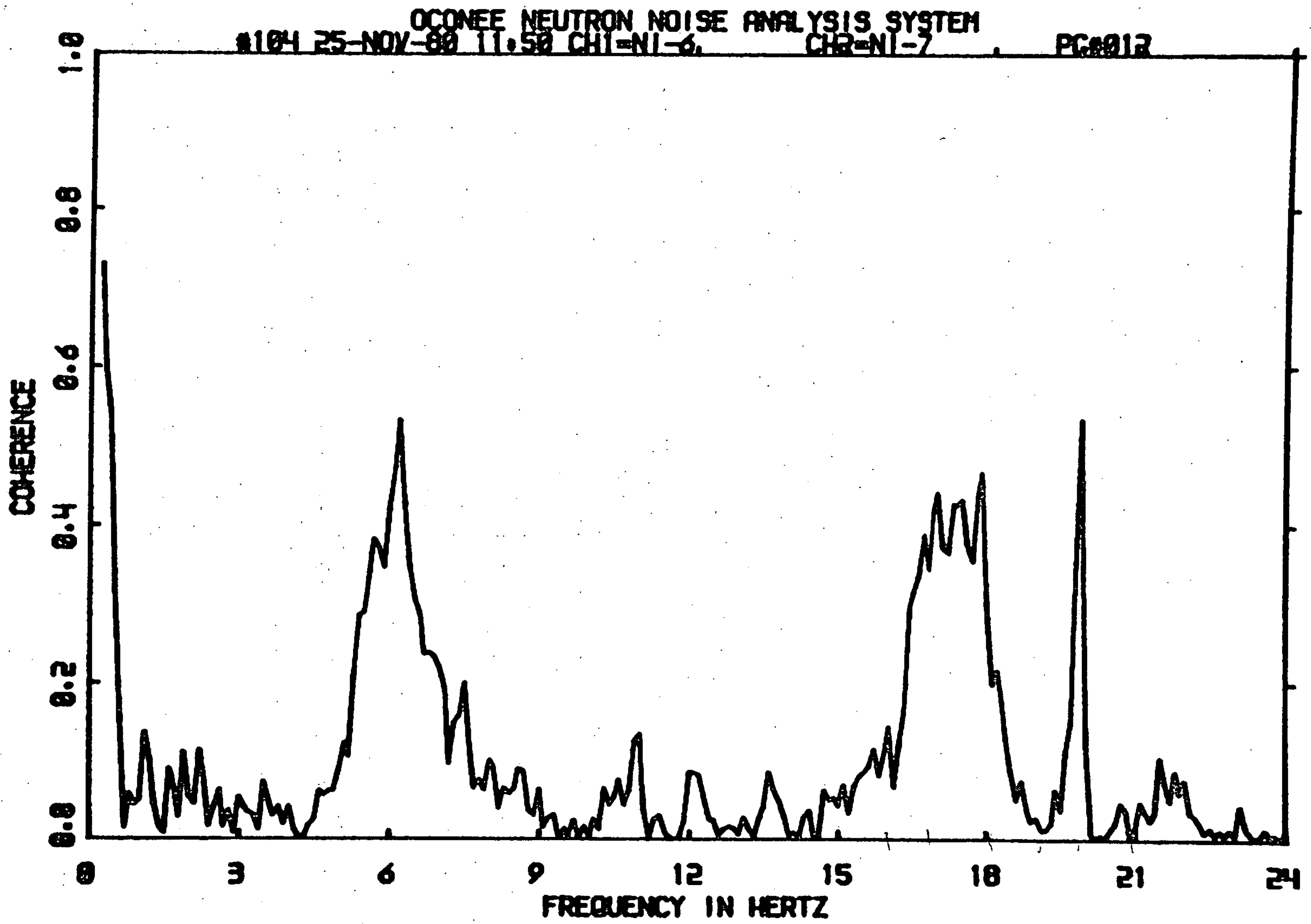
OCONEE NEUTRON NOISE ANALYSIS SYSTEM
#203 25-NOV-80 14:49 CH1=NI-5, CH2=NI-8 , PG#012
PHASE IN DEGREES
90
0
-90
-180
-270
0
3
6
9
12
15
18
21
24
FREQUENCY IN HERTZ

0106 - MOC

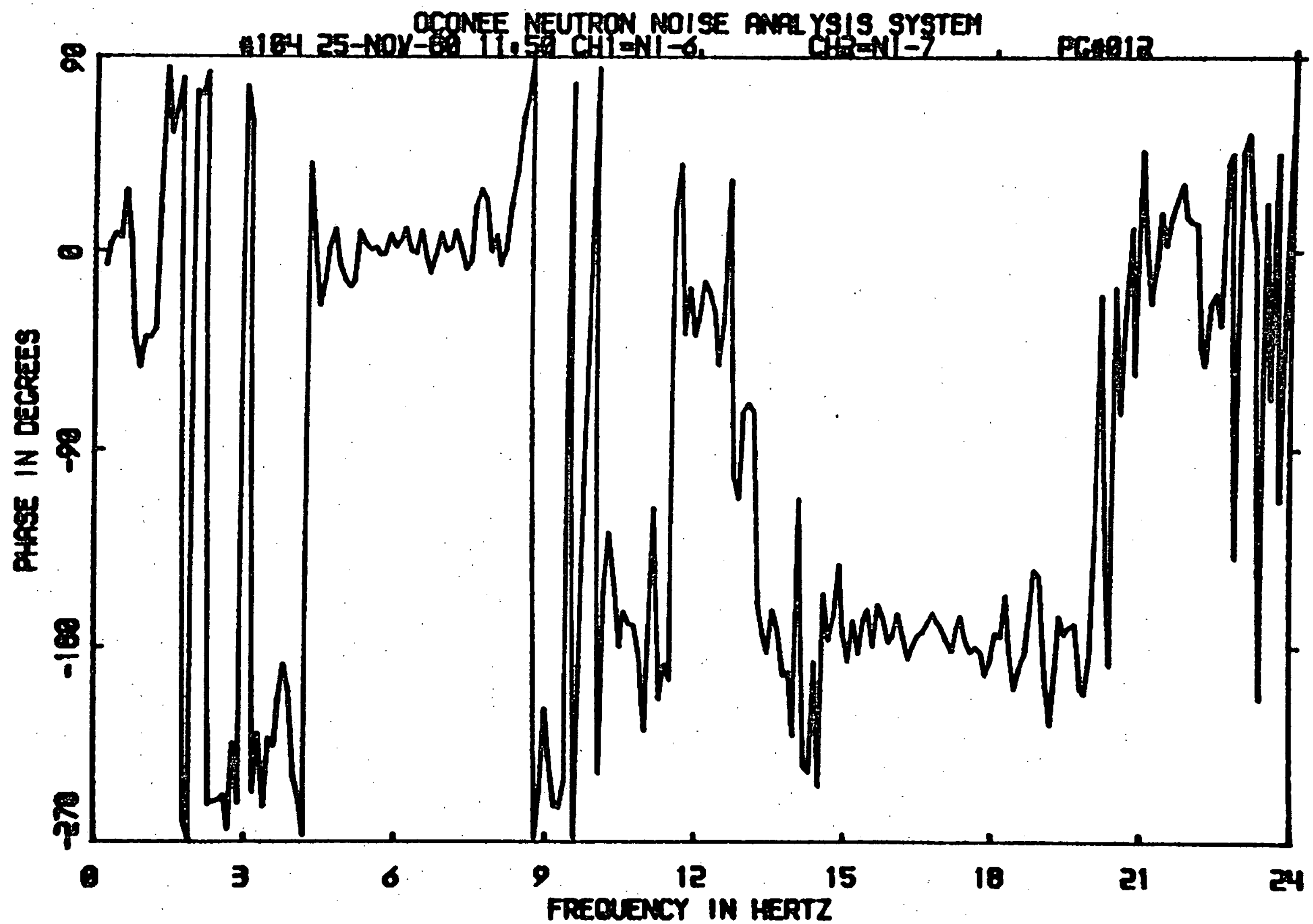


OCONEE NEUTRON NOISE ANALYSIS SYSTEM
#203 25-NOV-80 14.48 CH1=NI-5, CH2=NI-8 , PG#012
RMS= 8.864 E-4
NORMALIZED PSD2
10^-5
10^-6
10^-7
10^-8
10^-9
10^-10
10^-11
10^-12
0
3
6
9
12
15
18
21
24
FREQUENCY IN HERTZ

0IC6- MOC

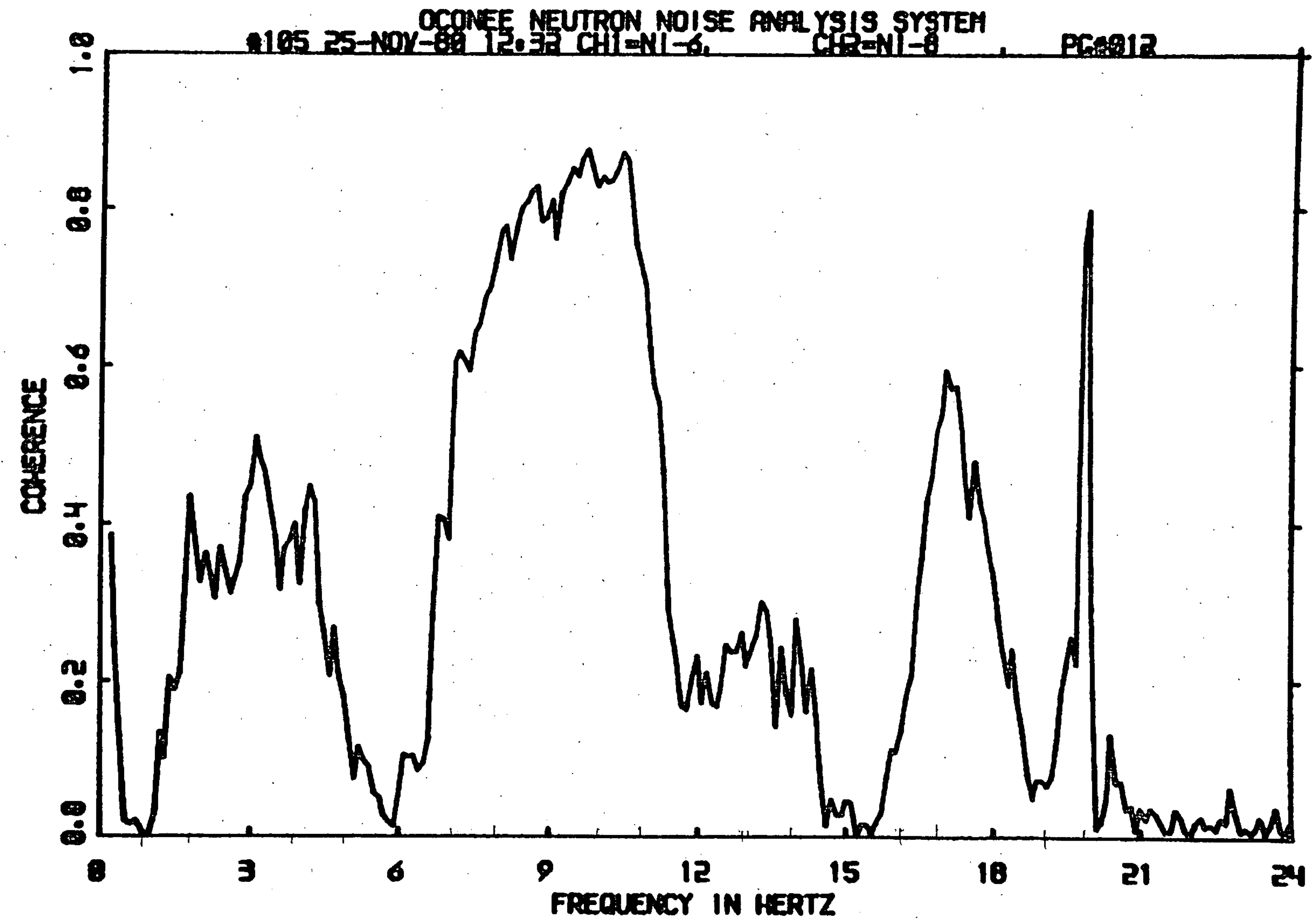

OCONEE NEUTRON NOISE ANALYSIS SYSTEM
#104 25-NOV-80 11:50 CH1=NI-6, CH2=NI-7 , PG#012
COHERENCE
0.0
0.2
0.4
0.6
0.8
1.0
0
3
6
9
12
15
18
21
24
FREQUENCY IN HERTZ

0166 - MOC



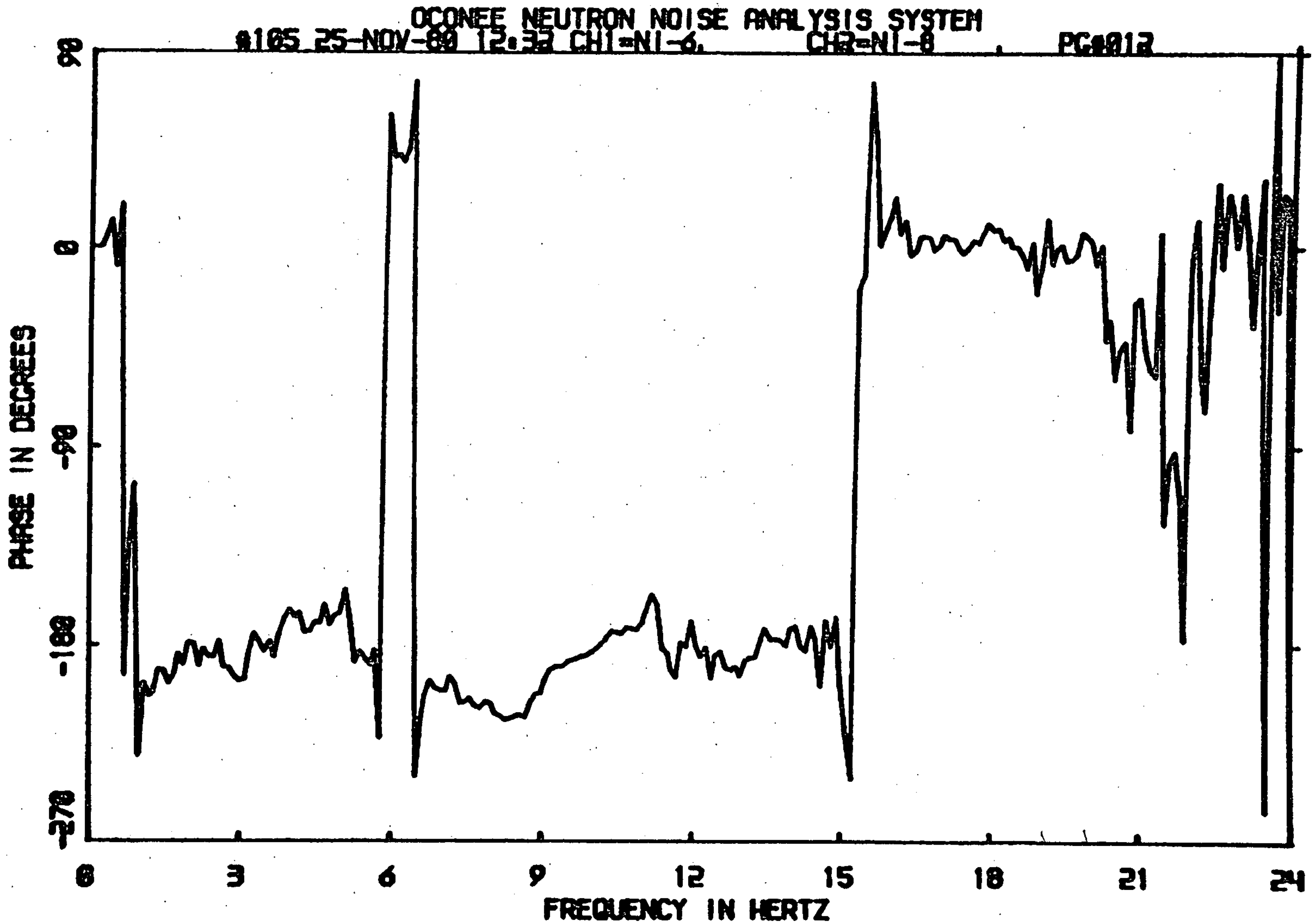
OCONEE NEUTRON NOISE ANALYSIS SYSTEM
#104 25-NOV-80 11:50 CH1=NI-6, CH2=NI-7 , PG#012
PHASE IN DEGREES
90
0
-90
-180
-270
0
3
6
9
12
15
18
21
24
FREQUENCY IN HERTZ

0IC6-MOC



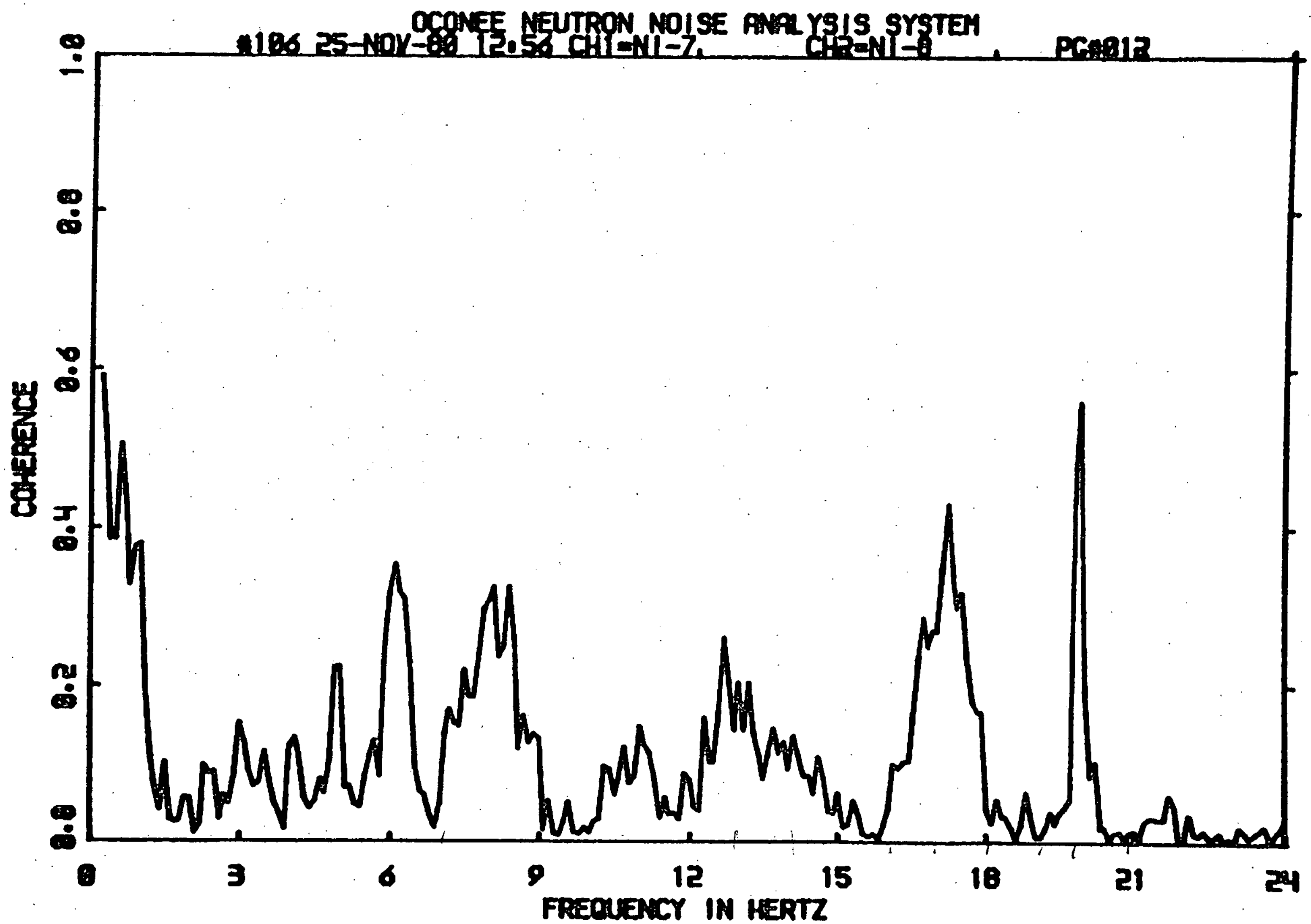
OCONEE NEUTRON NOISE ANALYSIS SYSTEM
#105 25-NOV-80 12:32 CH1=NI-6, CH2=NI-8 , PG#012
COHERENCE
0.0
0.2
0.4
0.6
0.8
1.0
0
3
6
9
12
15
18
21
24
FREQUENCY IN HERTZ

0166-MOC



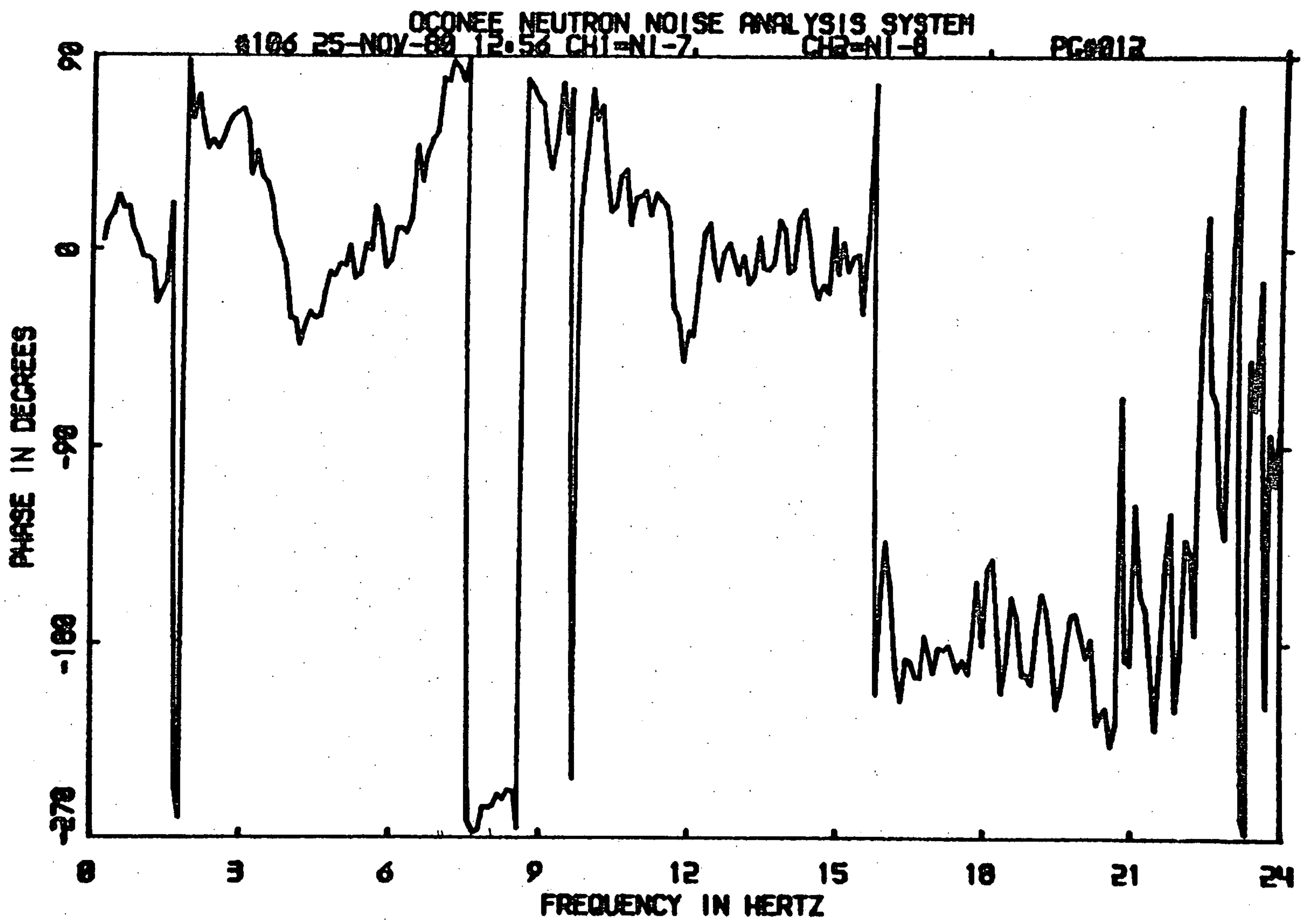
OCONEE NEUTRON NOISE ANALYSIS SYSTEM
#105 25-NOV-80 12:32 CH1=NI-6, CH2=NI-8 , PG#012
PHASE IN DEGREES
90
0
-90
-180
-270
0
3
6
9
12
15
18
21
24
FREQUENCY IN HERTZ

01C6-MOC



OCONEE NEUTRON NOISE ANALYSIS SYSTEM
#106 25-NOV-80 12:56 CH1=NI-7, CH2=NI-8 , PG#012
COHERENCE
0.0
0.2
0.4
0.6
0.8
1.0
0
3
6
9
12
15
18
21
24
FREQUENCY IN HERTZ

0166-MOC


OCONEE NEUTRON NOISE ANALYSIS SYSTEM
#106 25-NOV-80 12:56 CH1=NI-7, CH2=NI-8 , PG#012
PHASE IN DEGREES
90
0
-90
-180
-270
0
3
6
9
12
15
18
21
24
FREQUENCY IN HERTZ

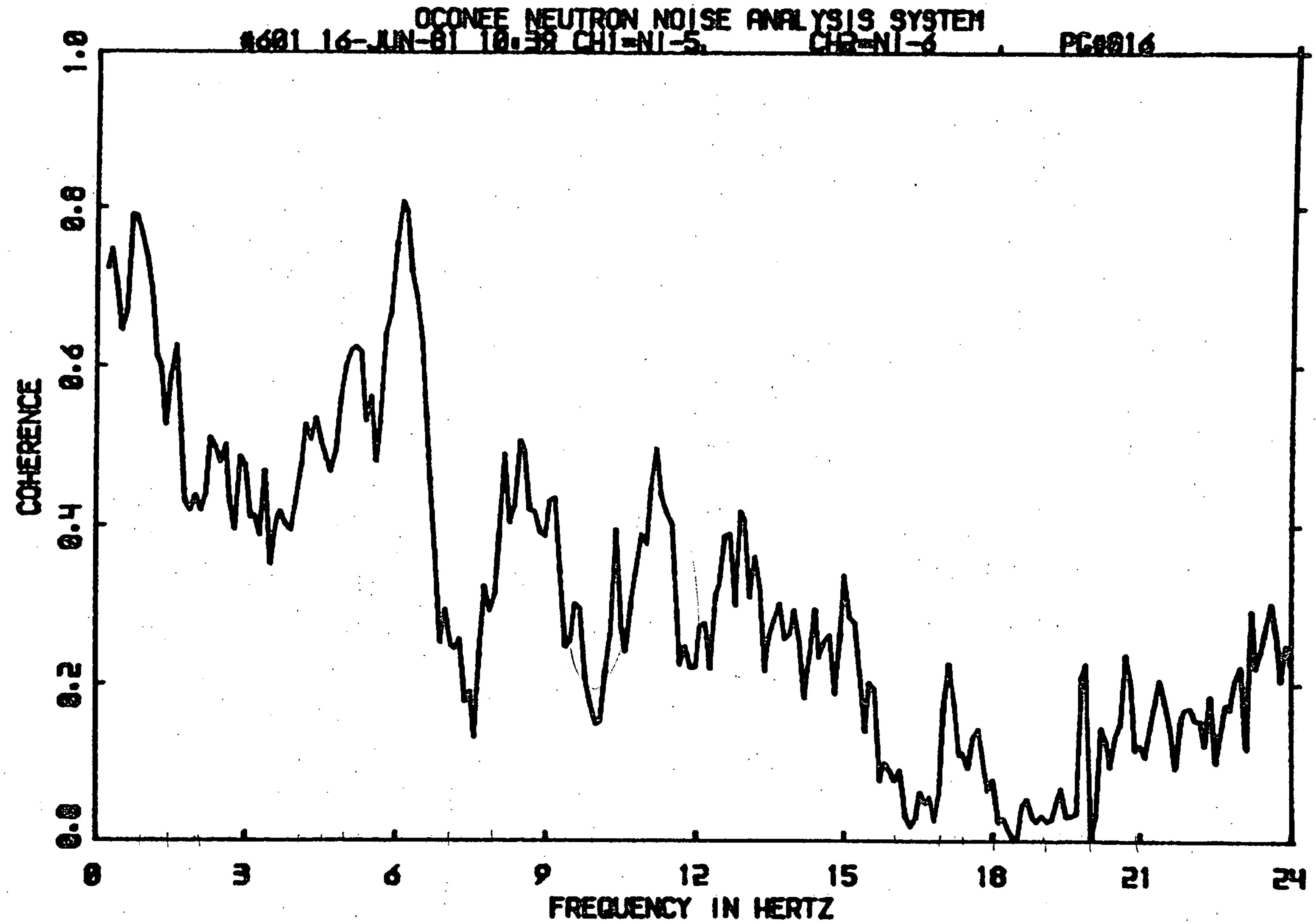
CONTENTS

Neutron noise data for EOC 6
Unit 1, taken June 16, 1981

TEST#	DETECTOR PAIRS*
601	NI-5 total x NI-6 total
602	NI-5 total x NI-7 total
603	NI-5 total x NI-8 total
604	NI-6 total x NI-7 total
605	NI-6 total x NI-8 total
606	NI-7 total x NI-8 total

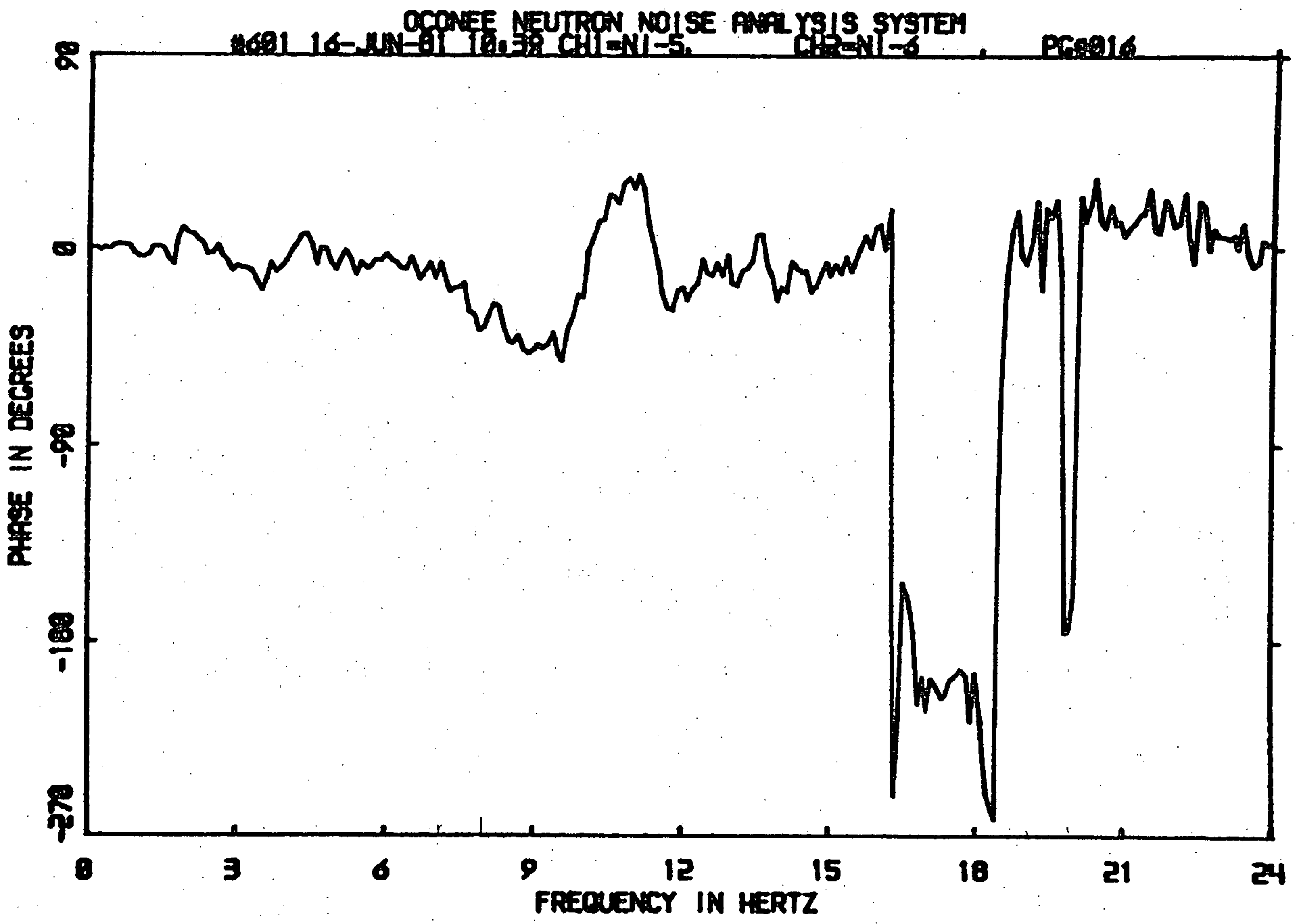
*Total indicates the sum of lower and upper chambers.

EOC-1

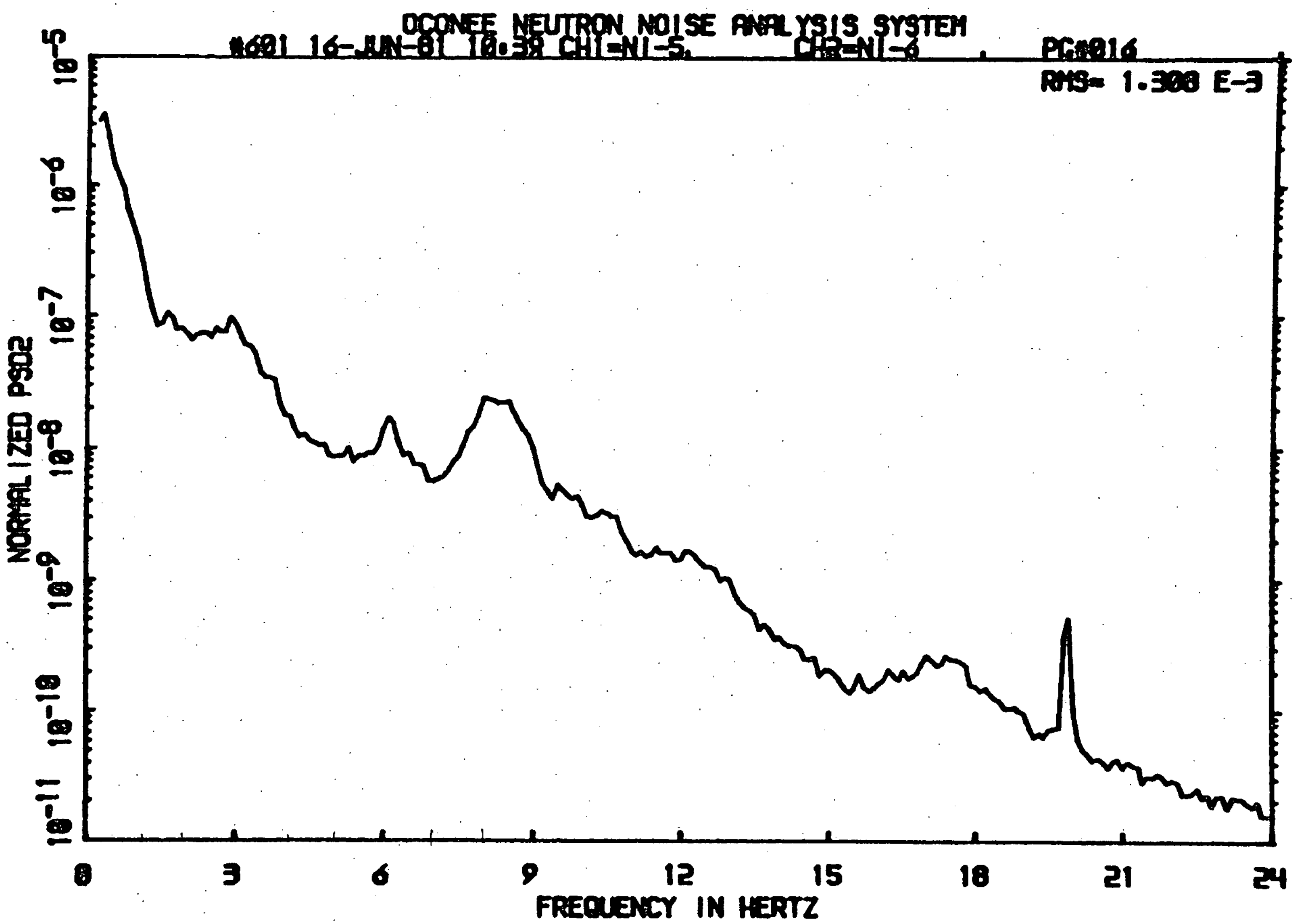


OCONEE NEUTRON NOISE ANALYSIS SYSTEM
#601 16-JUN-81 10:38 CH1=NI-5, CH2=NI-6 , PG#016
COHERENCE
0.0
0.2
0.4
0.6
0.8
1.0
0
3
6
9
12
15
18
21
24
FREQUENCY IN HERTZ

EOC-1

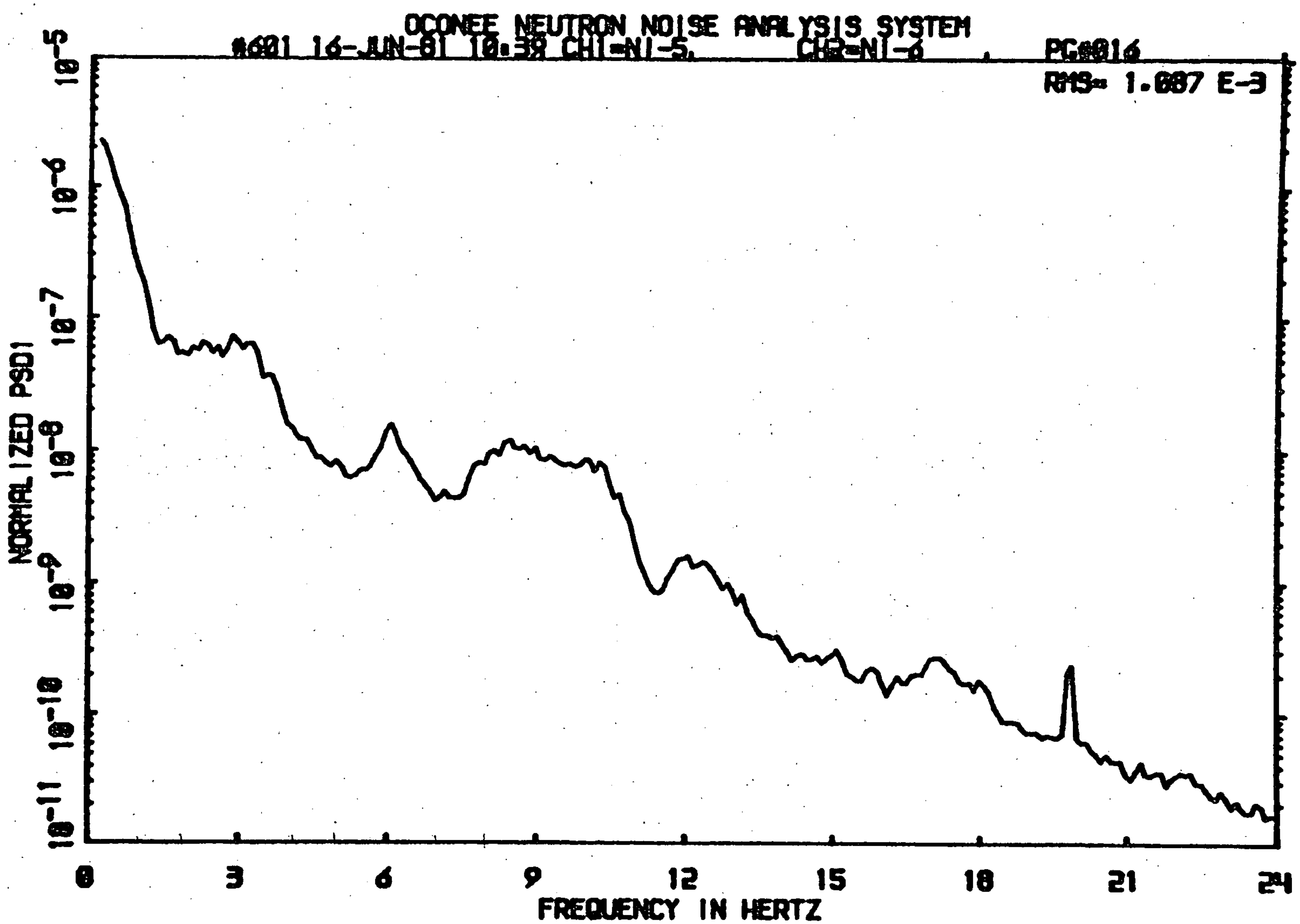

OCONEE NEUTRON NOISE ANALYSIS SYSTEM
#601 16-JUN-81 10:38 CH1=NI-5, CH2=NI-6 , PG=016
PHASE IN DEGREES
90
0
-90
-180
-270
0
3
6
9
12
15
18
21
24
FREQUENCY IN HERTZ

EOC-1



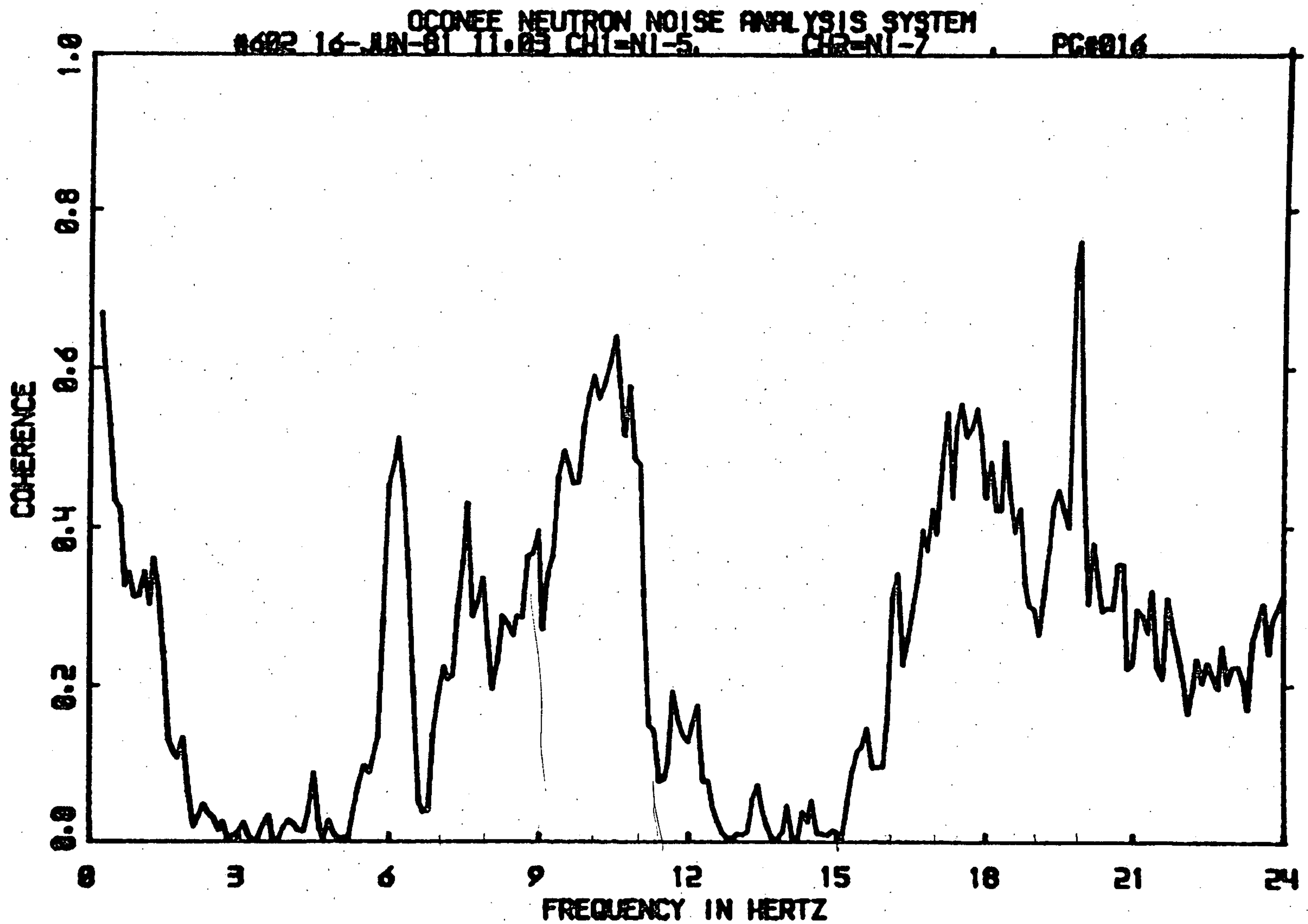
OCONEE NEUTRON NOISE ANALYSIS SYSTEM
#601 16-JUN-81 10:38 CH1=NI-5, CH2=NI-6 , PG#016
RMS= 1.308 E-3
NORMALIZED PSD2
10^-5
10^-6
10^-7
10^-8
10^-9
10^-10
10^-11
0
3
6
9
12
15
18
21
24
FREQUENCY IN HERTZ

EOC-1



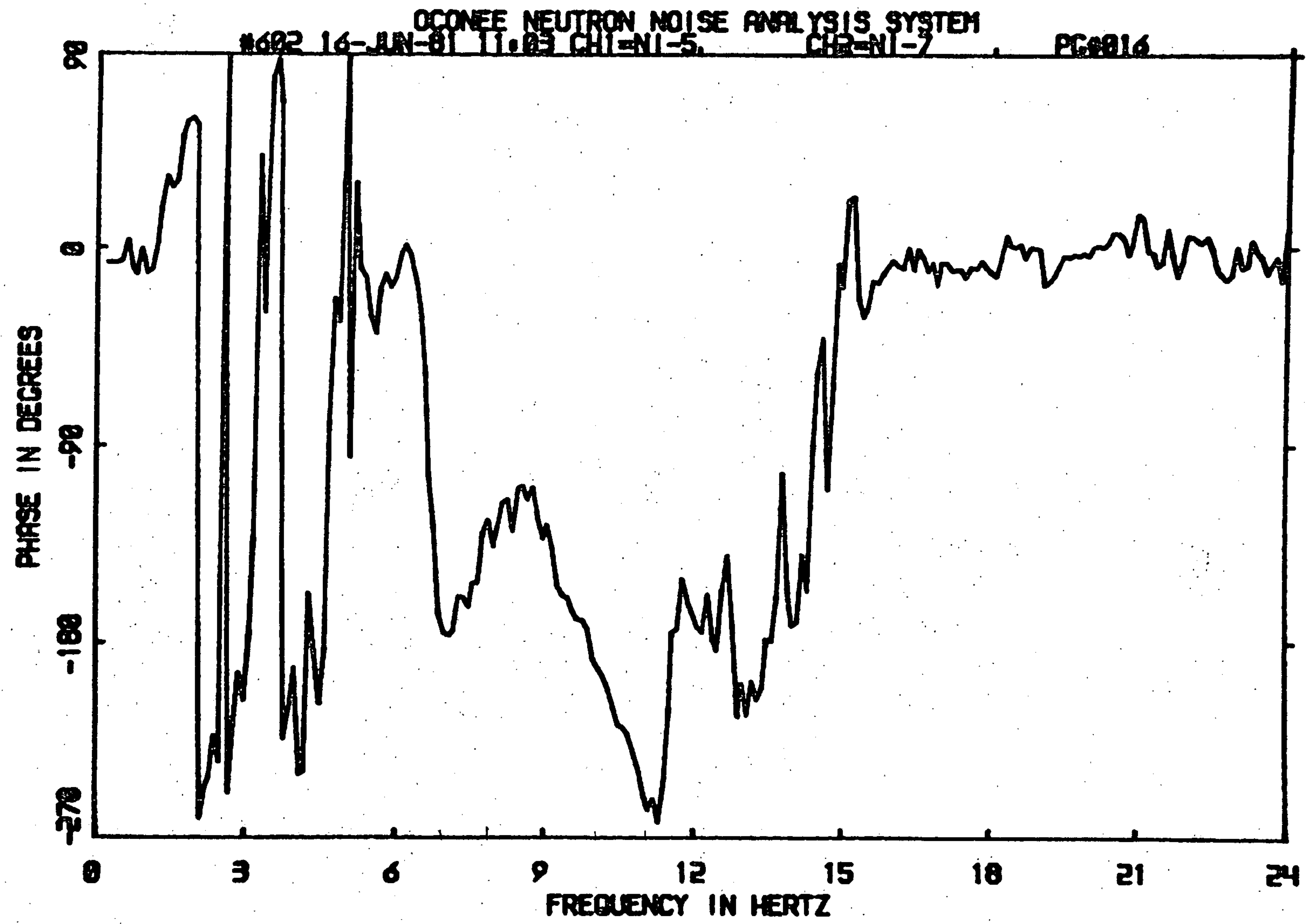
OCONEE NEUTRON NOISE ANALYSIS SYSTEM
#601 16-JUN-81 10:39 CH1=NI-5, CH2=NI-6 , PG#016
RMS= 1.087 E-3
NORMALIZED PSD1
10^-5
10^-6
10^-7
10^-8
10^-9
10^-10
10^-11
0
3
6
9
12
15
18
21
24
FREQUENCY IN HERTZ

EOC-1

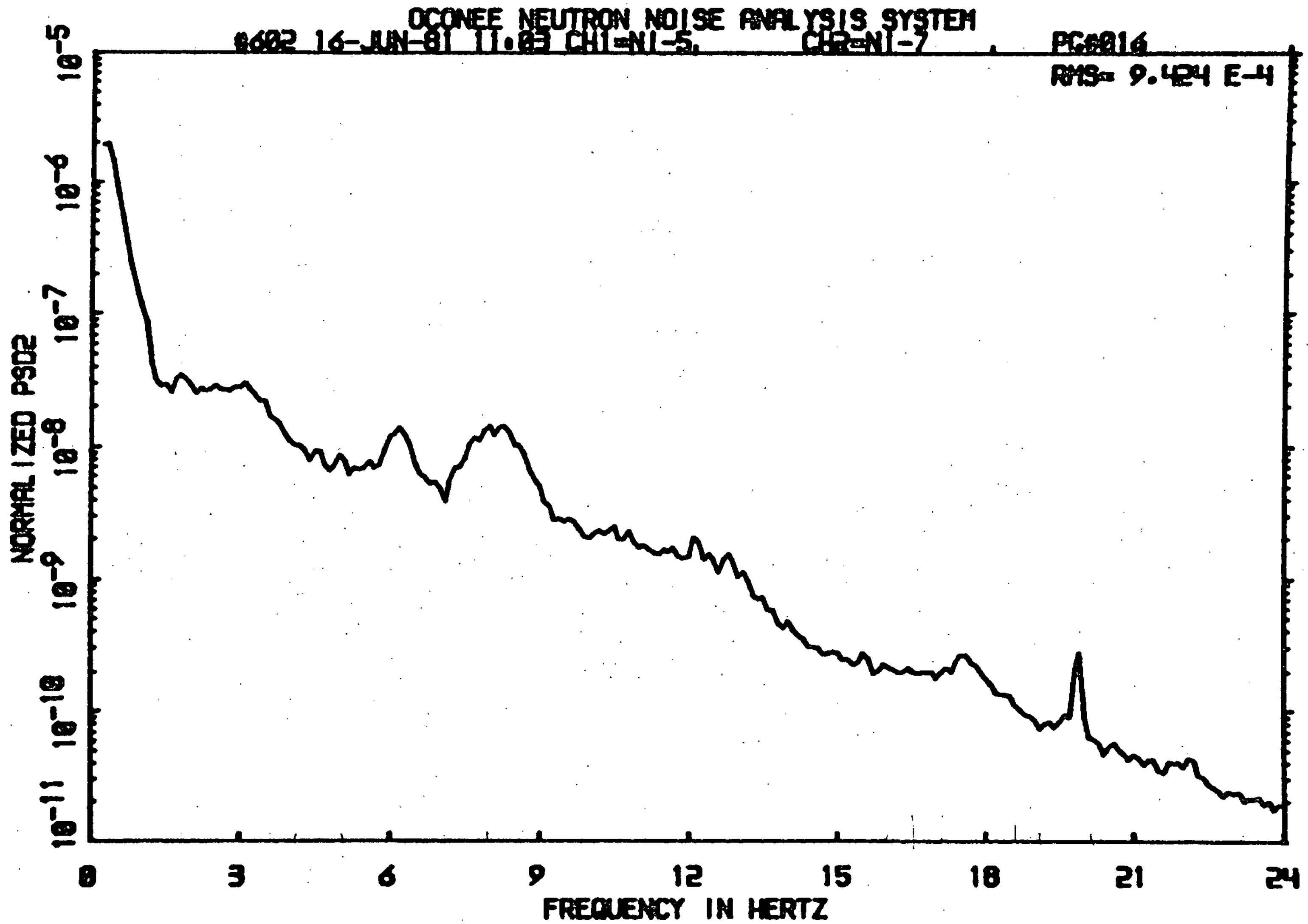


OCONEE NEUTRON NOISE ANALYSIS SYSTEM
#602 16-JUN-81 11:03 CH1=NI-5, CH2=NI-7 , PG#016
COHERENCE
0.0
0.2
0.4
0.6
0.8
1.0
0
3
6
9
12
15
18
21
24
FREQUENCY IN HERTZ

EOC-1

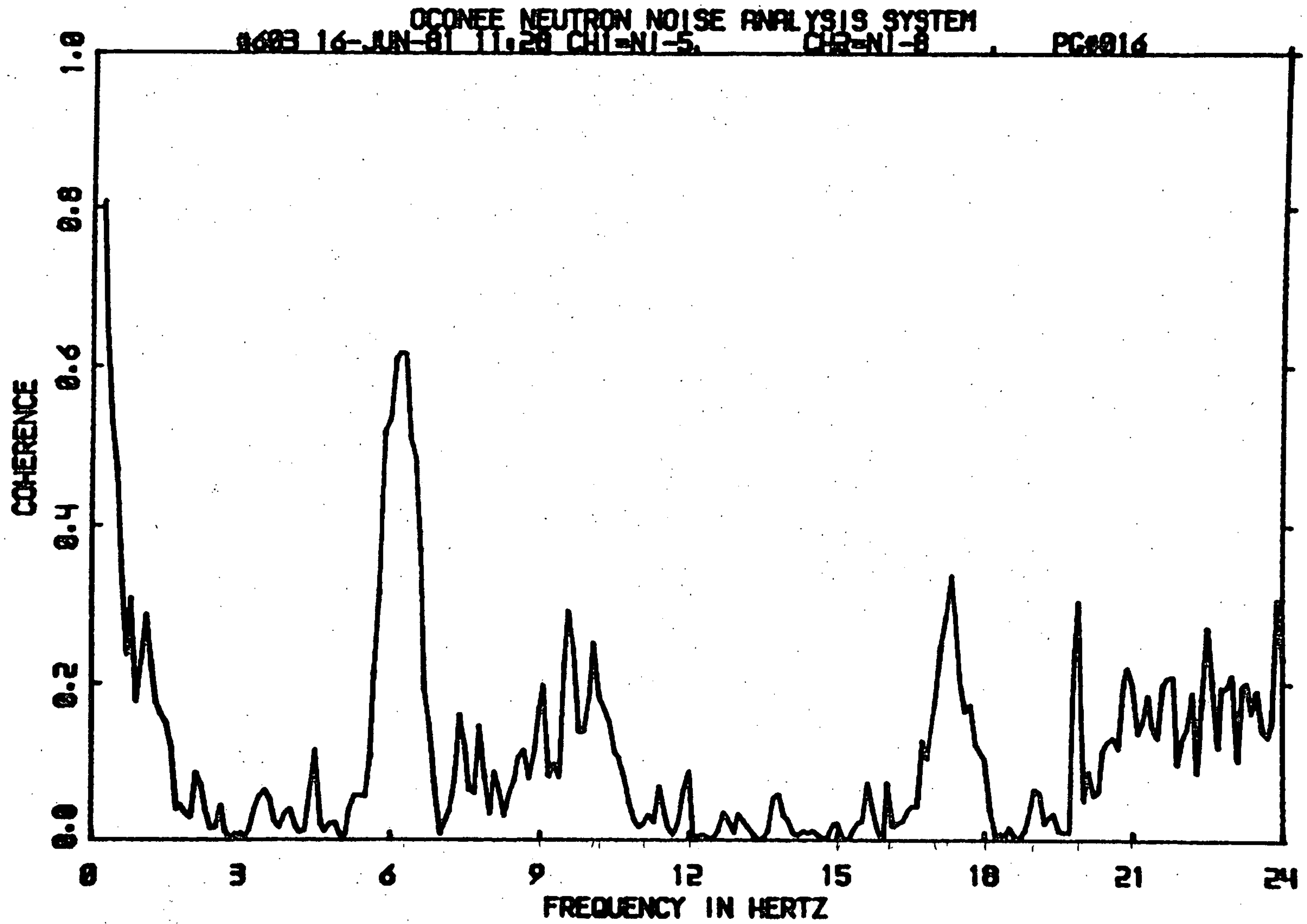

OCONEE NEUTRON NOISE ANALYSIS SYSTEM
#602 16-JUN-81 11:03 CH1=NI-5, CH2=NI-7 , PG#016
PHASE IN DEGREES
90
0
-90
-180
-270
0
3
6
9
12
15
18
21
24
FREQUENCY IN HERTZ

EOC-1



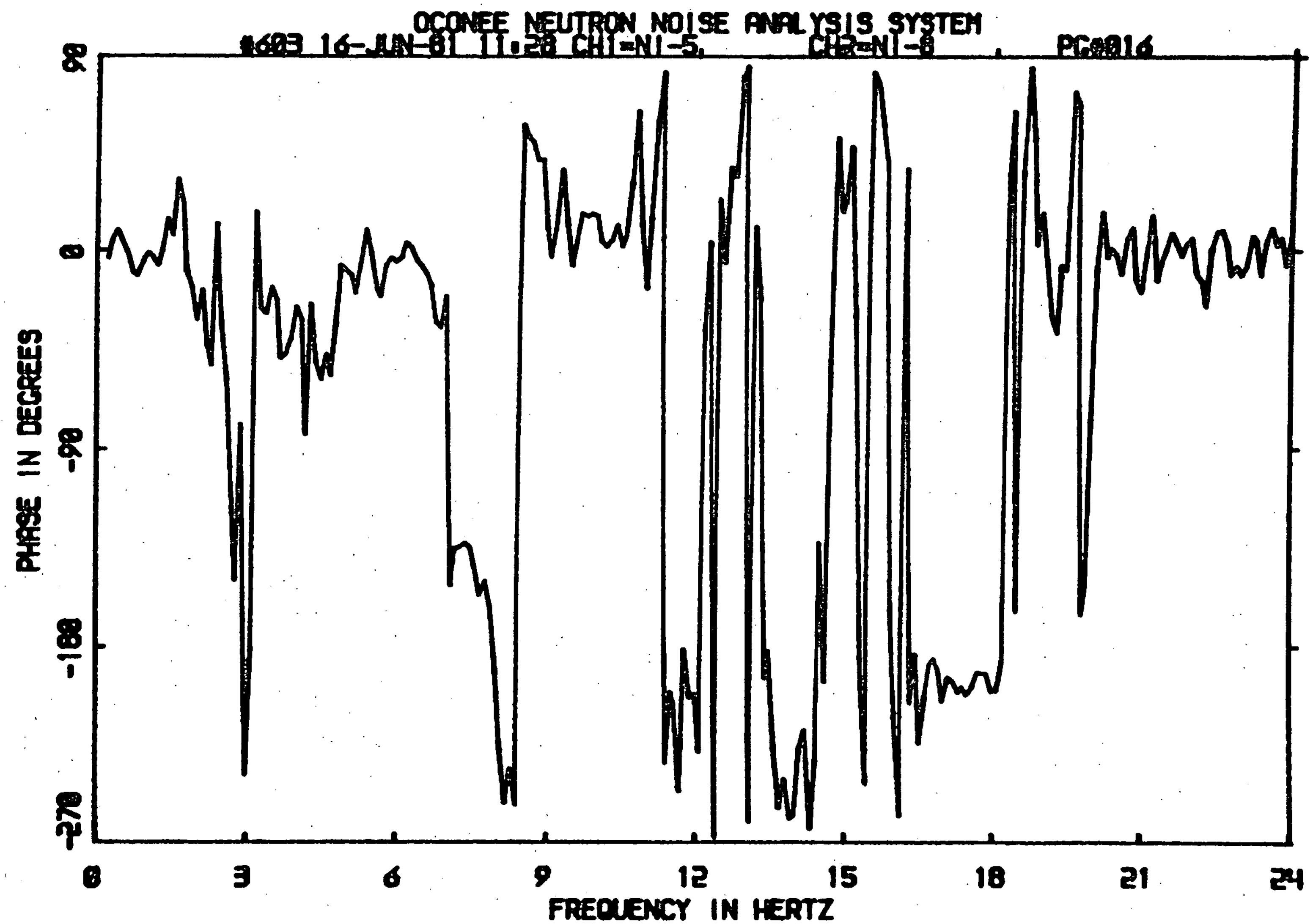
OCONEE NEUTRON NOISE ANALYSIS SYSTEM
#602 16-JUN-81 11:03 CH1=NI-5, CH2=NI-7 , PC#016
RMS= 9.424 E-4
NORMALIZED PSD2
10^-5
10^-6
10^-7
10^-8
10^-9
10^-10
10^-11
0
3
6
9
12
15
18
21
24
FREQUENCY IN HERTZ

EOC-1

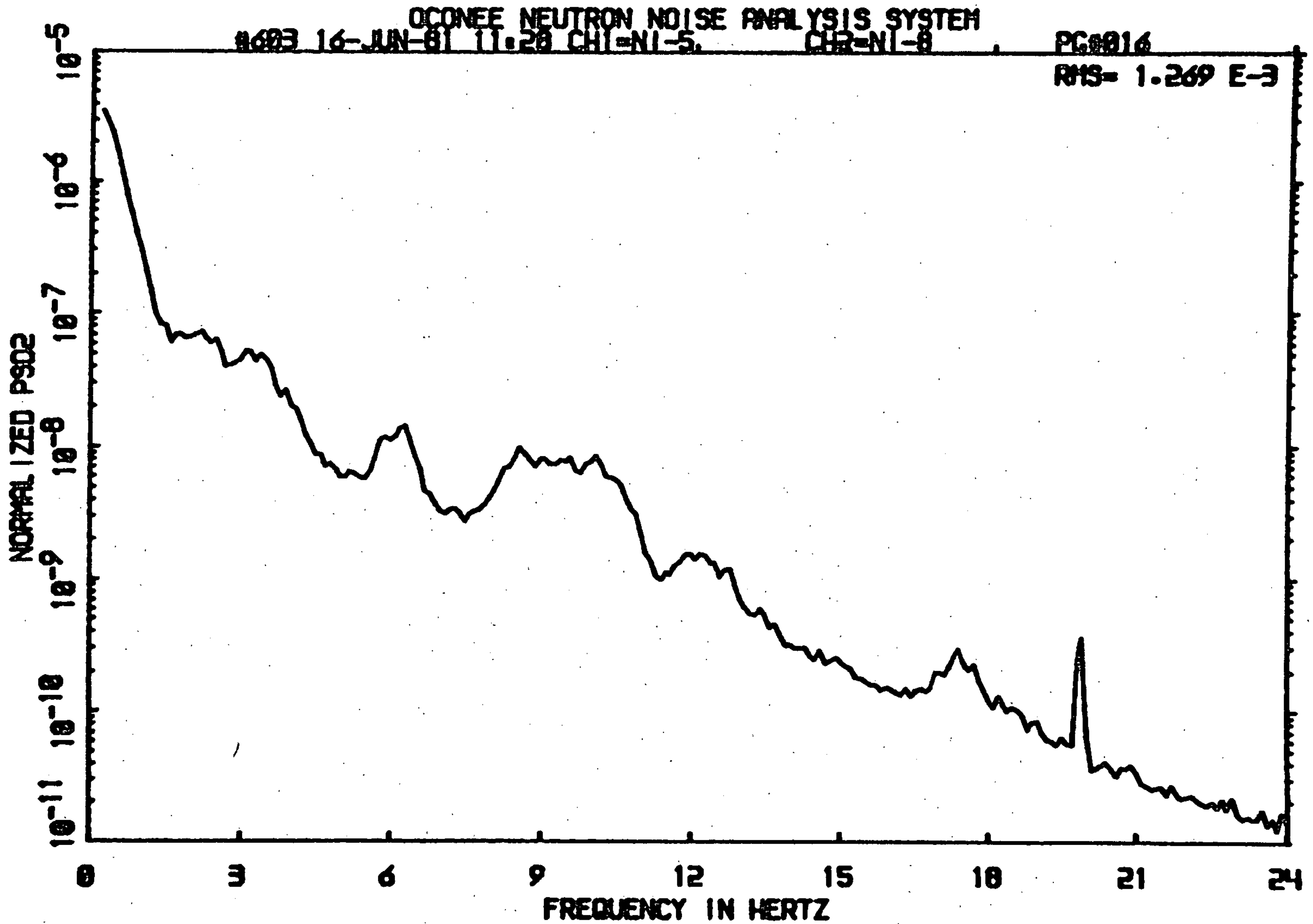


OCONEE NEUTRON NOISE ANALYSIS SYSTEM
#603 16-JUN-81 11:28 CH1=NI-5, CH2=NI-8 , PG#016
COHERENCE
0.0
0.2
0.4
0.6
0.8
1.0
0
3
6
9
12
15
18
21
24
FREQUENCY IN HERTZ

EOC-1

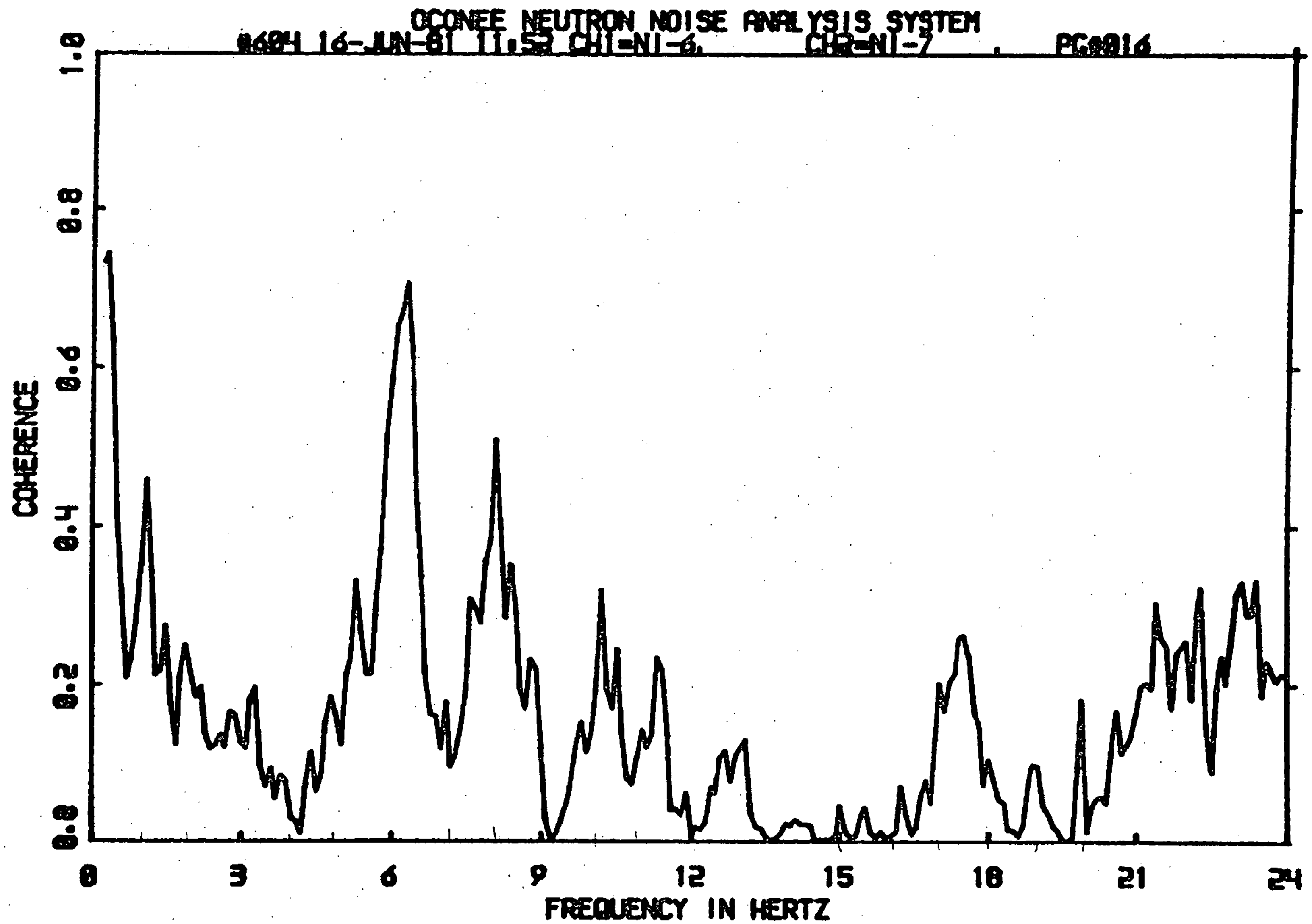

OCONEE NEUTRON NOISE ANALYSIS SYSTEM
#603 16-JUN-81 11:28 CH1=NI-5, CH2=NI-8 , PG#016
PHASE IN DEGREES
90
0
-90
-180
-270
0
3
6
9
12
15
18
21
24
FREQUENCY IN HERTZ

EOC-1



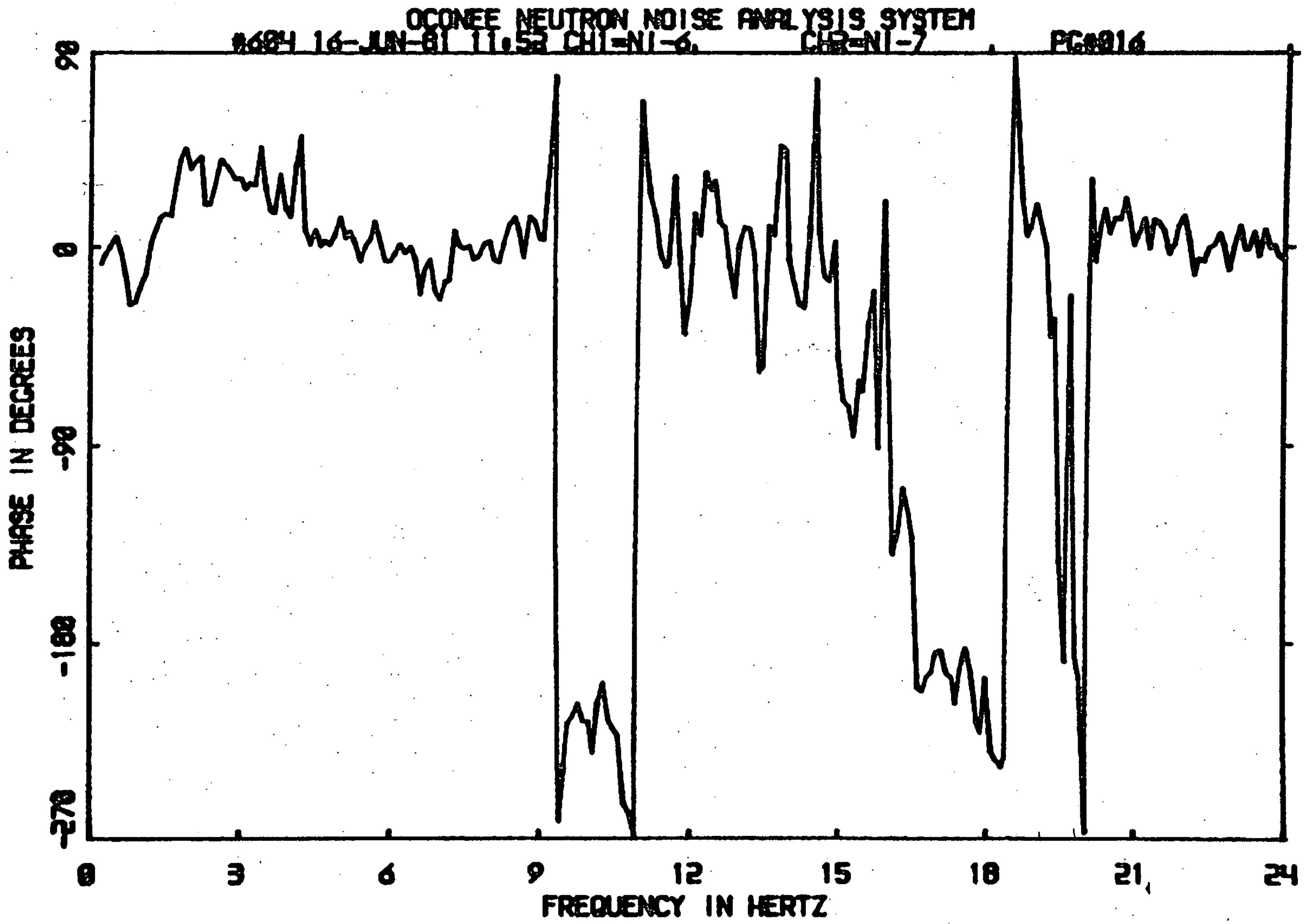
OCONEE NEUTRON NOISE ANALYSIS SYSTEM
#603 16-JUN-81 11:28 CH1=NI-5, CH2=NI-8 , PG#016
RMS= 1.269 E-3
NORMALIZED PSD2
10^-5
10^-6
10^-7
10^-8
10^-9
10^-10
10^-11
0
3
6
9
12
15
18
21
24
FREQUENCY IN HERTZ

EOC-1



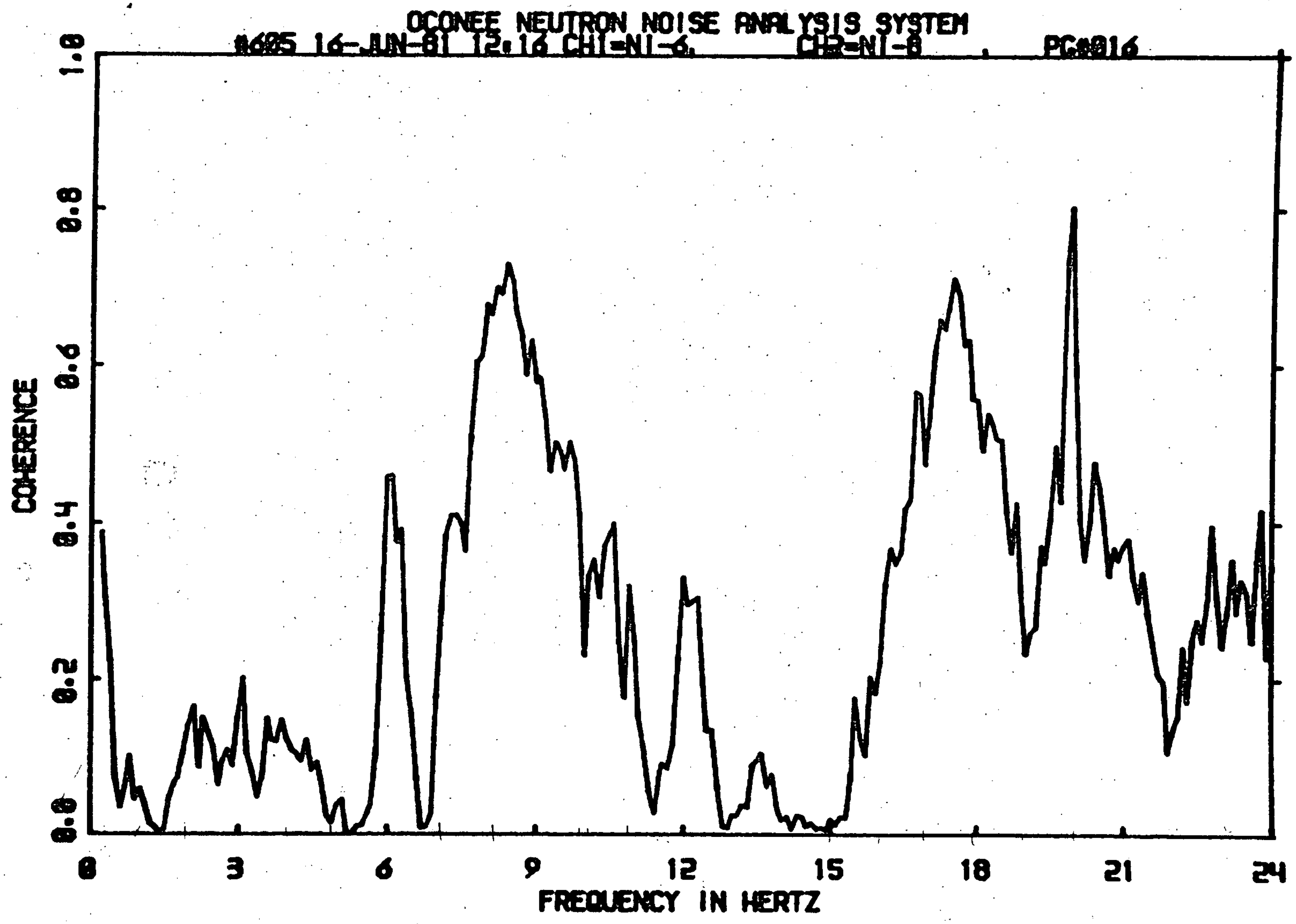
OCONEE NEUTRON NOISE ANALYSIS SYSTEM
#604 16-JUN-81 11:53 CH1=NI-6, CH2=NI-7 , PG#016
COHERENCE
0.0
0.2
0.4
0.6
0.8
1.0
0
3
6
9
12
15
18
21
24
FREQUENCY IN HERTZ

E3C 1



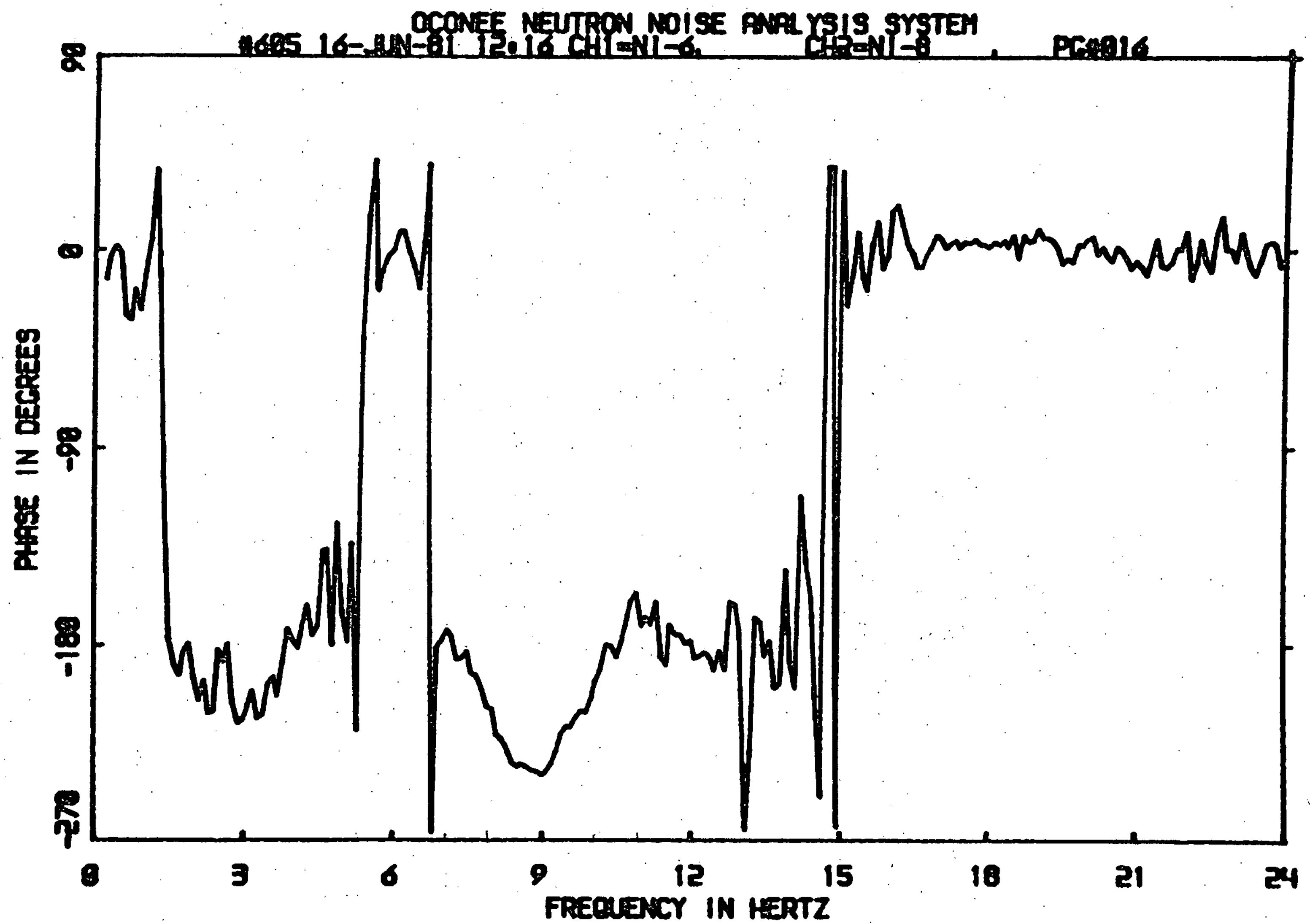
OCONEE NEUTRON NOISE ANALYSIS SYSTEM
#604 16-JUN-81 11:52 CH1=NI-6, CH2=NI-7 , PG#016
PHASE IN DEGREES
90
0
-90
-180
-270
0
3
6
9
12
15
18
21
24
FREQUENCY IN HERTZ

EOC 1

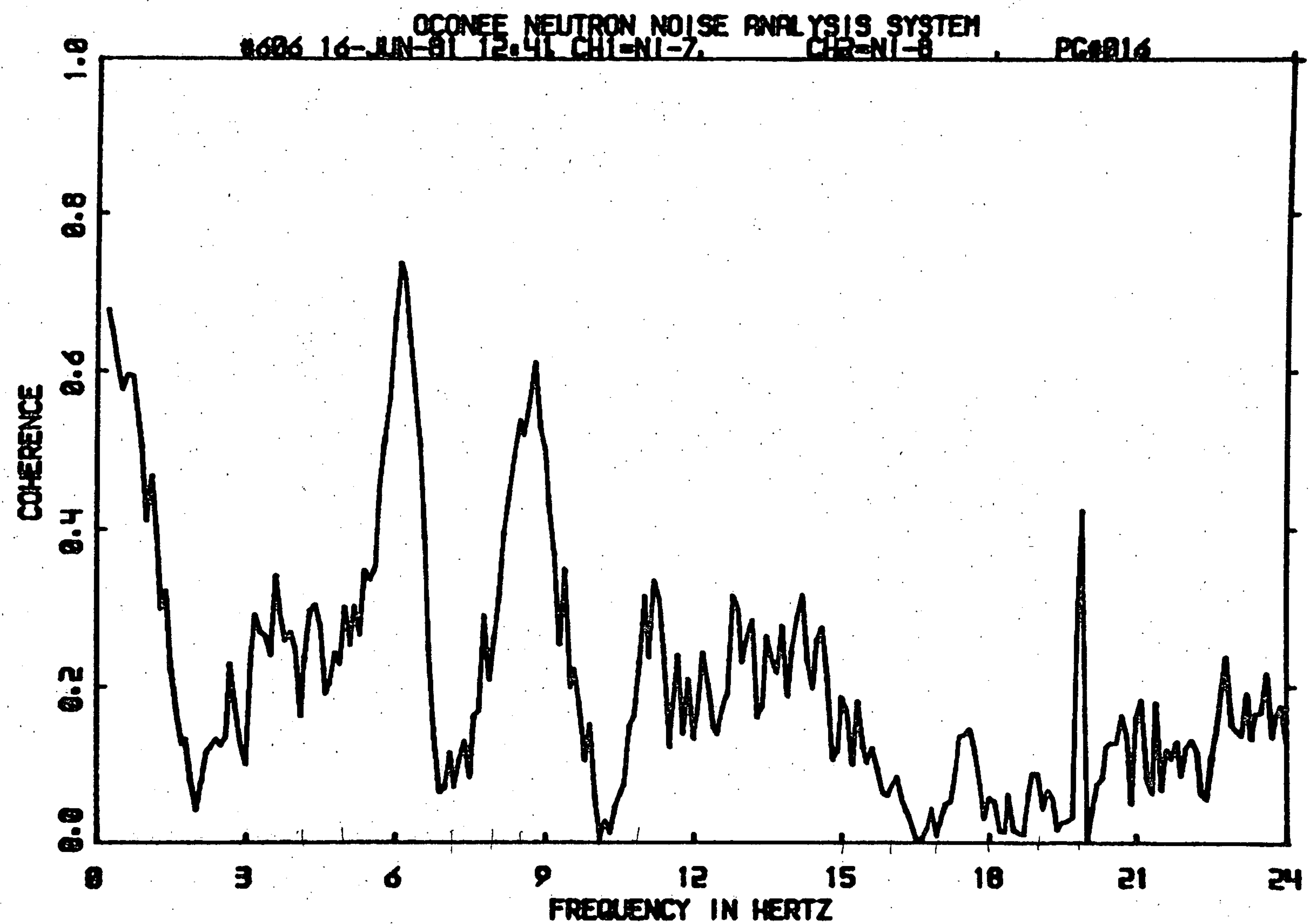


OCONEE NEUTRON NOISE ANALYSIS SYSTEM
#605 16-JUN-81 12:16 CH1=NI-6, CH2=NI-8 , PG#016
COHERENCE
0.0
0.2
0.4
0.6
0.8
1.0
0
3
6
9
12
15
18
21
24
FREQUENCY IN HERTZ

Eoc 1

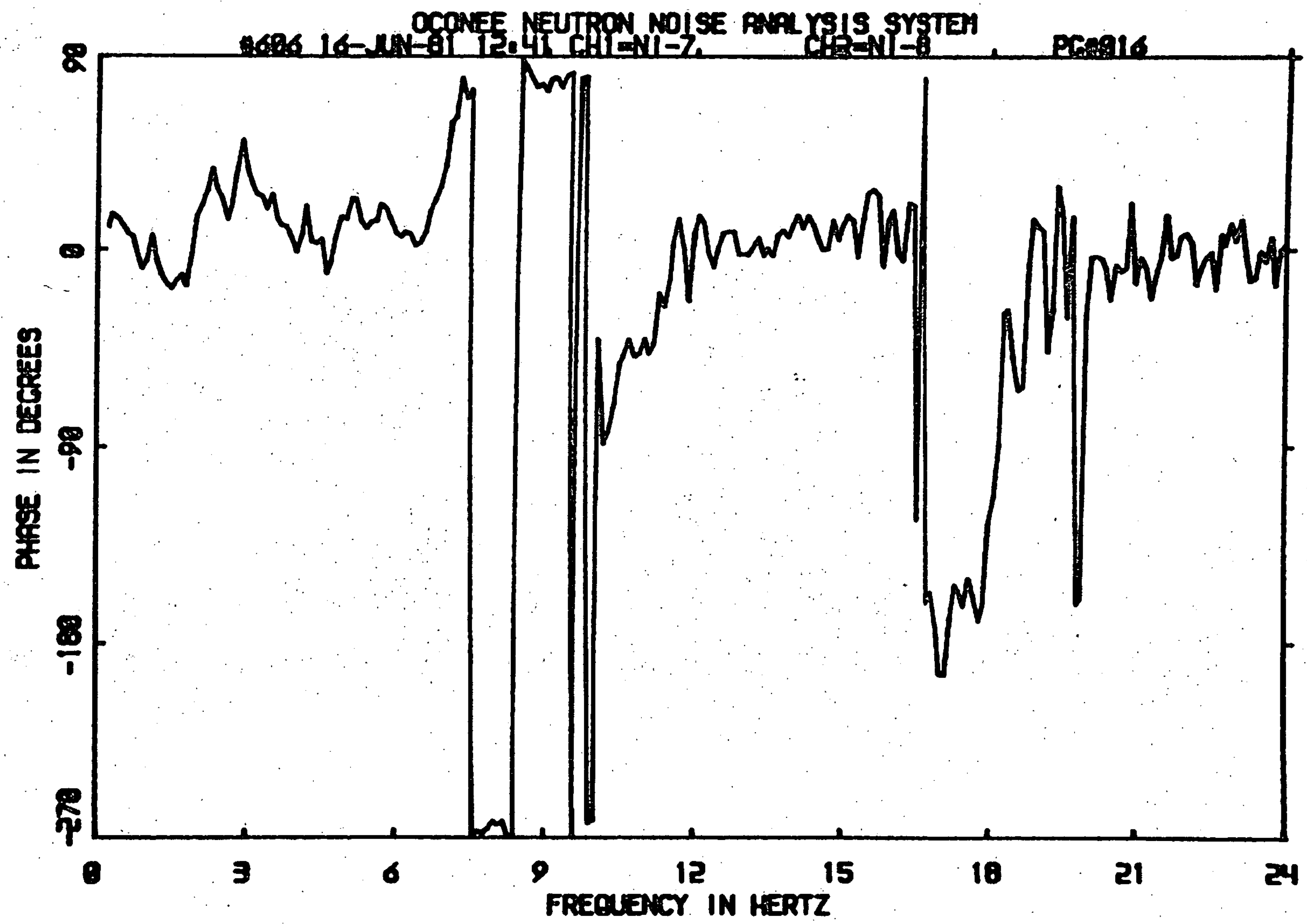

OCONEE NEUTRON NOISE ANALYSIS SYSTEM
#605 16-JUN-81 12:16 CH1=NI-6, CH2=NI-8 , PG#016
PHASE IN DEGREES
90
0
-90
-180
-270
0
3
6
9
12
15
18
21
24
FREQUENCY IN HERTZ

Eα 1



OCONEE NEUTRON NOISE ANALYSIS SYSTEM
#606 16-JUN-81 12:41 CH1=NI-7, CH2=NI-8 , PG#016
COHERENCE
0.0
0.2
0.4
0.6
0.8
1.0
0
3
6
9
12
15
18
21
24
FREQUENCY IN HERTZ

EOC-1



OCONEE NEUTRON NOISE ANALYSIS SYSTEM
#606 16-JUN-81 12:41 CH1=NI-7, CH2=NI-8 , PG#016
PHASE IN DEGREES
90
0
-90
-180
-270
0
3
6
9
12
15
18
21
24
FREQUENCY IN HERTZ

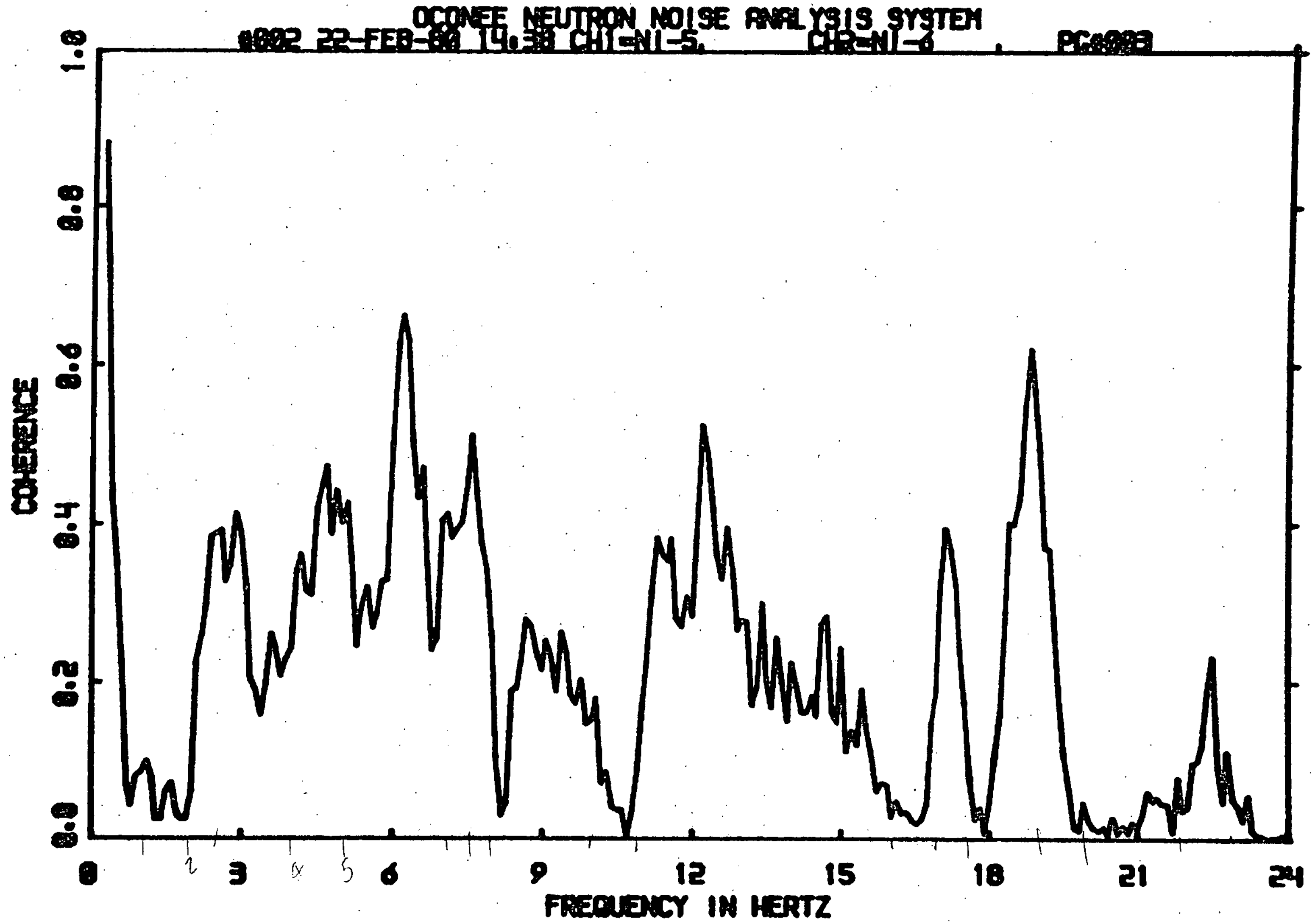
CONTENTS

Neutron noise data for EOC 4
Unit 2, taken February 22, 1980

TEST #	DETECTOR PAIRS*
002	NI-5 total × NI-6 total
003	NI-5 total × NI-7 total
004	NI-5 total × NI-8 total
005	NI-6 total × NI-7 total
006	NI-6 total × NI-8 total
007	NI-7 total × NI-8 total

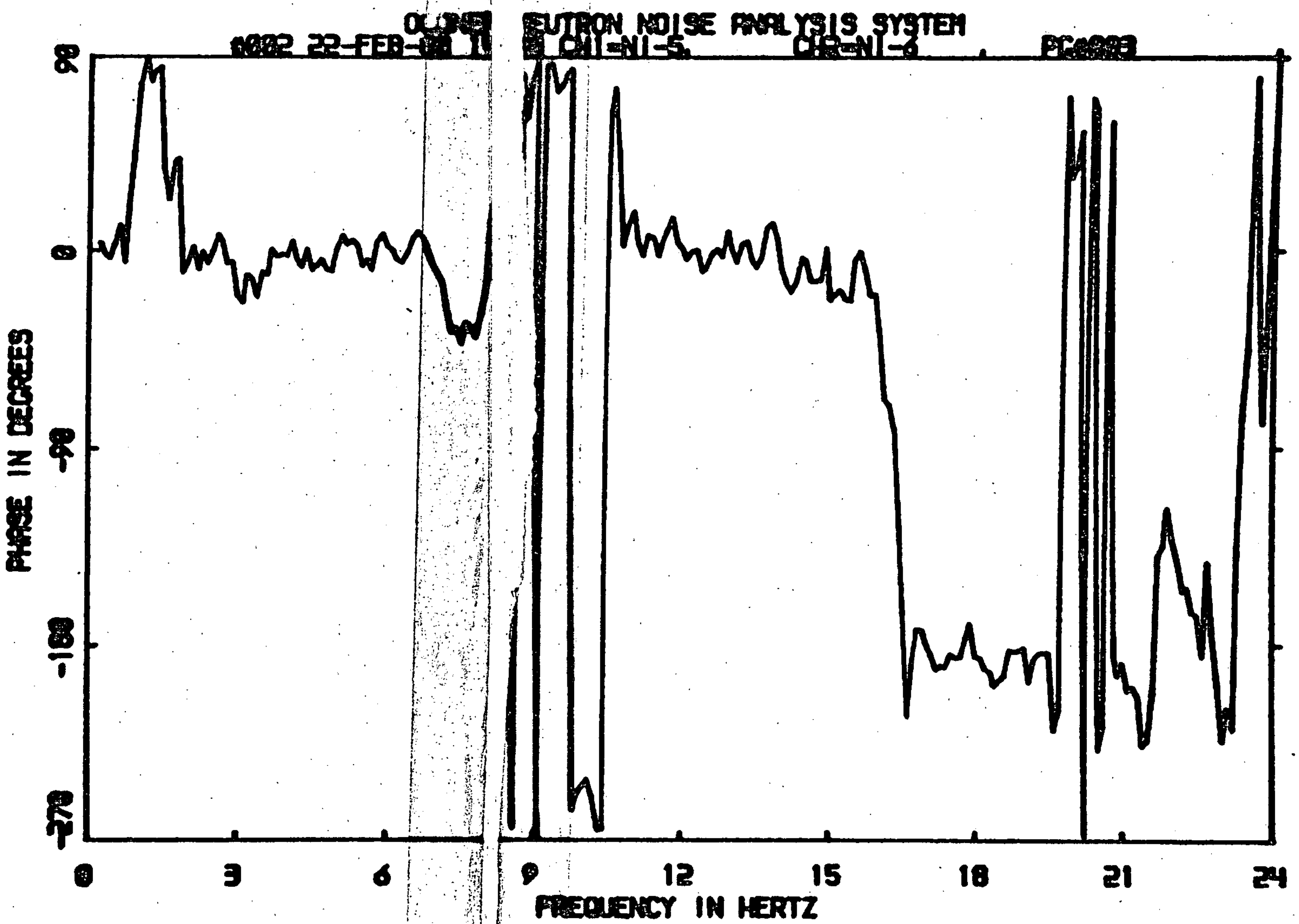
*Total indicates the sum of lower and upper chambers.

2 EOC 4



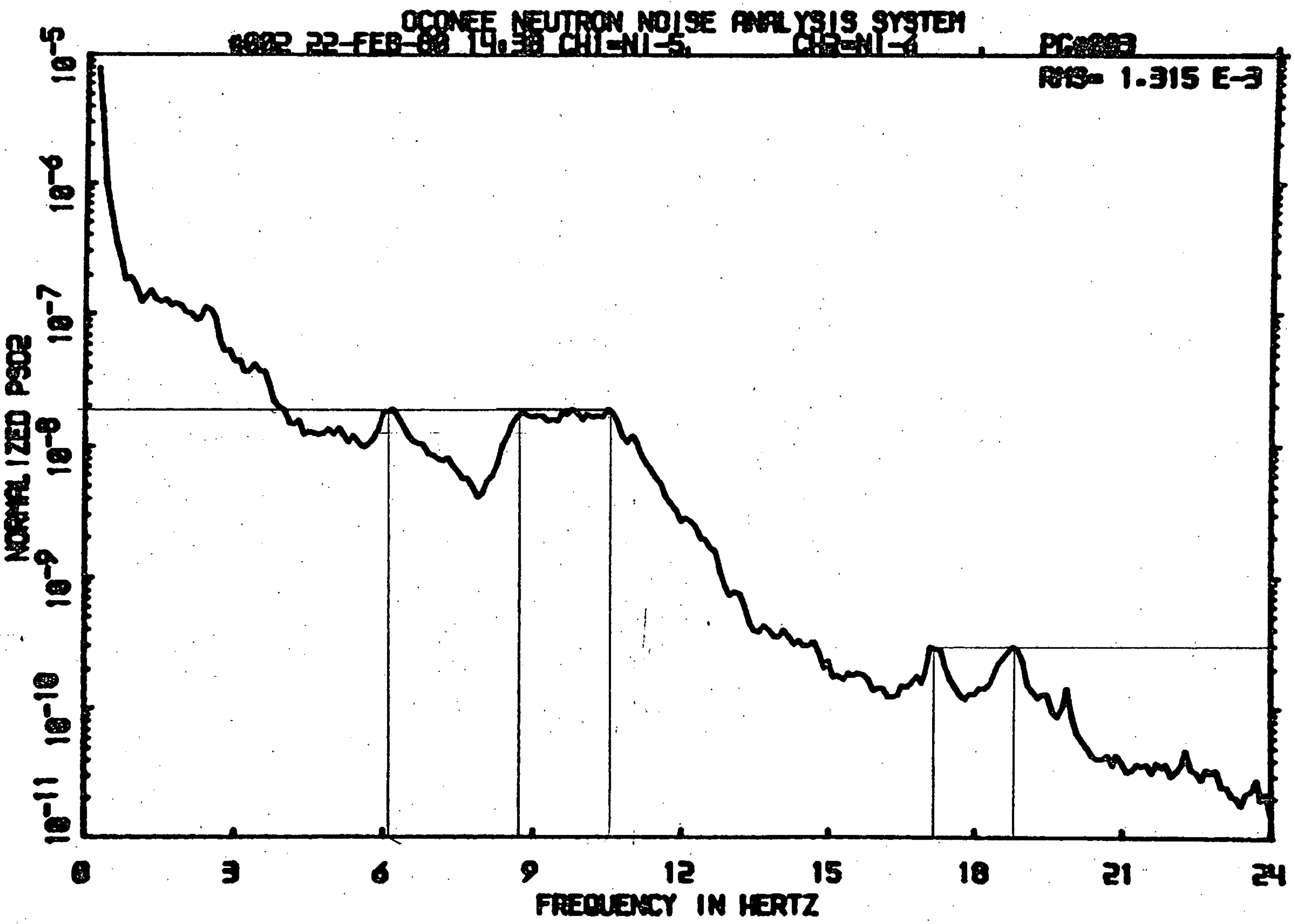
OCONEE NEUTRON NOISE ANALYSIS SYSTEM
#002 22-FEB-80 14:38 CH1=NI-5, CH2=NI-6 , PG#003
COHERENCE
0.0
0.2
0.4
0.6
0.8
1.0
0
3
6
9
12
15
18
21
24
FREQUENCY IN HERTZ

2EOC4

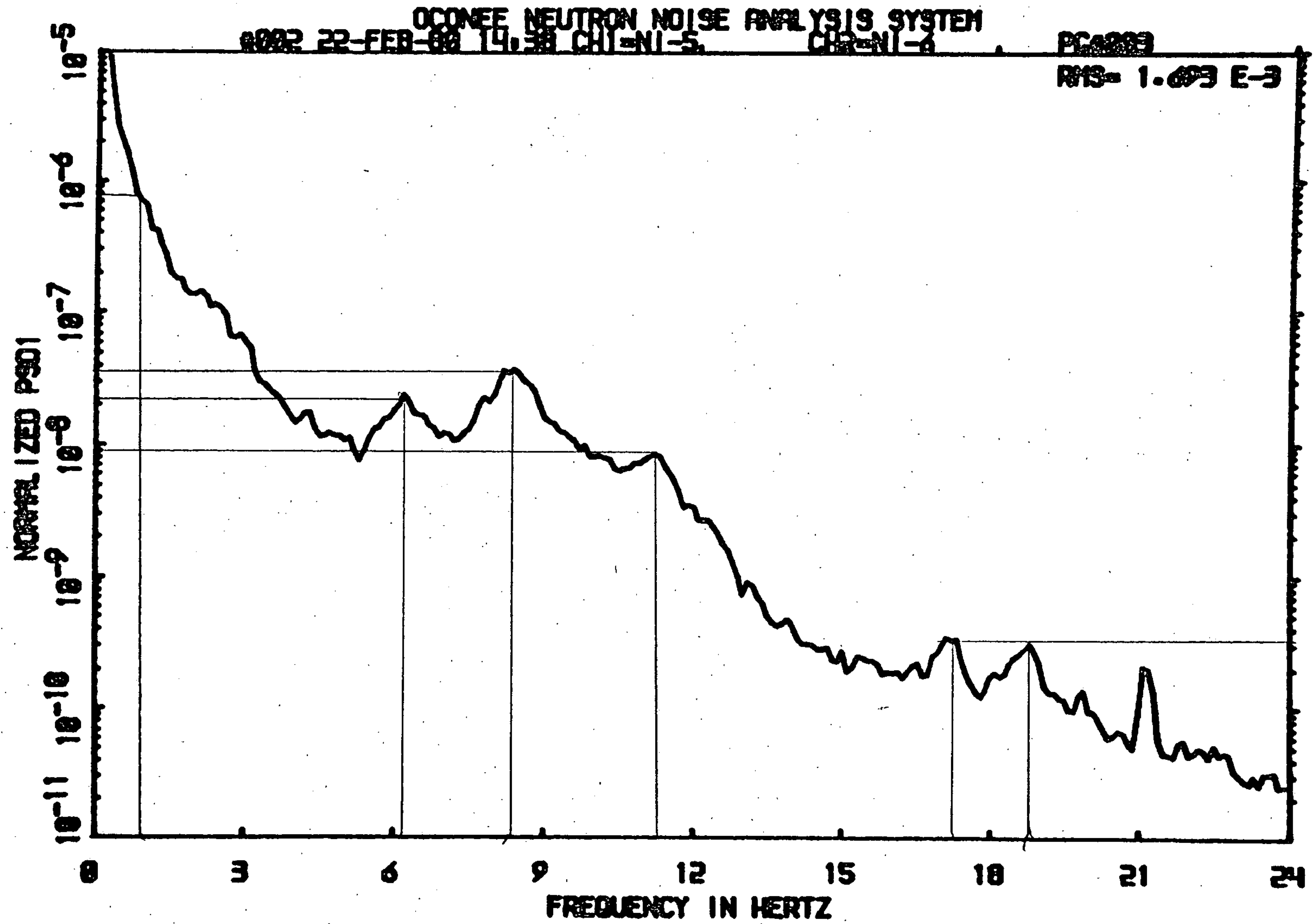


OCONEE NEUTRON NOISE ANALYSIS SYSTEM
#002 22-FEB-88 11: CH1=NI-5, CH2=NI-6 , PG#003
PHASE IN DEGREES
90
0
-90
-180
-270
0
3
6
9
12
15
18
21
24
FREQUENCY IN HERTZ

2Box 4

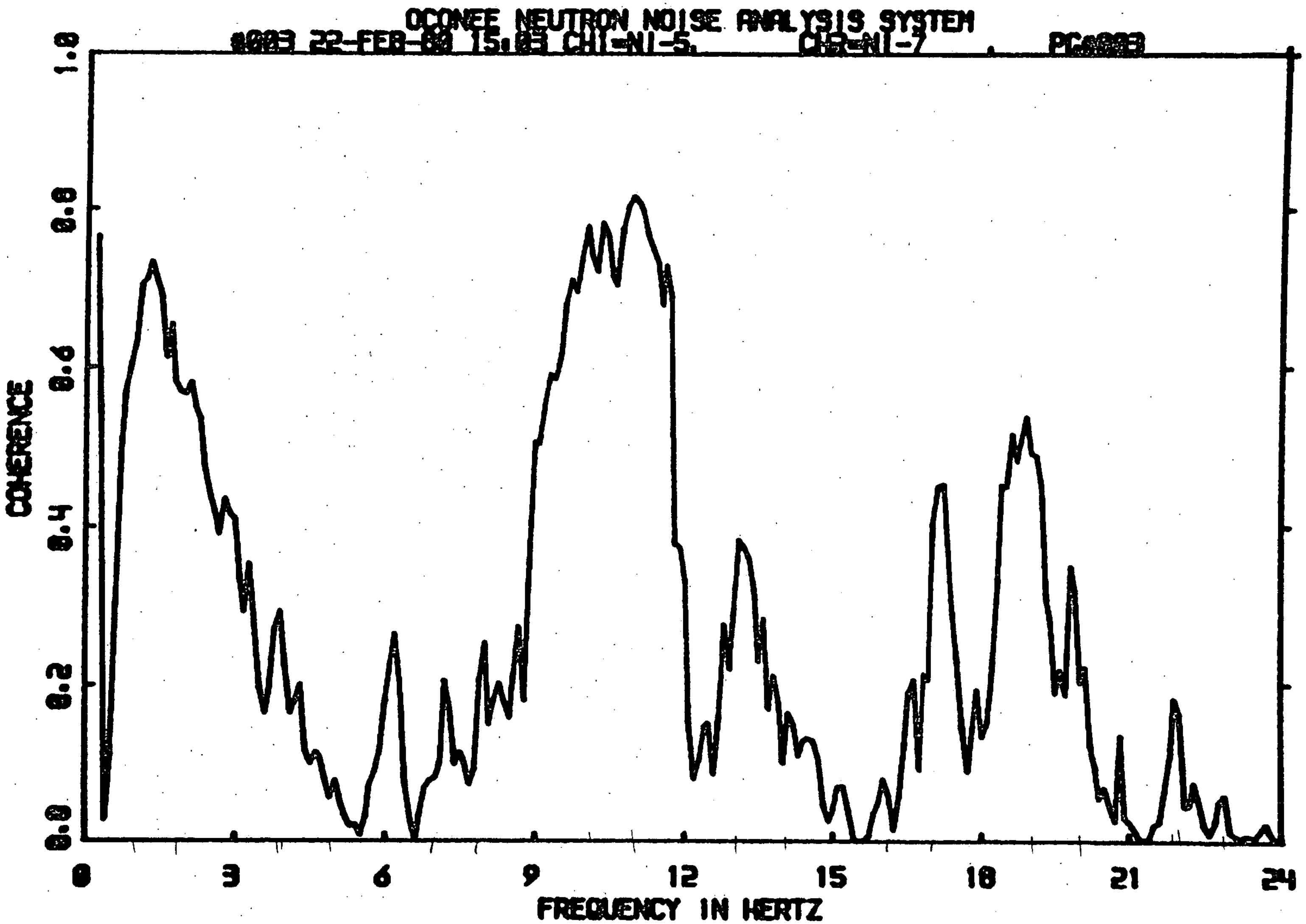

OCONEE NEUTRON NOISE ANALYSIS SYSTEM
#002 22-FEB-80 14:38 CH1=NI-5, CH2=NI-6 , PG#003
RMS= 1.315 E-3
NORMALIZED PSD2
10^-11
10^-10
10^-9
10^-8
10^-7
10^-6
10^-5
0
3
6
9
12
15
18
21
24
FREQUENCY IN HERTZ

2EOC4

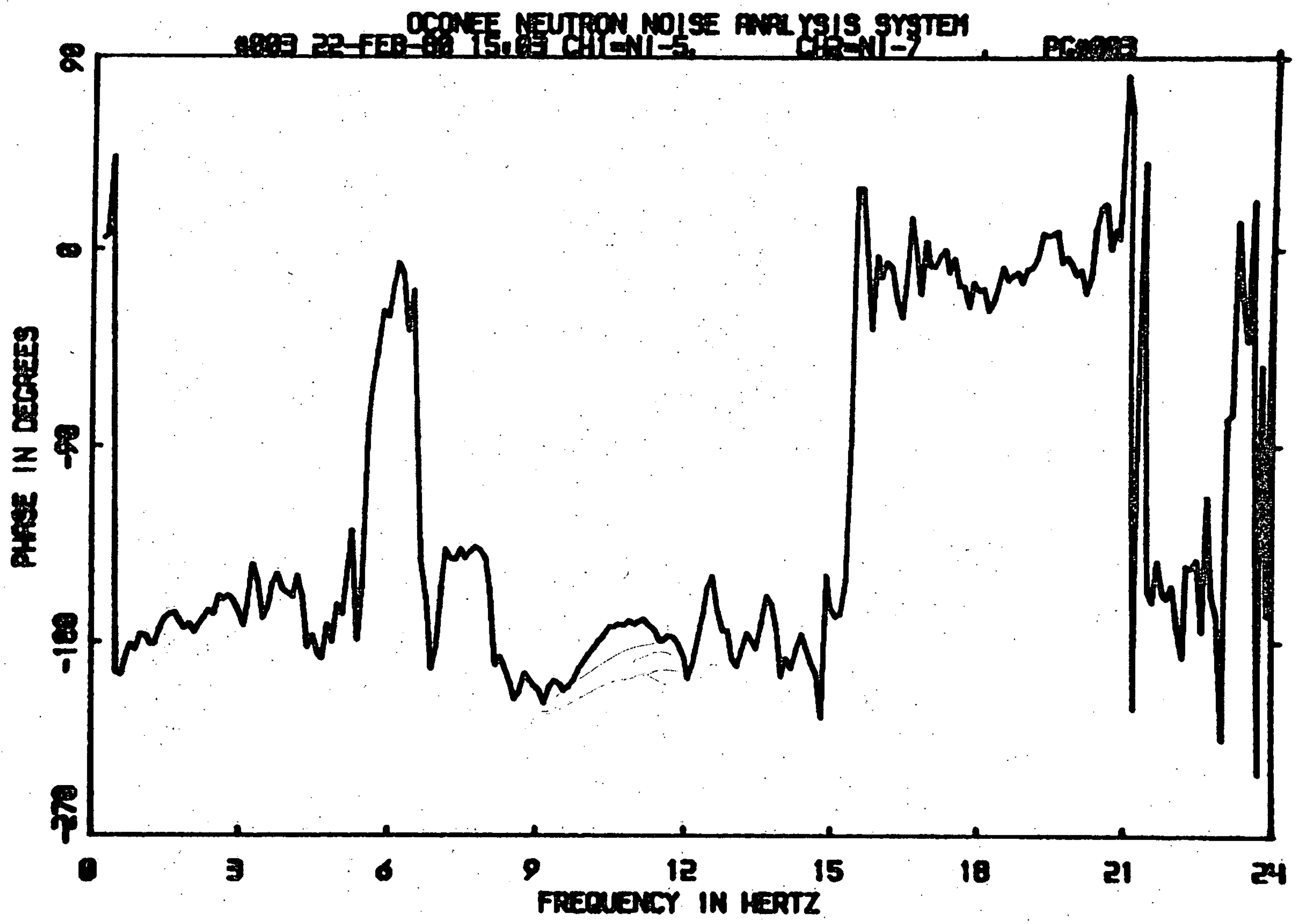


OCONEE NEUTRON NOISE ANALYSIS SYSTEM
#002 22-FEB-88 14:38 CH1=NI-5, CH2=NI-6 , PC#203
RMS= 1.693 E-3
NORMALIZED PSD1
FREQUENCY IN HERTZ

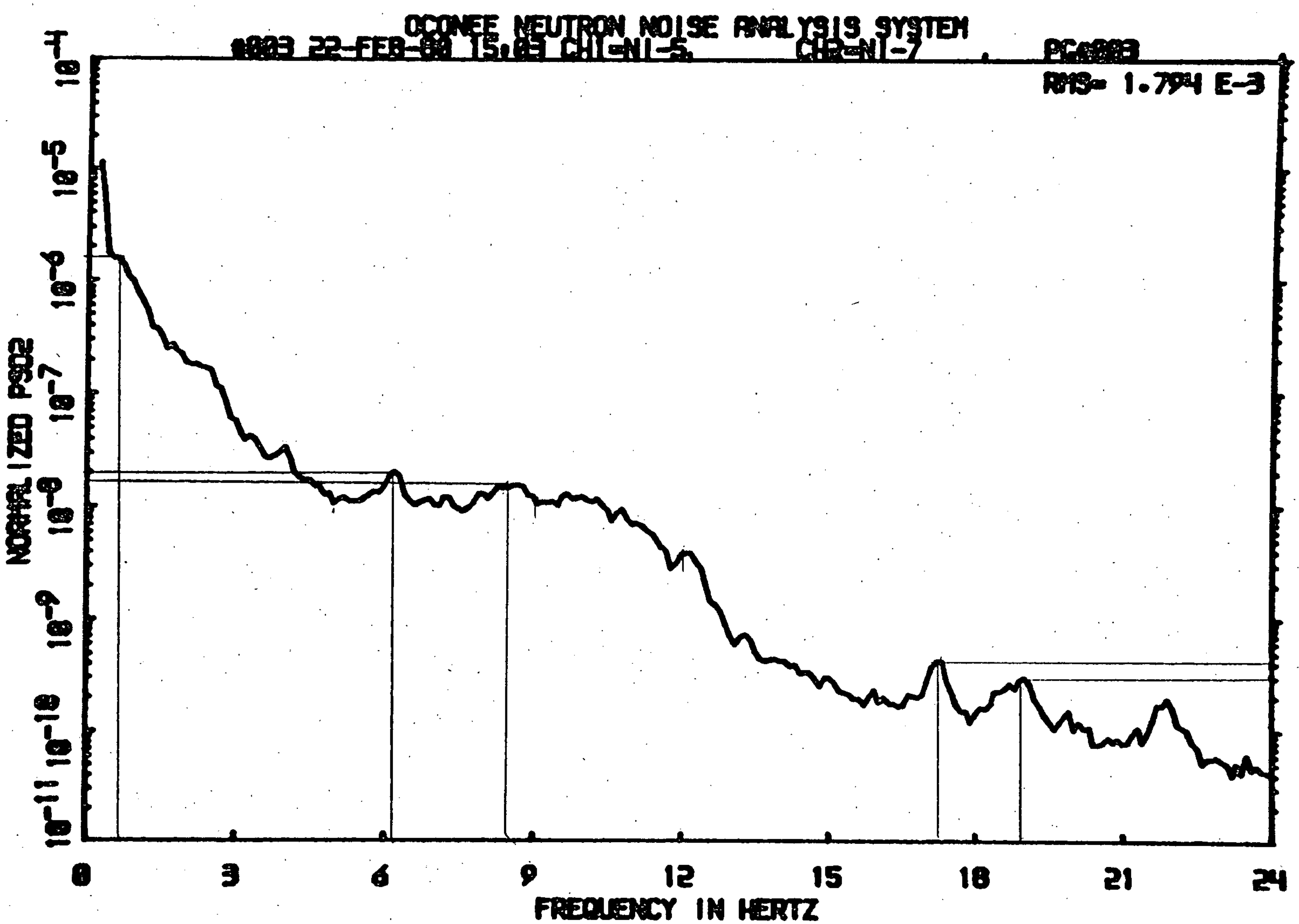
2EOC4


OCONEE NEUTRON NOISE ANALYSIS SYSTEM
#003 22-FEB-80 15:03 CH1=NI-5, CH2=NI-7 , PG#003
COHERENCE
0.0
0.2
0.4
0.6
0.8
1.0
0
3
6
9
12
15
18
21
24
FREQUENCY IN HERTZ

2 EOC4

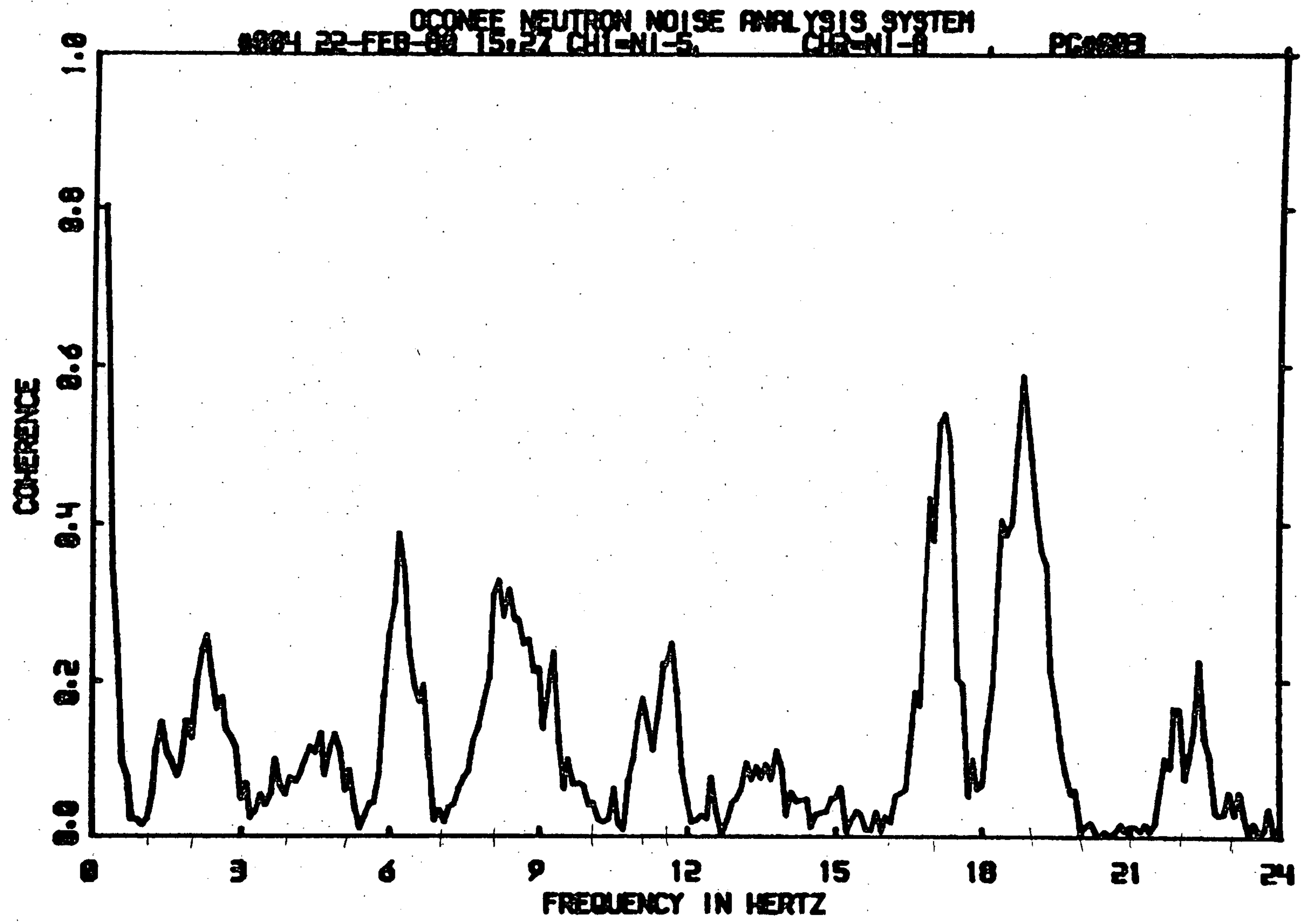

OCONEE NEUTRON NOISE ANALYSIS SYSTEM
#003 22-FEB-80 15:03 CH1=NI-5, CH2=NI-7 , PC#003
PHASE IN DEGREES
90
0
-90
-180
-270
0
3
6
9
12
15
18
21
24
FREQUENCY IN HERTZ

2EOC4

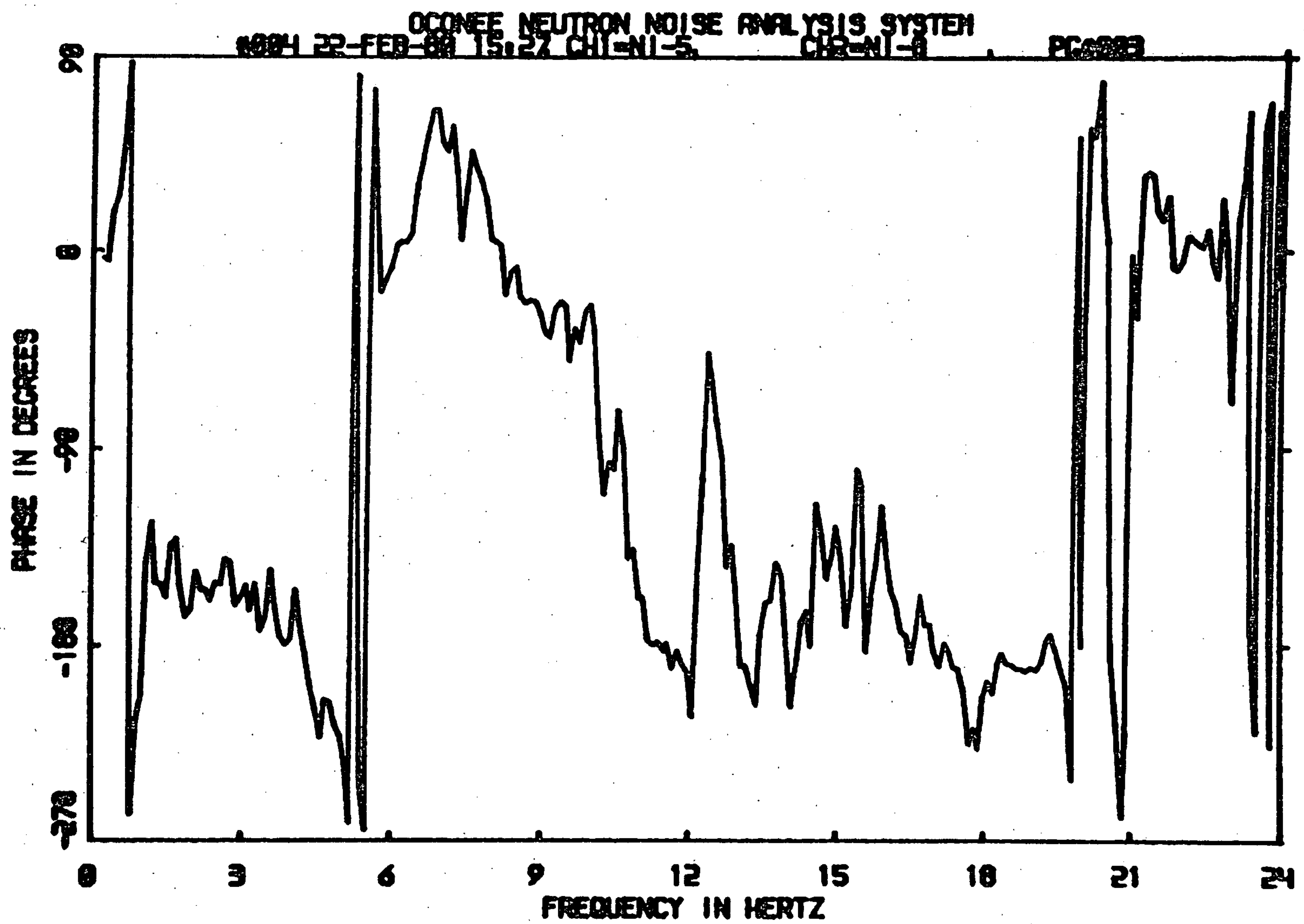


OCONEE NEUTRON NOISE ANALYSIS SYSTEM
#003 22-FEB-00 15:03 CH1=NI-5, CH2=NI-7 , PC#003
RMS= 1.794 E-3
NORMALIZED PSD2
10^-4 10^-5 10^-6 10^-7 10^-8 10^-9 10^-10 10^-11
0 3 6 9 12 15 18 21 24
FREQUENCY IN HERTZ

2EOC4

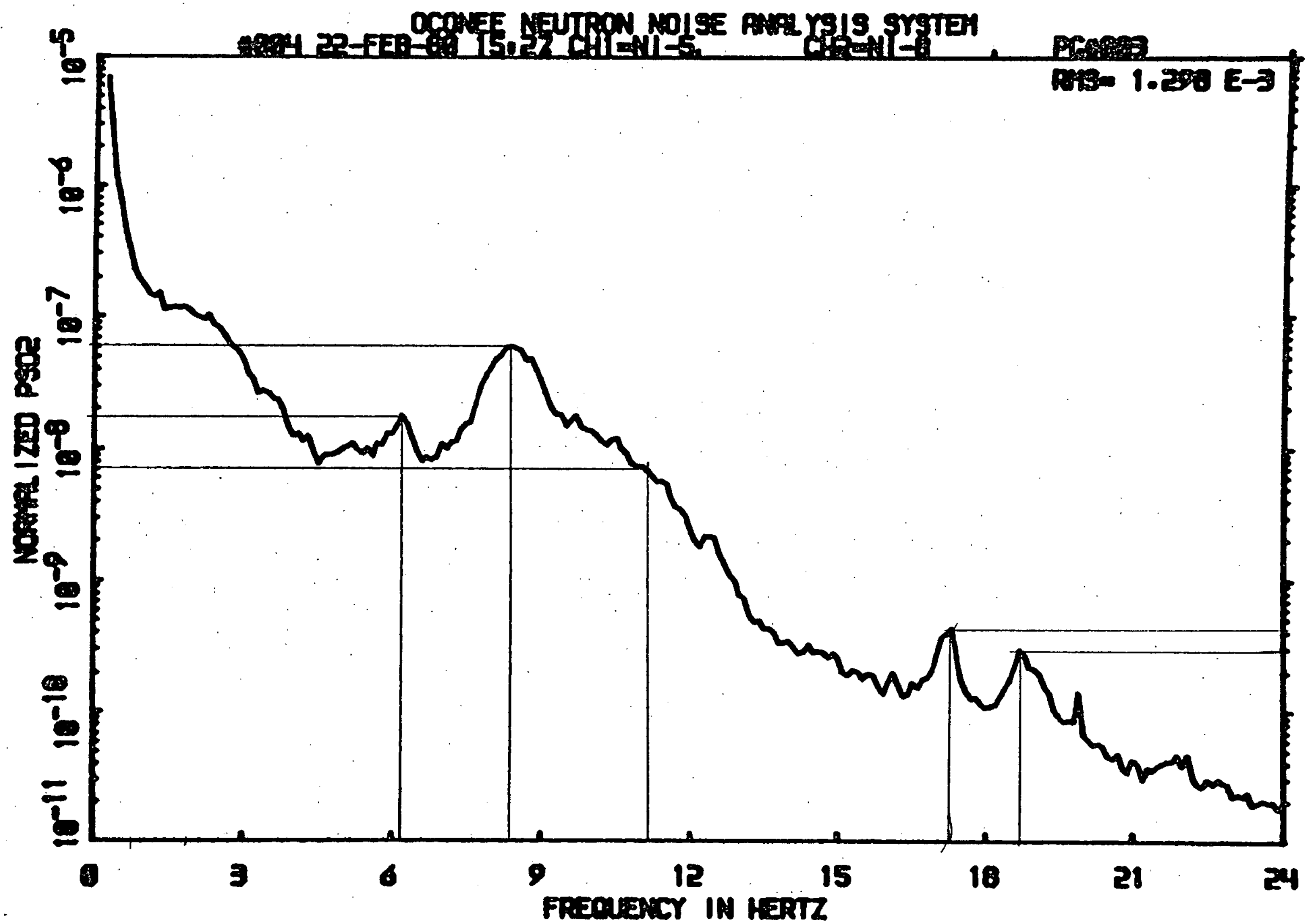

OCONEE NEUTRON NOISE ANALYSIS SYSTEM
#004 22-FEB-80 15:27 CH1=NI-5. CH2=NI-8 , PG#003
COHERENCE
0.0
0.2
0.4
0.6
0.8
1.0
0
3
6
9
12
15
18
21
24
FREQUENCY IN HERTZ

2EOC4



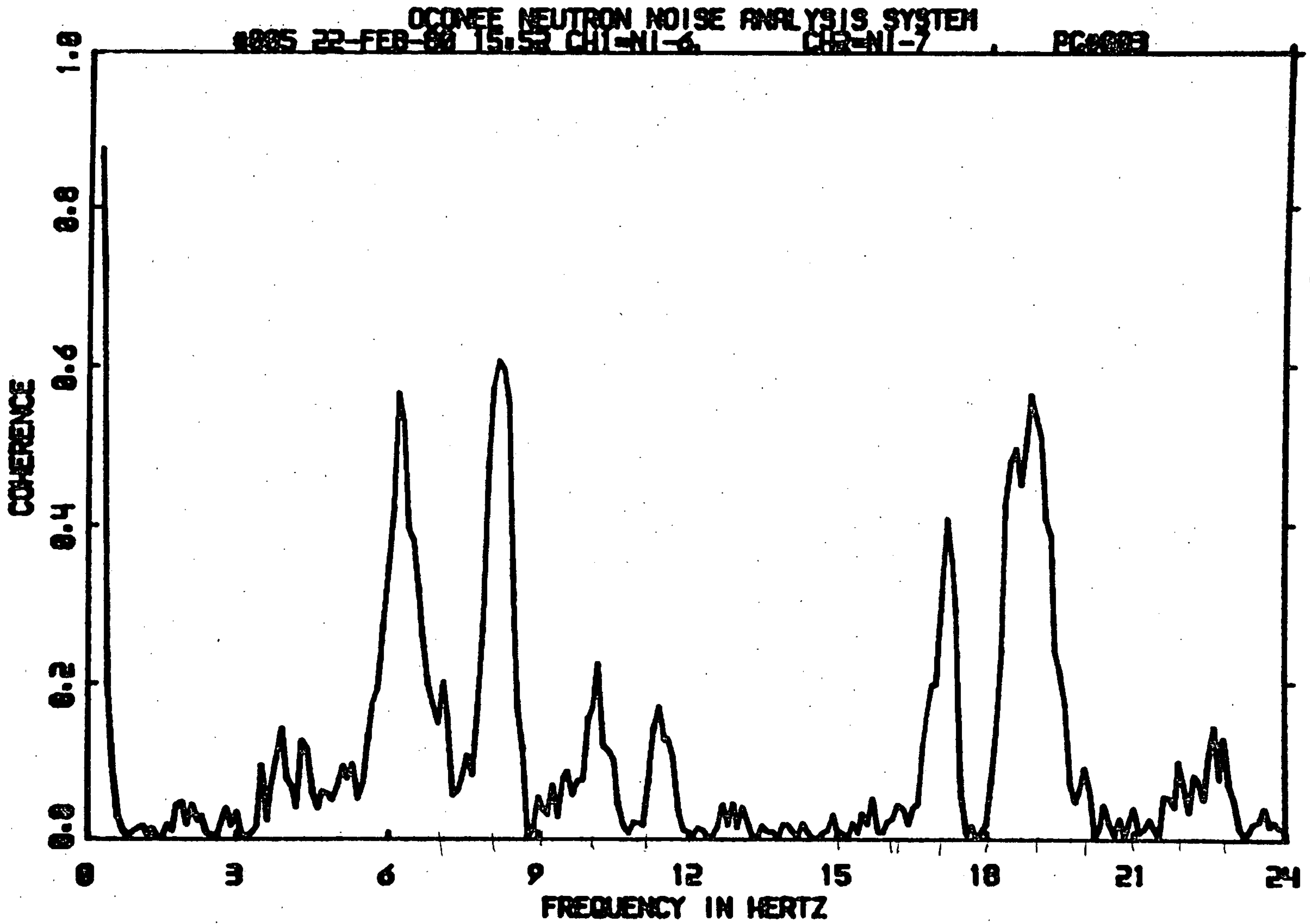
OCONEE NEUTRON NOISE ANALYSIS SYSTEM
#004 22-FEB-88 15:27 CH1=NI-5, CH2=NI-8 , PG#003
PHASE IN DEGREES
90
0
-90
-180
-270
0
3
6
9
12
15
18
21
24
FREQUENCY IN HERTZ

2EOC4

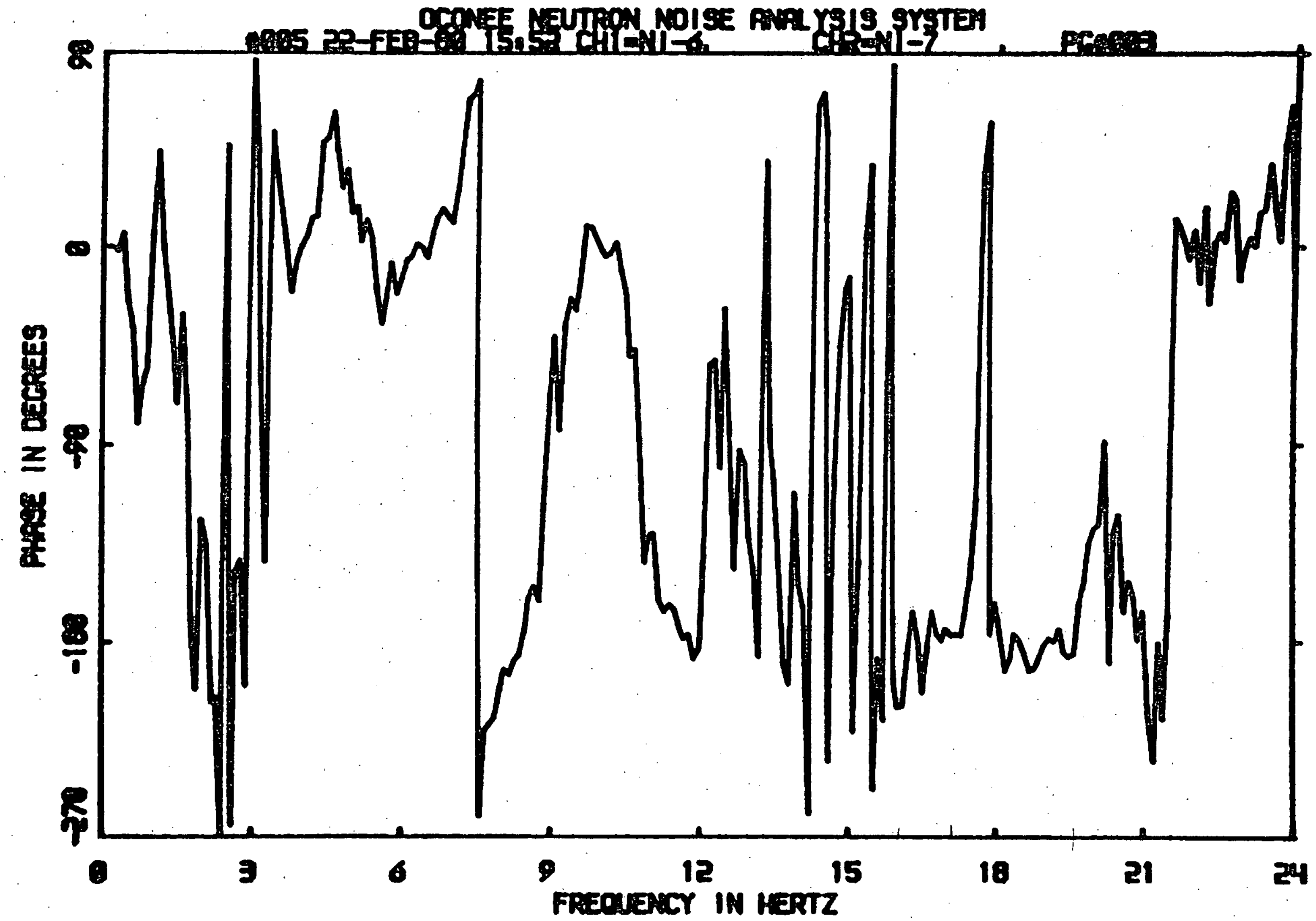


OCONEE NEUTRON NOISE ANALYSIS SYSTEM
#004 22-FEB-88 15:27 CH1=NI-5, CH2=NI-6 , PC#003
RMS= 1.298 E-3
NORMALIZED PSD2
10^-5
10^-6
10^-7
10^-8
10^-9
10^-10
10^-11
0
3
6
9
12
15
18
21
24
FREQUENCY IN HERTZ

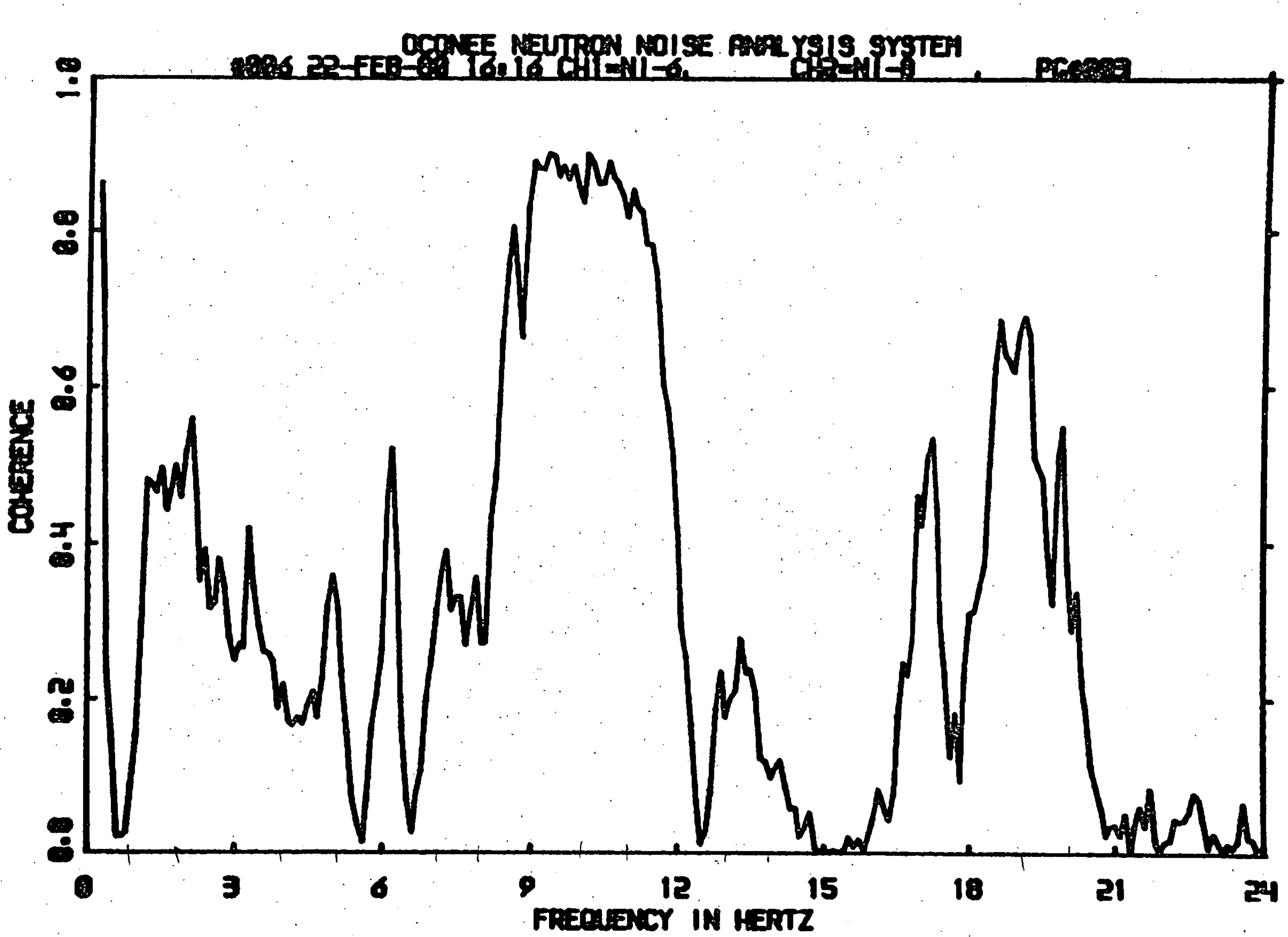
2 EOC 4



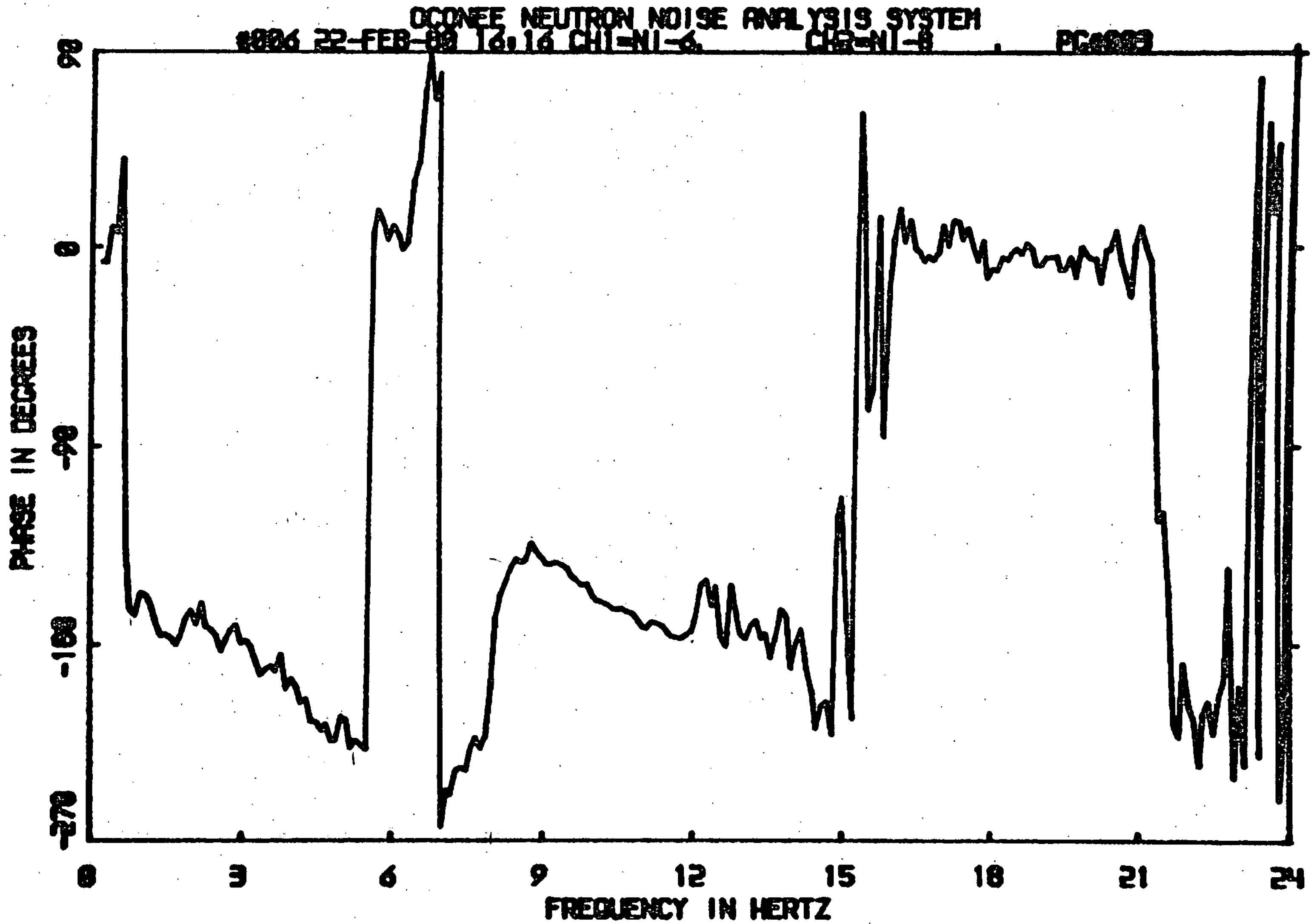
OCONEE NEUTRON NOISE ANALYSIS SYSTEM
#005 22-FEB-80 15:53 CH1=NI-6, CH2=NI-7 , PC#003
COHERENCE
0.0
0.2
0.4
0.6
0.8
1.0
0
3
6
9
12
15
18
21
24
FREQUENCY IN HERTZ


OCONEE NEUTRON NOISE ANALYSIS SYSTEM
#005 22-FEB-80 15:52 CH1=NI-6, CH2=NI-7 , PC#003
PHASE IN DEGREES
90
0
-90
-180
-270
0
3
6
9
12
15
18
21
24
FREQUENCY IN HERTZ

2EOC4

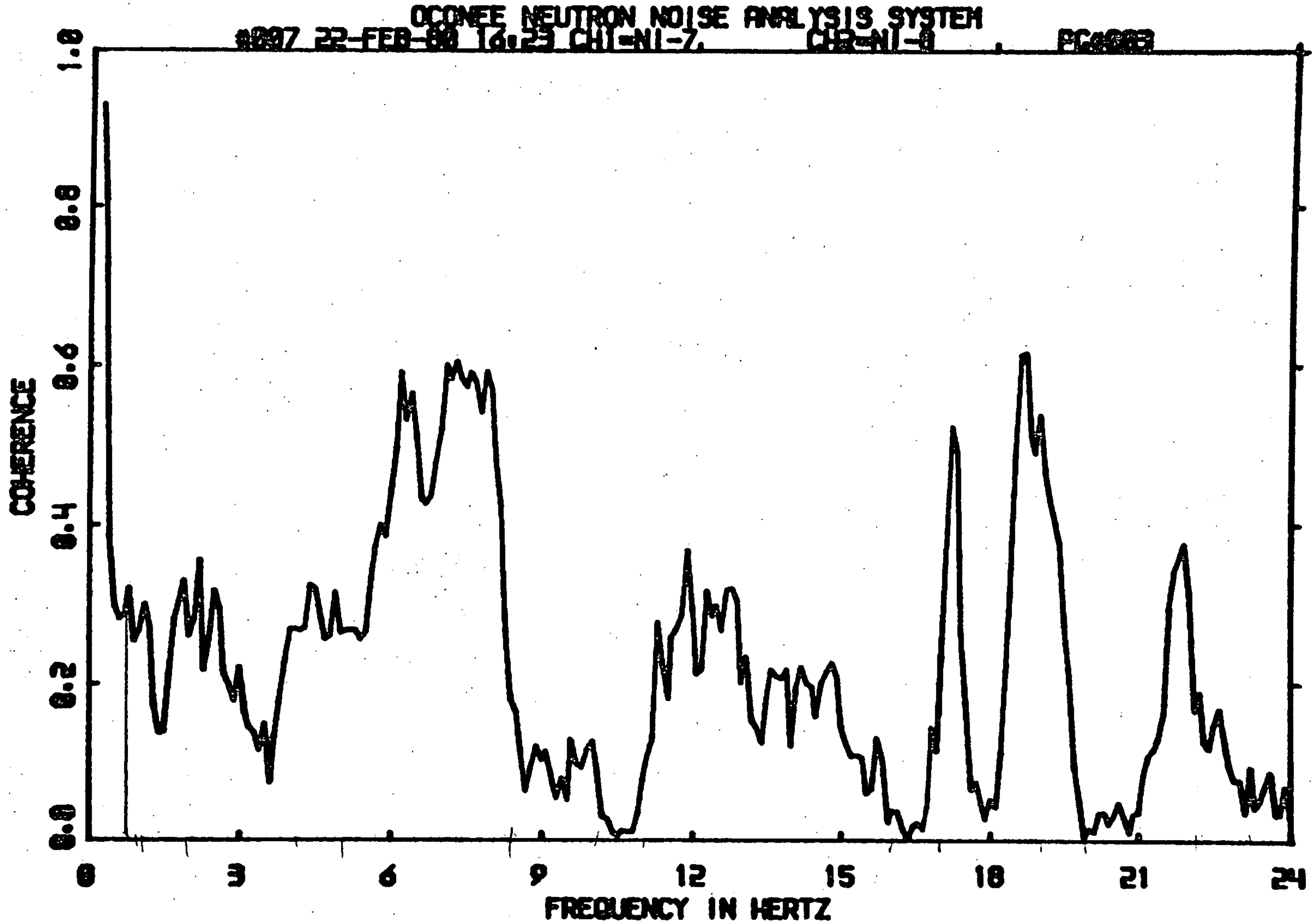

OCONEE NEUTRON NOISE ANALYSIS SYSTEM
22-FEB 16:16 CH1=NI-6, CH2=NI-8
COHERENCE
0.0
0.2
0.4
0.6
0.8
1.0
0
3
6
9
12
15
18
21
24
FREQUENCY IN HERTZ

2EOC4

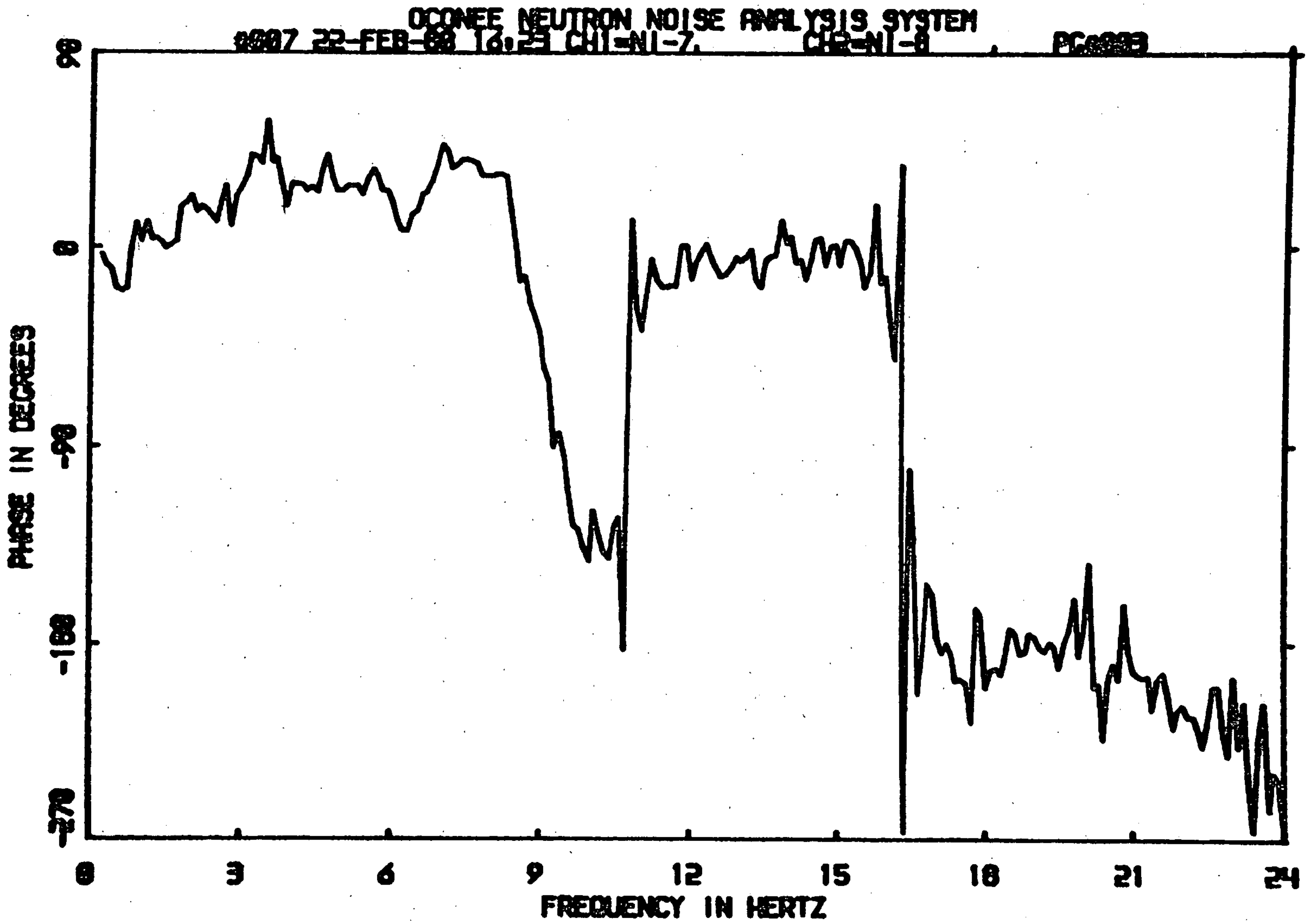


OCONEE NEUTRON NOISE ANALYSIS SYSTEM
#006 22-FEB-88 16:16 CH1=NI-6, CH2=NI-8 , PG#003
PHASE IN DEGREES
90
0
-90
-180
-270
0
3
6
9
12
15
18
21
24
FREQUENCY IN HERTZ

2EOC4


OCONEE NEUTRON NOISE ANALYSIS SYSTEM
#097 22-FEB-80 16:23 CH1=NI-7, CH2=NI-8 , PG#003
COHERENCE
0.0
0.2
0.4
0.6
0.8
1.0
0
3
6
9
12
15
18
21
24
FREQUENCY IN HERTZ

2EOC4



OCONEE NEUTRON NOISE ANALYSIS SYSTEM
#007 22-FEB-88 16:23 CH1=NI-7, CH2=NI-8 , PG#093
PHASE IN DEGREES
90
0
-90
-180
-270
0
3
6
9
12
15
18
21
24
FREQUENCY IN HERTZ

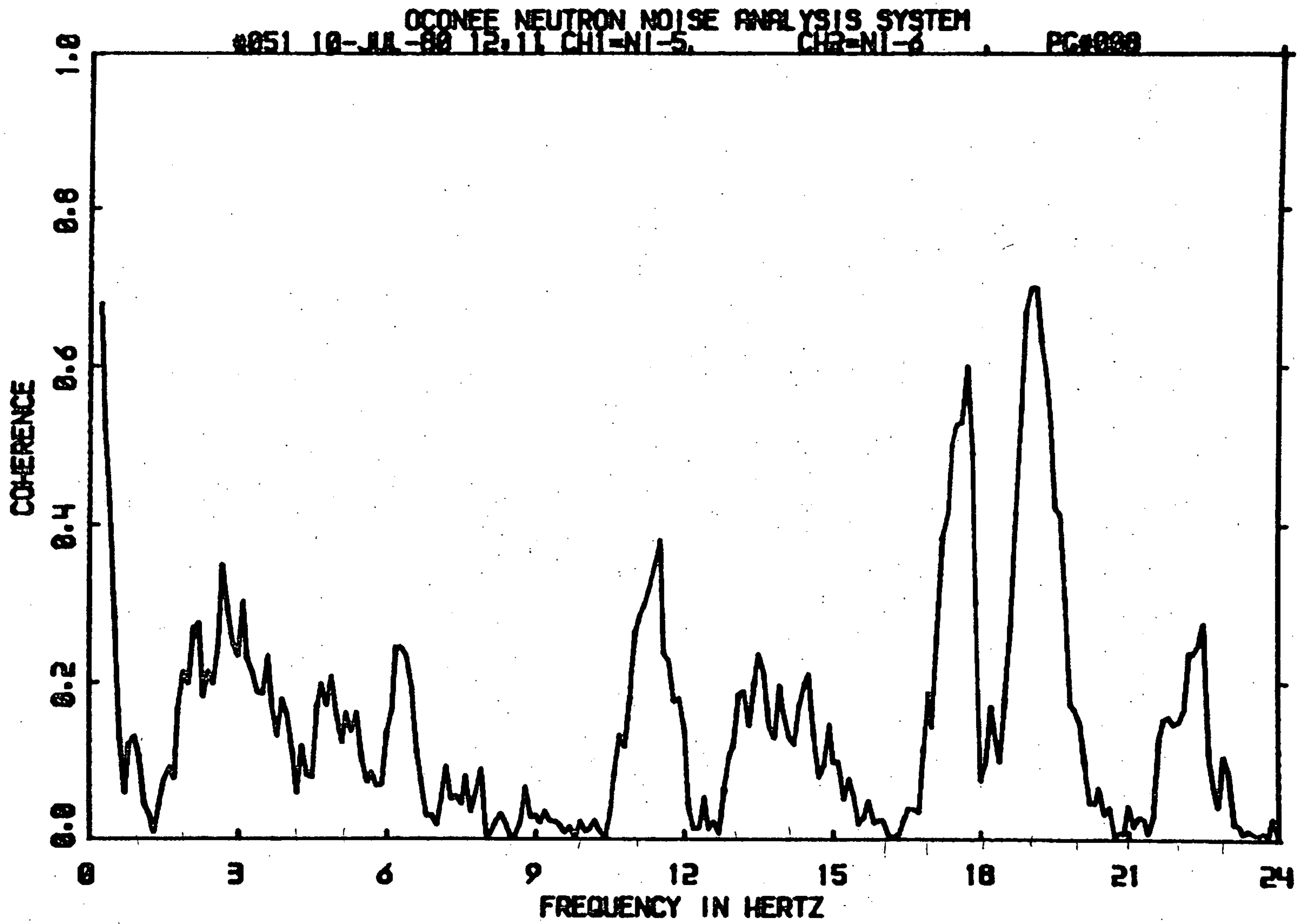
CONTENTS

Neutron noise data for BOC 5
Unit 2, taken October 7, 1980

TEST #	DETECTOR PAIRS*
51	NI-5 total × NI-6 total
52	NI-5 total × NI-7 total
53	NI-5 total × NI-8 total
54	NI-6 total × NI-7 total
55	NI-6 total × NI-8 total
56	NI-7 total × NI-8 total

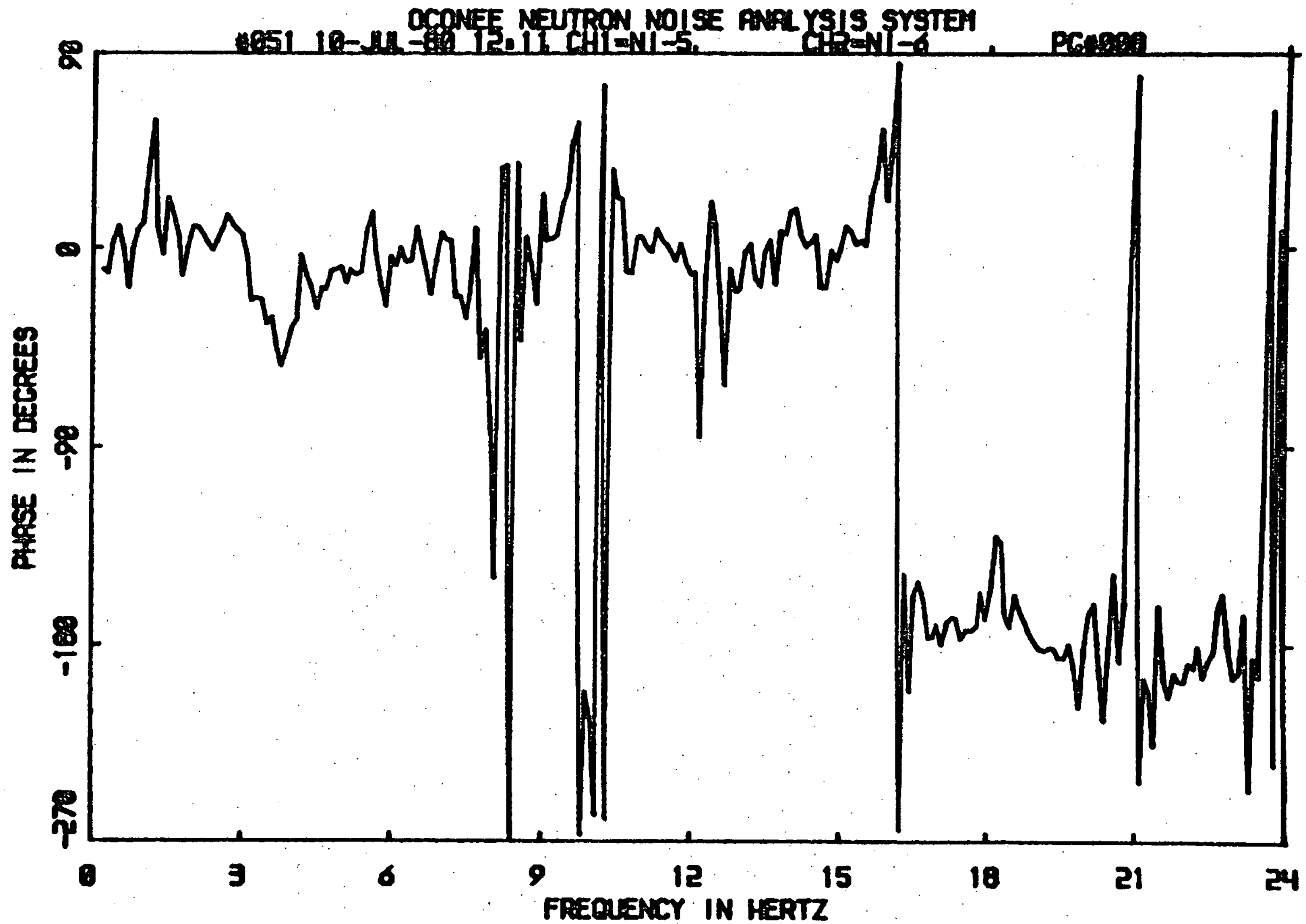
*Total indicates the sum of lower and upper chambers.

BOC-2

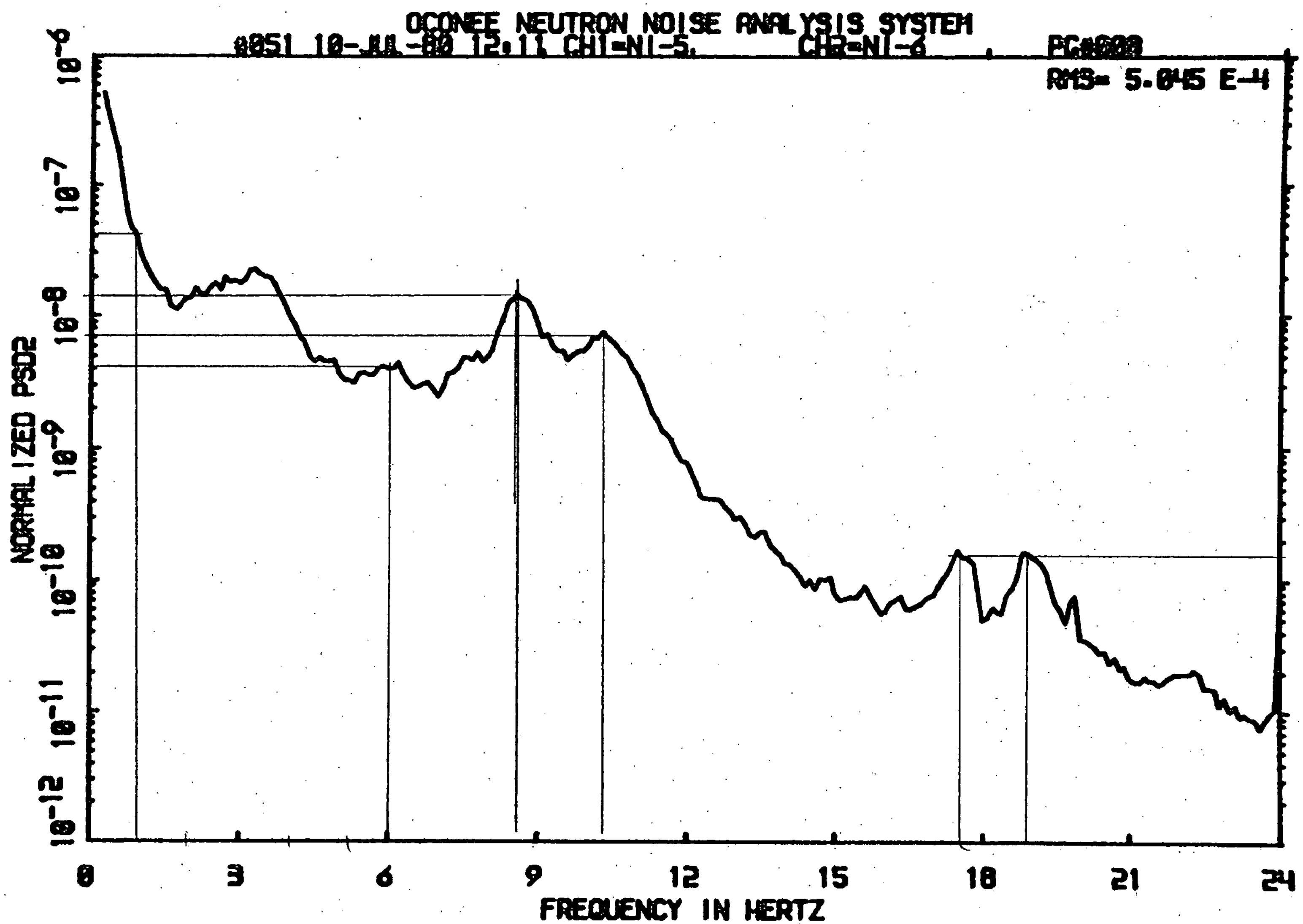


OCONEE NEUTRON NOISE ANALYSIS SYSTEM
#051 10-JUL-80 12:11 CH1=NI-5, CH2=NI-6 , PG#000
COHERENCE
0.0
0.2
0.4
0.6
0.8
1.0
0
3
6
9
12
15
18
21
24
FREQUENCY IN HERTZ

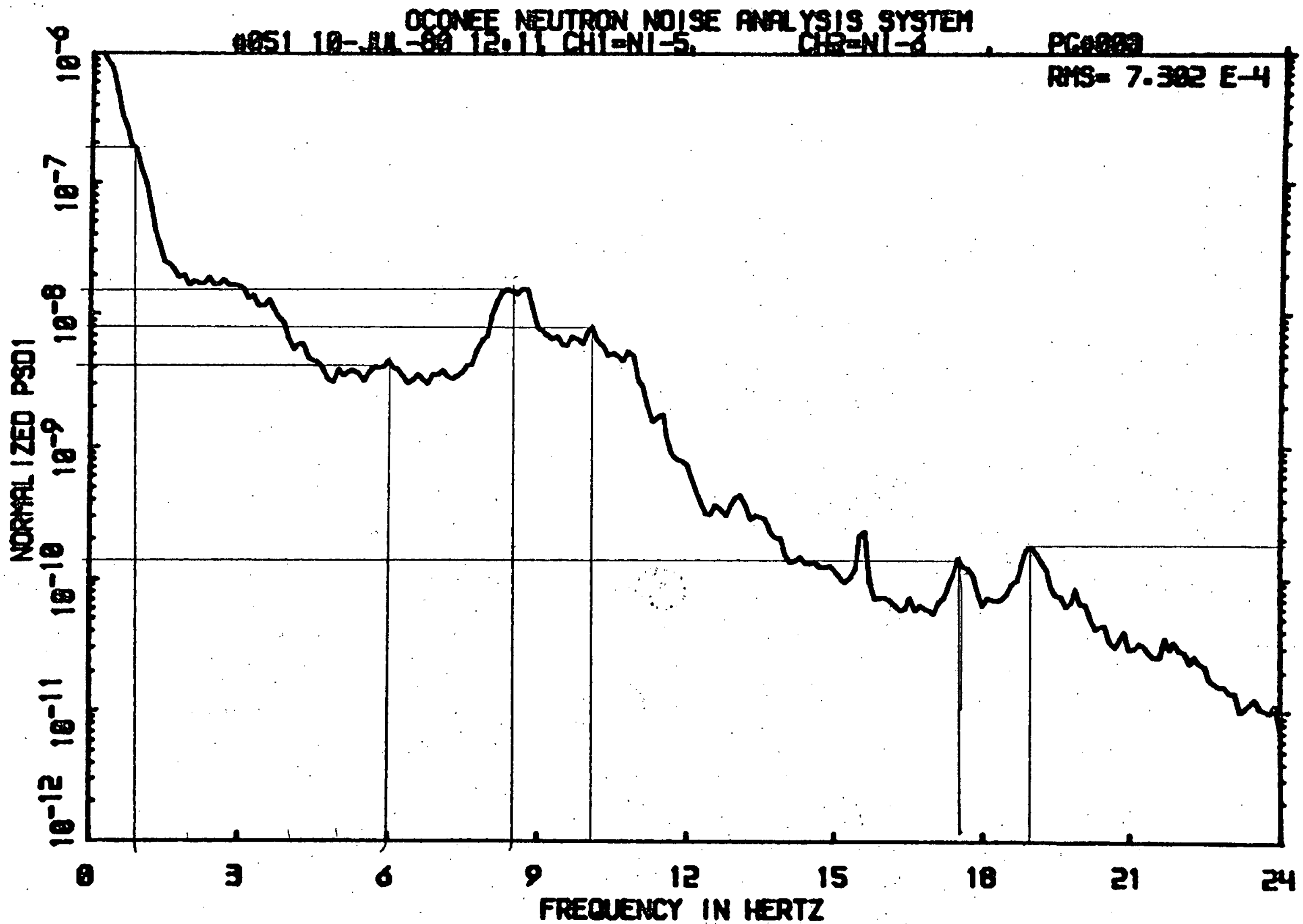
BOC-2


OCONEE NEUTRON NOISE ANALYSIS SYSTEM
#051 10-JUL-80 12:11 CH1=NI-5. CH2=NI-6 . PG#000
PHASE IN DEGREES
90
0
-90
-180
-270
0
3
6
9
12
15
18
21
24
FREQUENCY IN HERTZ

BOC-2

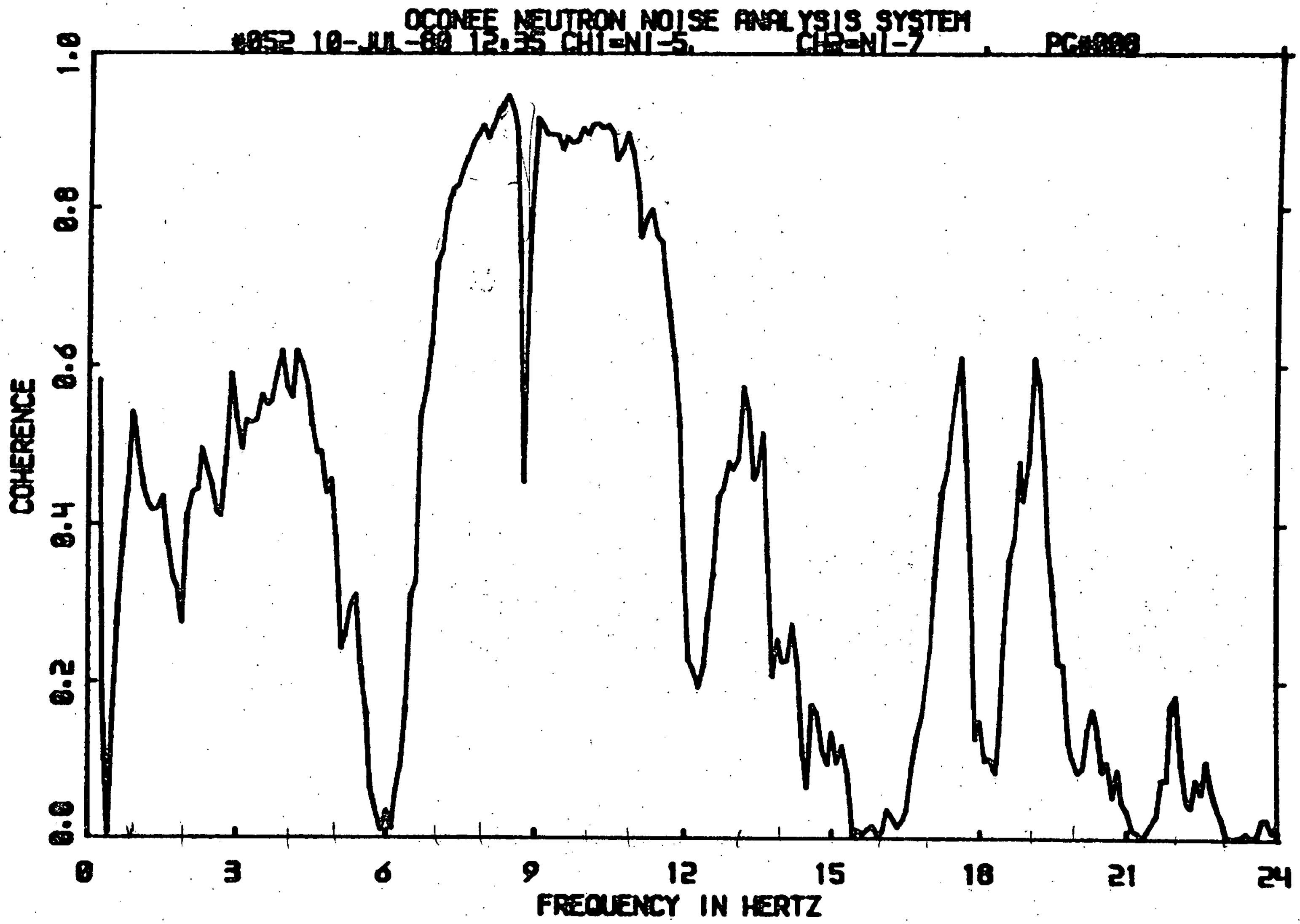

OCONEE NEUTRON NOISE ANALYSIS SYSTEM
#051 10-JUL-80 12.11 CH1=NI-5, CH2=NI-6 , PG#000
RMS= 5.045 E-4
NORMALIZED PSD2
10^-12
10^-11
10^-10
10^-9
10^-8
10^-7
10^-6
0
3
6
9
12
15
18
21
24
FREQUENCY IN HERTZ

BOC - 2



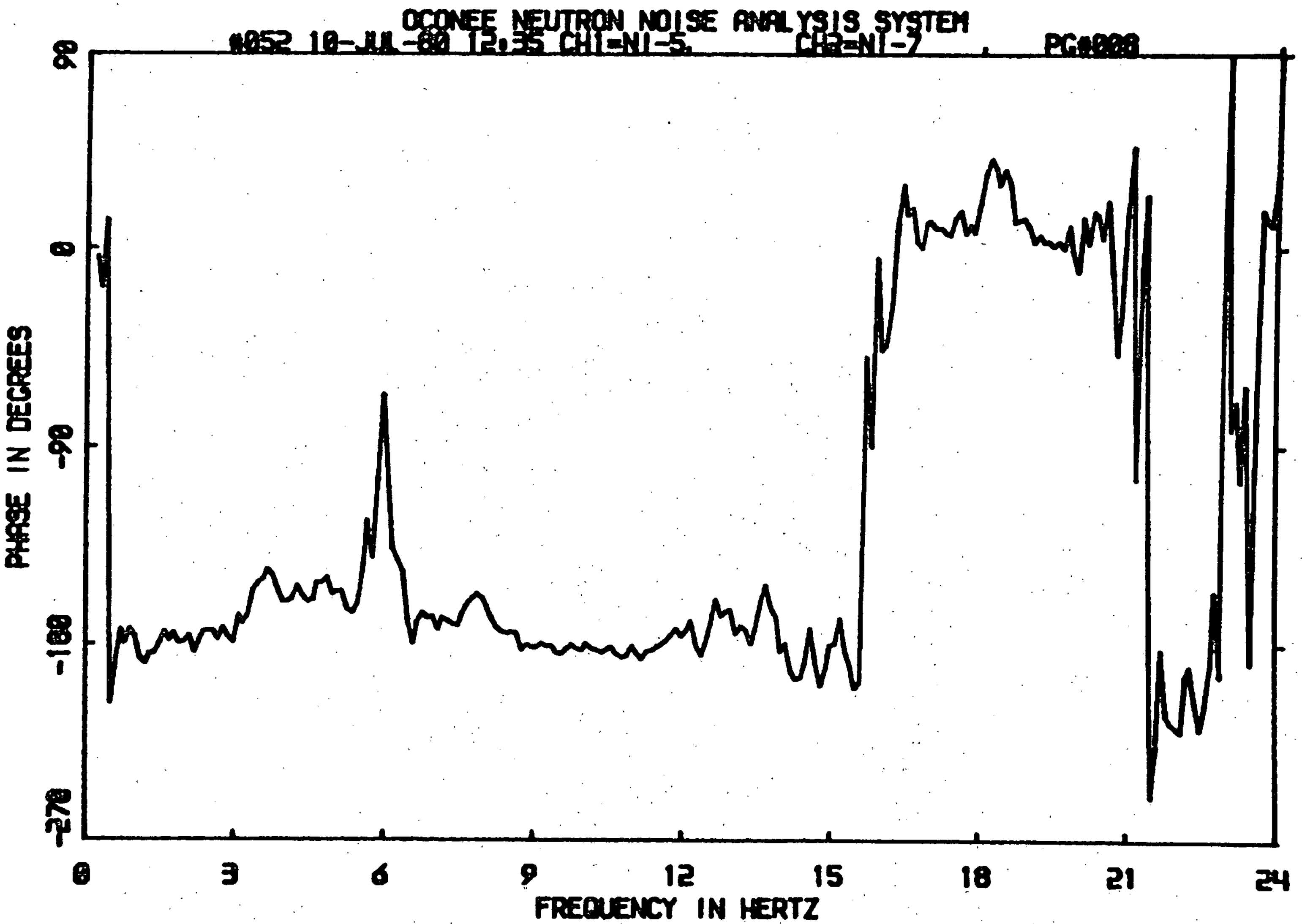
OCONEE NEUTRON NOISE ANALYSIS SYSTEM
#051 10-JUL-80 12.11 CH1=NI-5, CH2=NI-6 , PG#003
RMS= 7.302 E-4
NORMALIZED PSD1
10^-6
10^-7
10^-8
10^-9
10^-10
10^-11
10^-12
0
3
6
9
12
15
18
21
24
FREQUENCY IN HERTZ

BOC-2

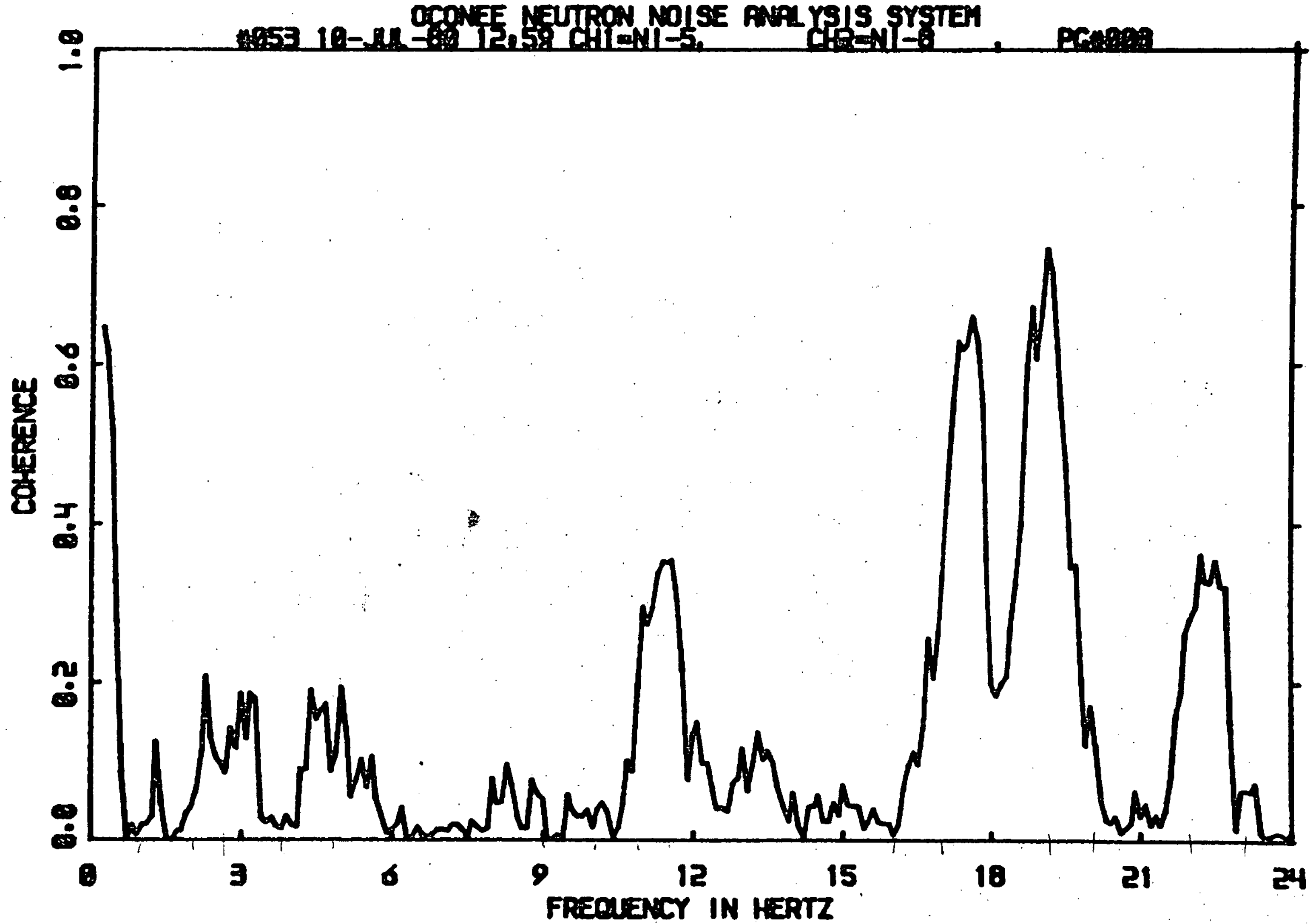


OCONEE NEUTRON NOISE ANALYSIS SYSTEM
#052 10-JUL-80 12:35 CH1=NI-5, CH2=NI-7 , PG#000
COHERENCE
0.0
0.2
0.4
0.6
0.8
1.0
0
3
6
9
12
15
18
21
24
FREQUENCY IN HERTZ

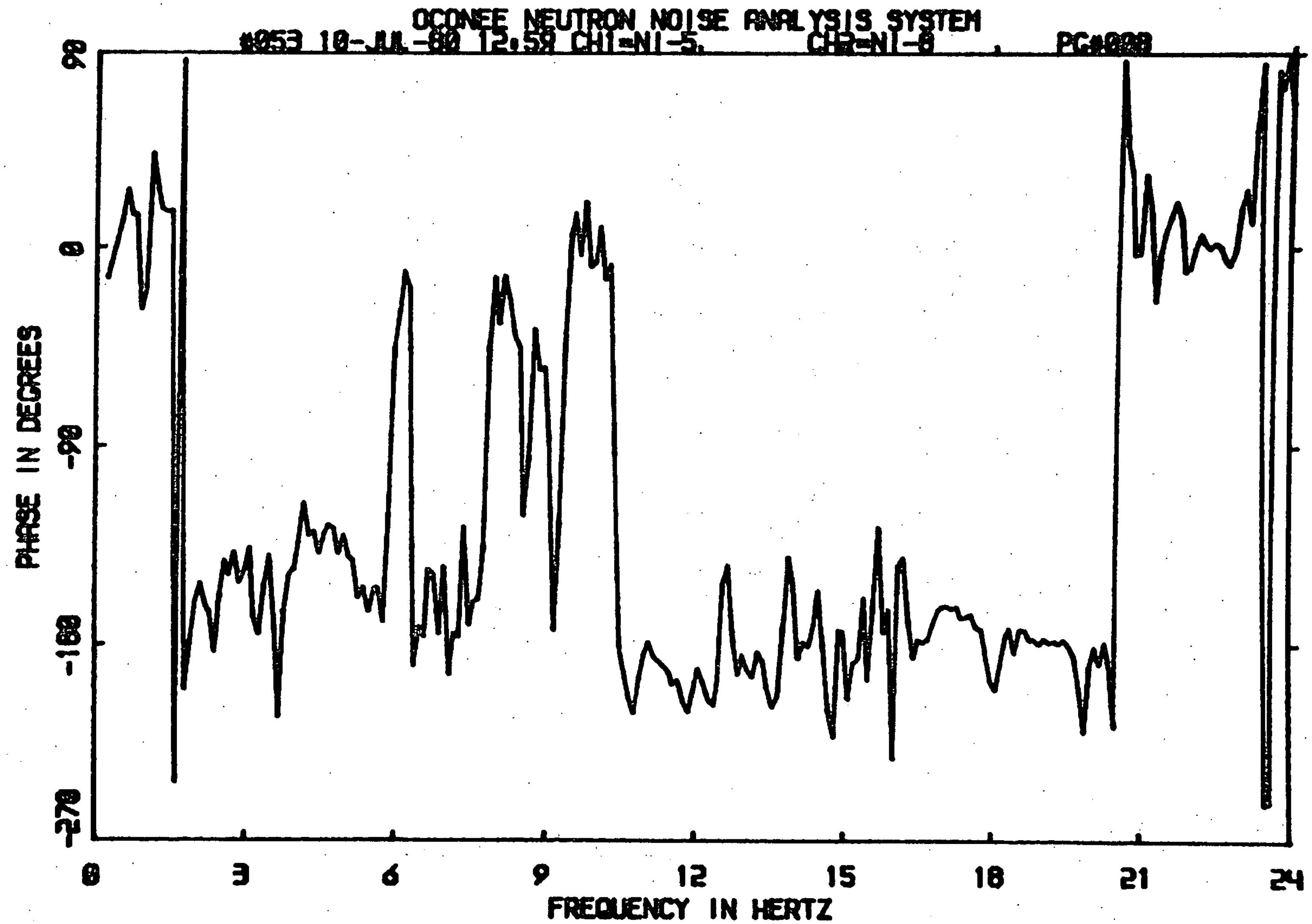
BOC-2


OCONEE NEUTRON NOISE ANALYSIS SYSTEM
#052 10-JUL-80 12:35 CH1=NI-5. CH2=NI-7 . PG#008
PHASE IN DEGREES
90
0
-90
-180
-270
0
3
6
9
12
15
18
21
24
FREQUENCY IN HERTZ

BOC-2

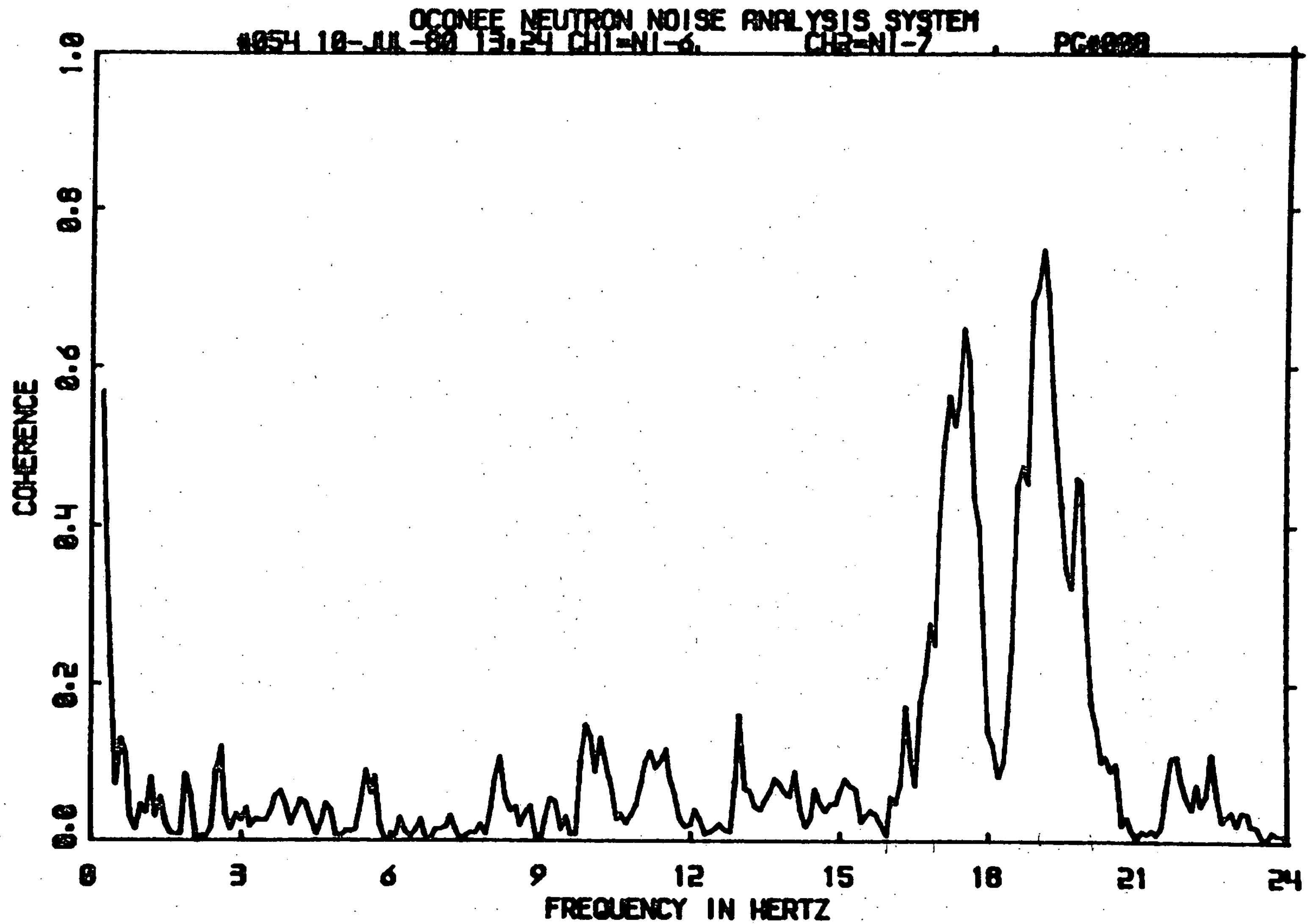

OCONEE NEUTRON NOISE ANALYSIS SYSTEM
#053 10-JUL-80 12.59 CH1=NI-5, CH2=NI-8 , PC#000
COHERENCE
0.0
0.2
0.4
0.6
0.8
1.0
0
3
6
9
12
15
18
21
24
FREQUENCY IN HERTZ

BO C-2



OCONEE NEUTRON NOISE ANALYSIS SYSTEM
#053 10-JUL-80 12.59 CH1=NI-5, CH2=NI-8 , PG#008
PHASE IN DEGREES
90
0
-90
-180
-270
0
3
6
9
12
15
18
21
24
FREQUENCY IN HERTZ

BdC-2

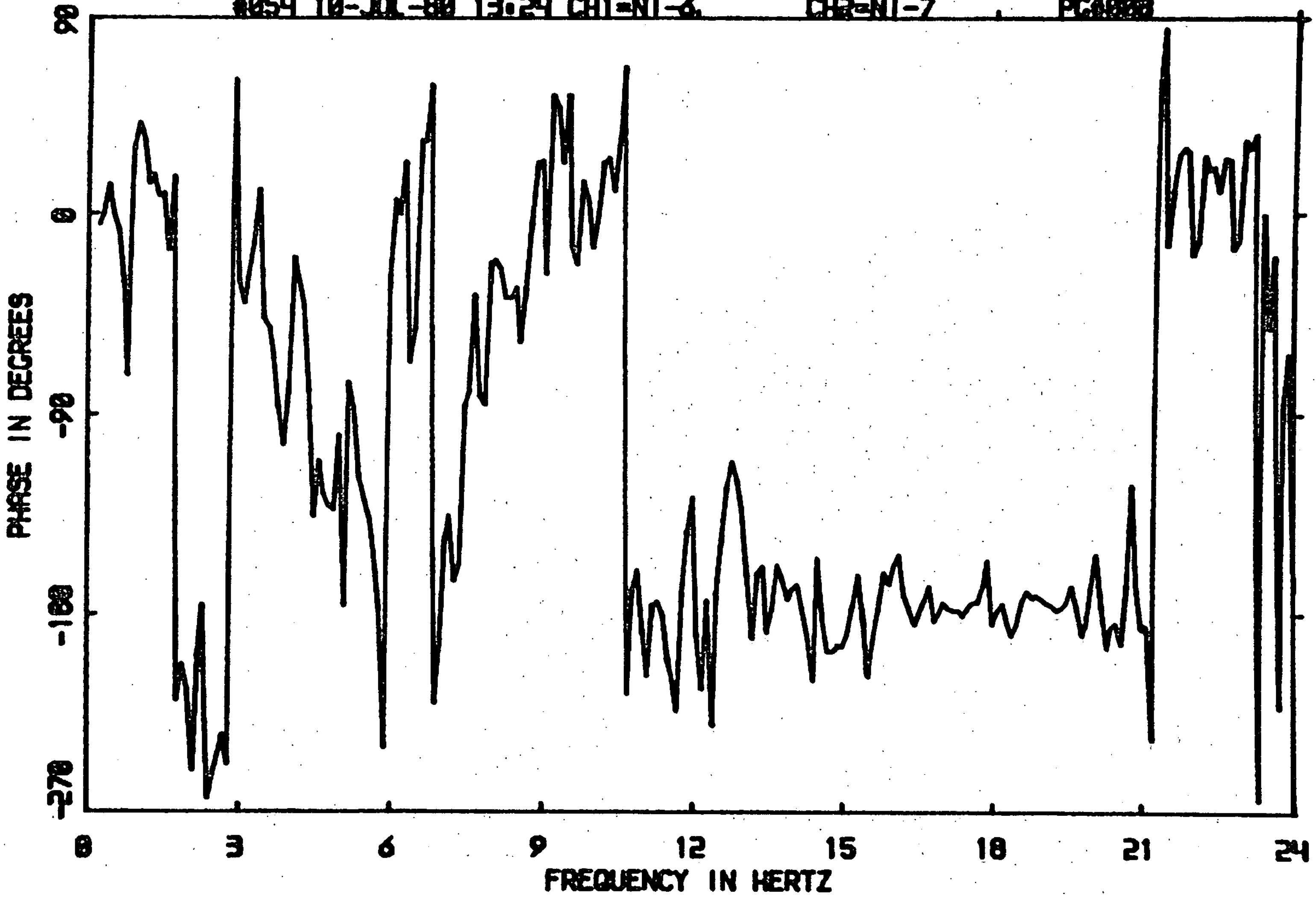


OCONEE NEUTRON NOISE ANALYSIS SYSTEM
#054 10-JUL-80 13:24 CH1=NI-6, CH2=NI-7 , PG#000
COHERENCE
0.0
0.2
0.4
0.6
0.8
1.0
0
3
6
9
12
15
18
21
24
FREQUENCY IN HERTZ

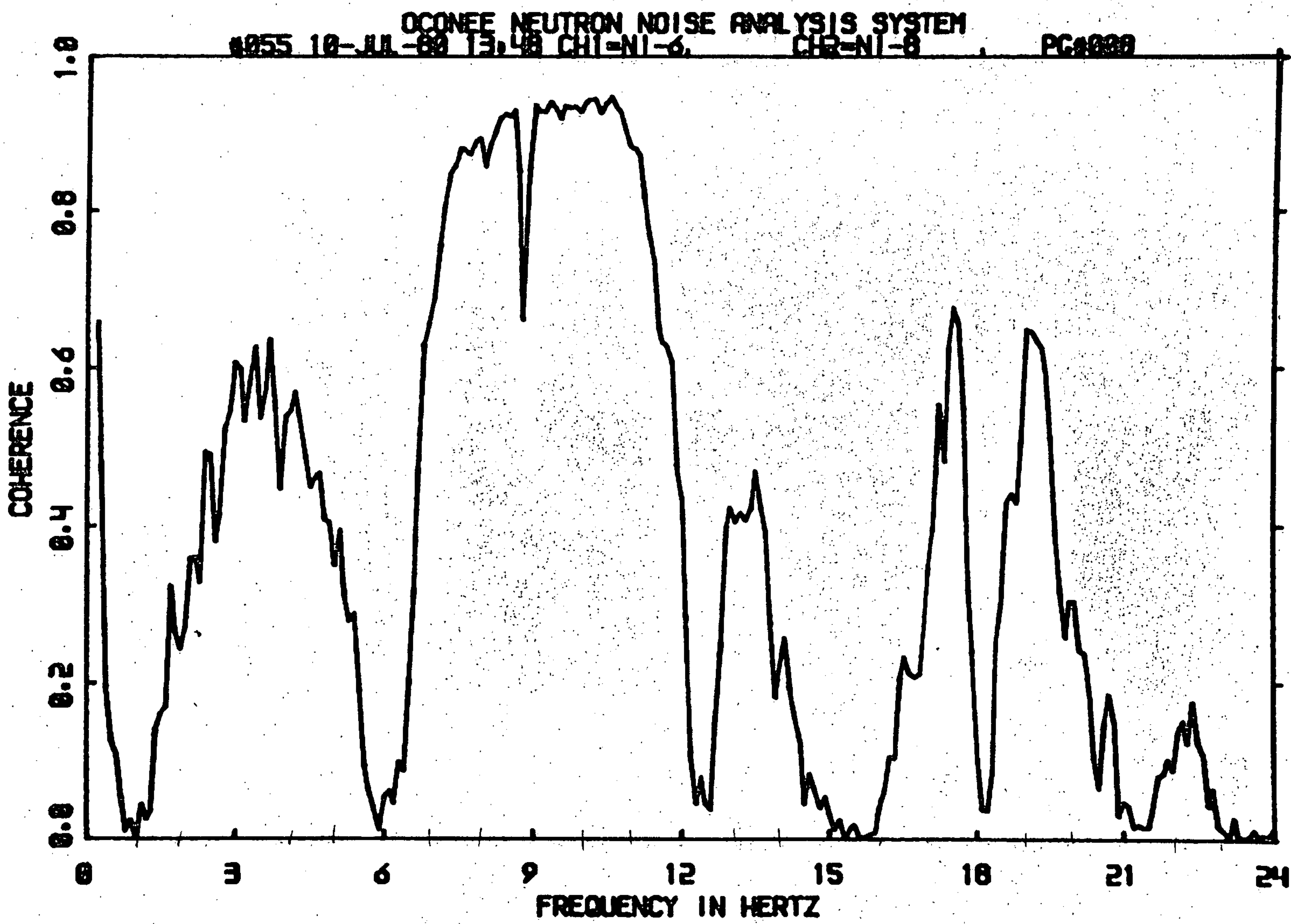
BOC-2

OCONEE NEUTRON NOISE ANALYSIS SYSTEM

#054 10-JUL-80 13:24 CH1=NI-6, CH2=NI-7 , PG#000

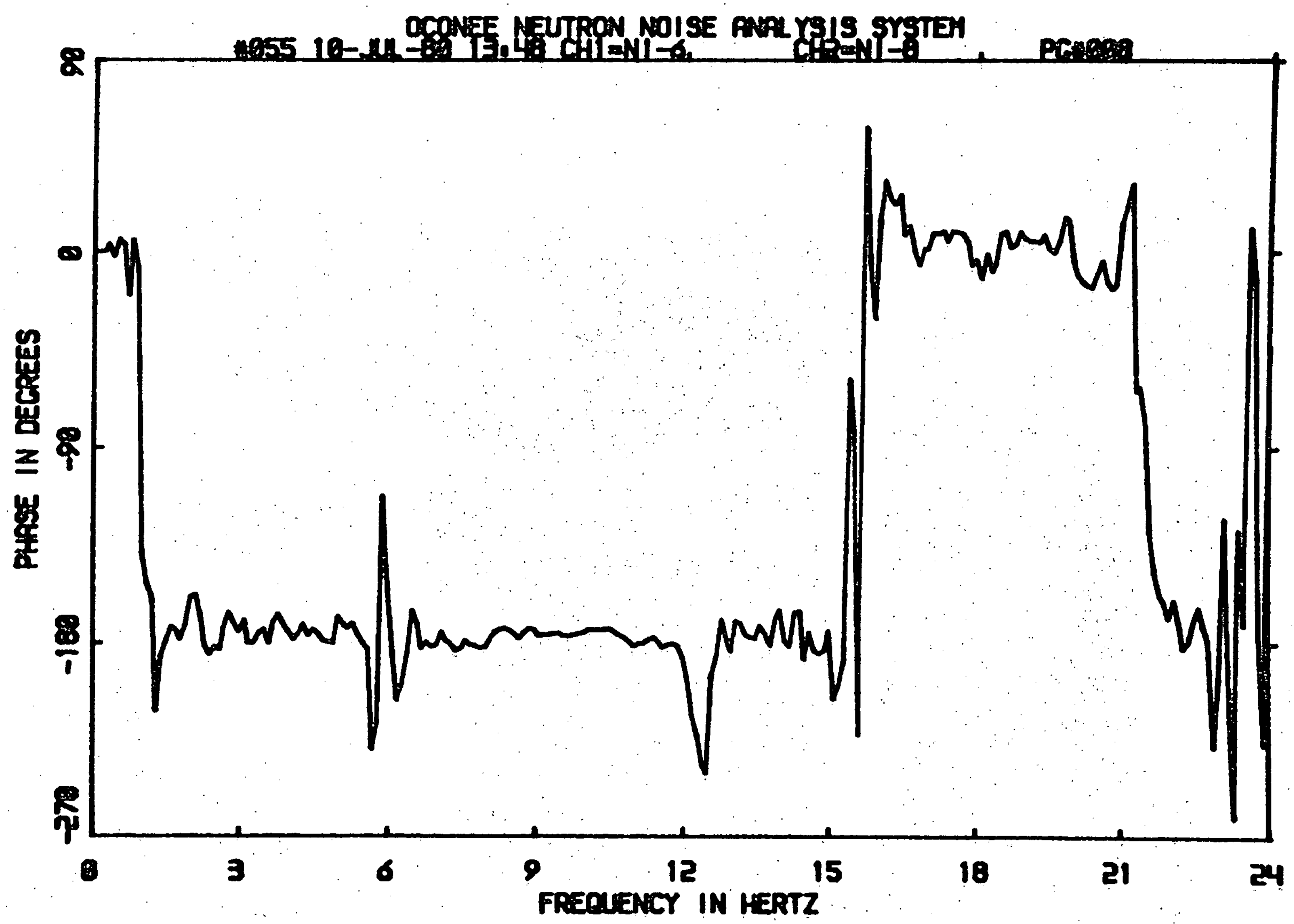


BOC-2 cy 5

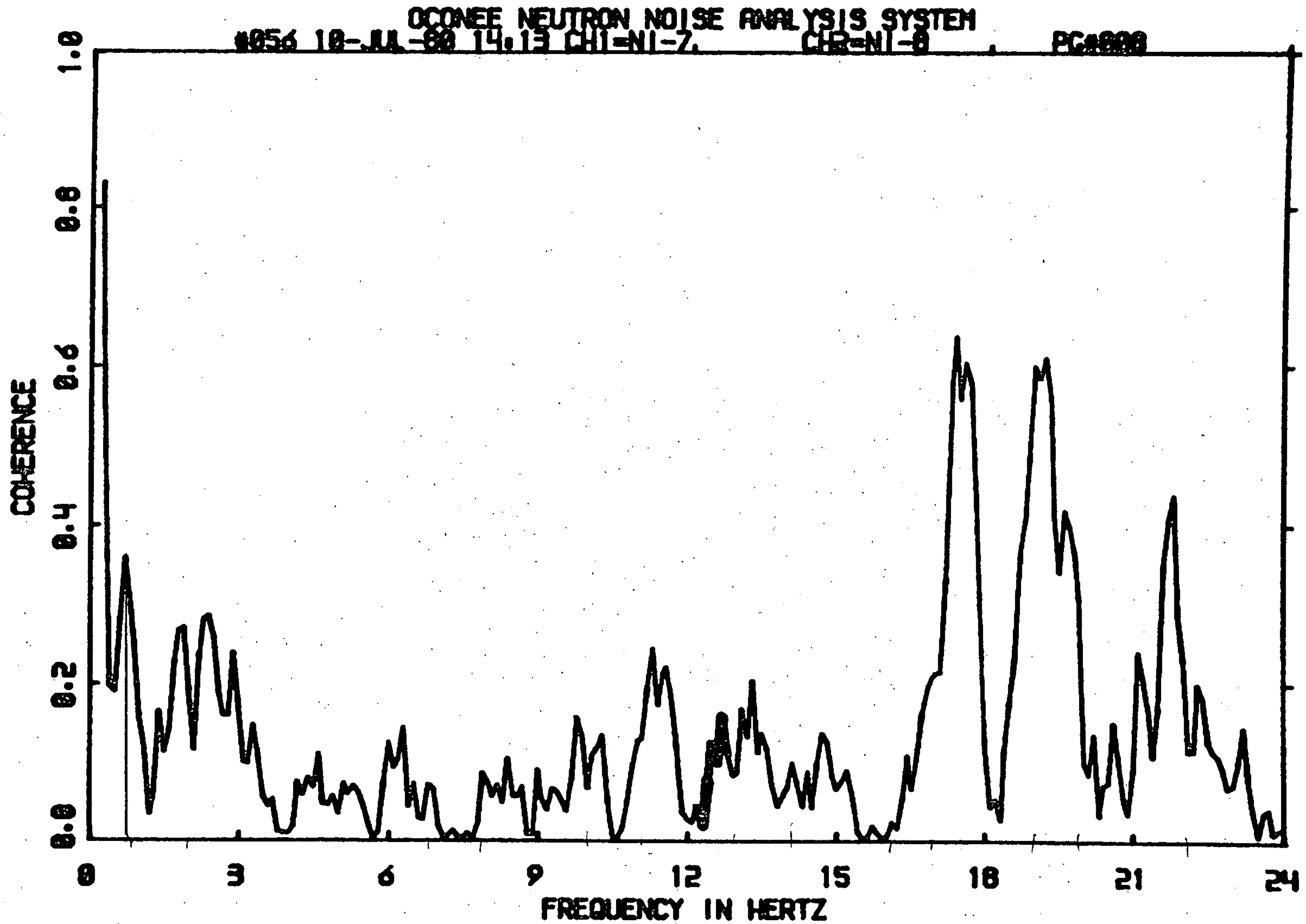


OCONEE NEUTRON NOISE ANALYSIS SYSTEM
#055 10-JUL-80 13,48 CH1=NI-6, CH2=NI-8 , PC#000
1.0
0.8
0.6
0.4
0.2
0.0
COHERENCE
0
3
6
9
12
15
18
21
24
FREQUENCY IN HERTZ

BOC-2

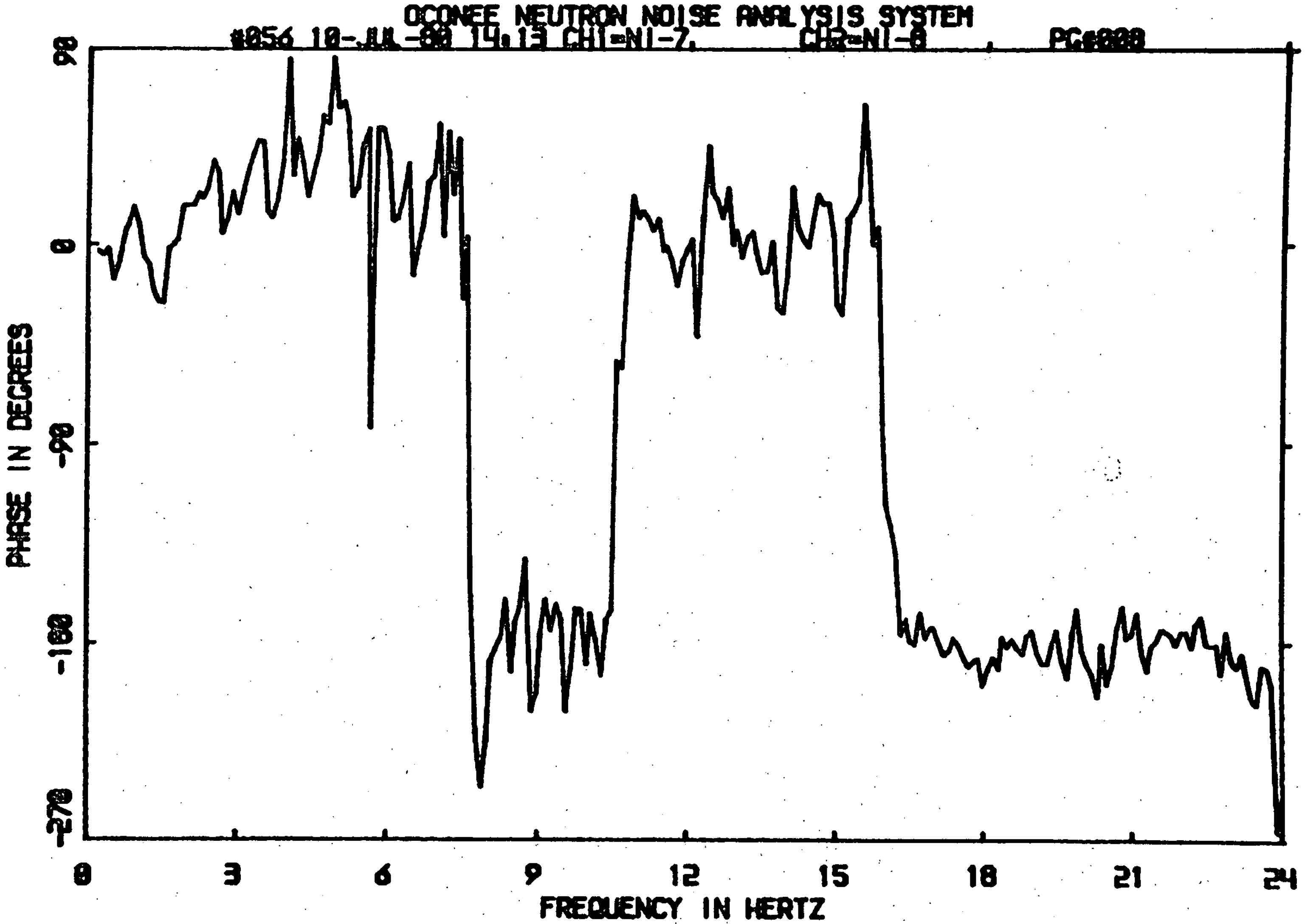

OCONEE NEUTRON NOISE ANALYSIS SYSTEM
#055 10-JUL-80 13.48 CH1=NI-6. CH2=NI-8 . PG#000
PHASE IN DEGREES
90
0
-90
-180
-270
0
3
6
9
12
15
18
21
24
FREQUENCY IN HERTZ

BOC-2



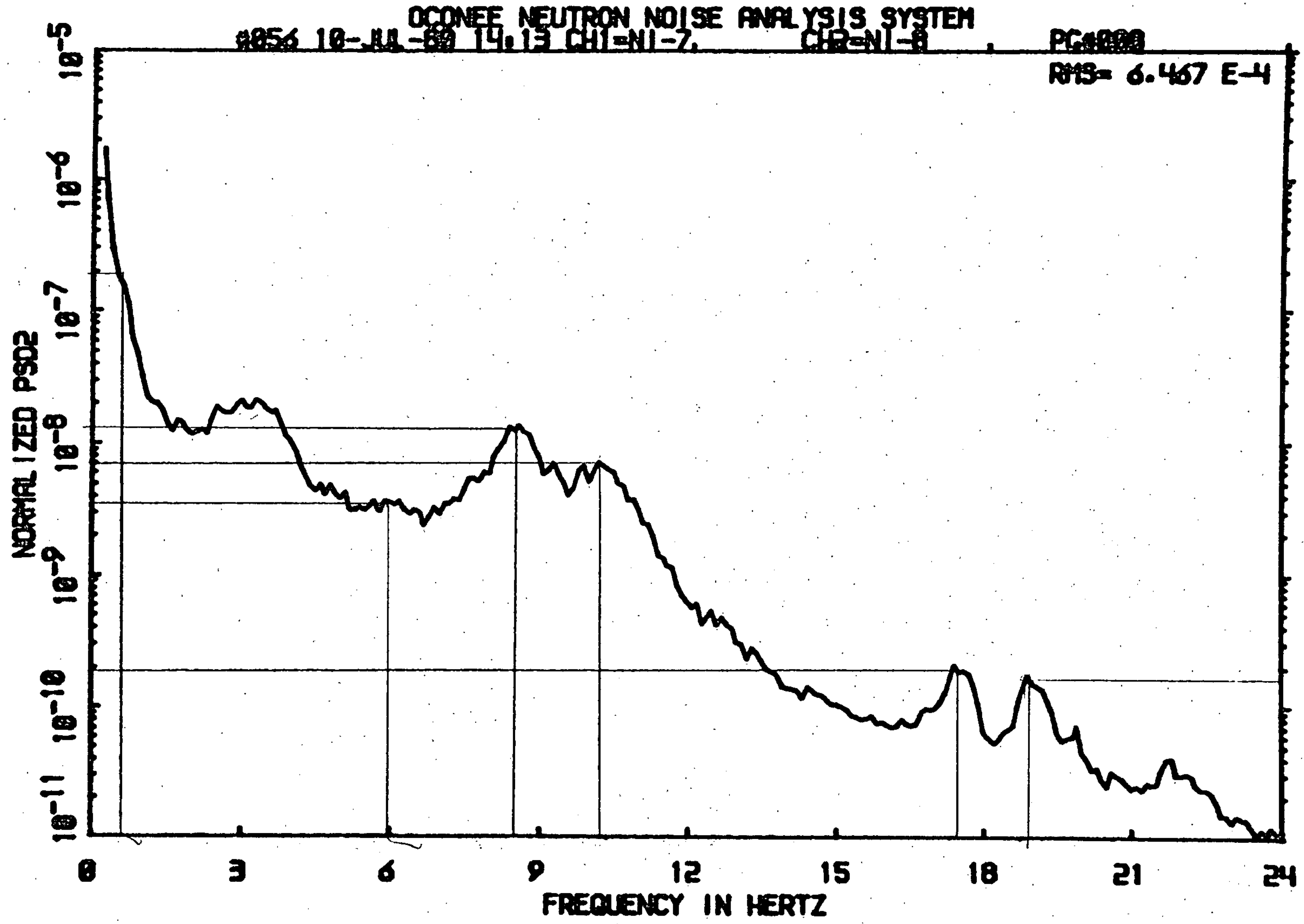
OCONEE NEUTRON NOISE ANALYSIS SYSTEM
#056 10-JUL-80 14.13 CH1=NI-7, CH2=NI-8 , PC#000
COHERENCE
0.0
0.2
0.4
0.6
0.8
1.0
0
3
6
9
12
15
18
21
24
FREQUENCY IN HERTZ

B&C-2



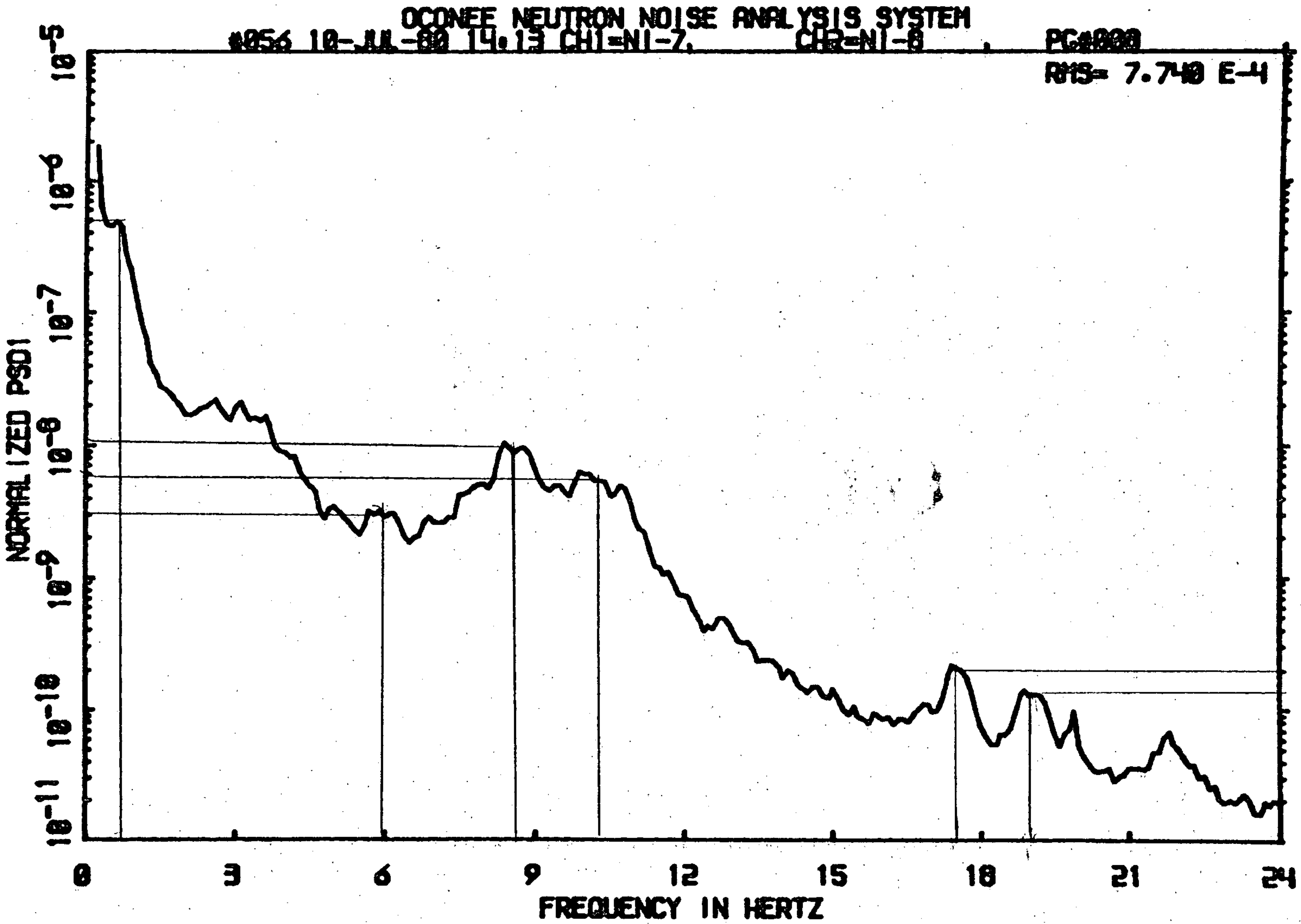
OCONEE NEUTRON NOISE ANALYSIS SYSTEM
#056 10-JUL-80 14.13 CH1=NI-7, CH2=NI-8 , PG#008
PHASE IN DEGREES
90
0
-90
-180
-270
0
3
6
9
12
15
18
21
24
FREQUENCY IN HERTZ

BOC-2



OCONEE NEUTRON NOISE ANALYSIS SYSTEM
#056 10-JUL-80 14:13 CH1=NI-7, CH2=NI-8 , PC#000
RMS= 6.467 E-4
NORMALIZED PSD2
10^{-5}
10^{-6}
10^{-7}
10^{-8}
10^{-9}
10^{-10}
10^{-11}
0 3 6 9 12 15 18 21 24
FREQUENCY IN HERTZ

Bo C-2


OCONEE NEUTRON NOISE ANALYSIS SYSTEM
#056 10-JUL-80 14.13 CH1=NI-7, CH2=NI-8 , PG#000
RMS= 7.740 E-4
NORMALIZED PSD1
10^-5
10^-6
10^-7
10^-8
10^-9
10^-10
10^-11
0
3
6
9
12
15
18
21
24
FREQUENCY IN HERTZ

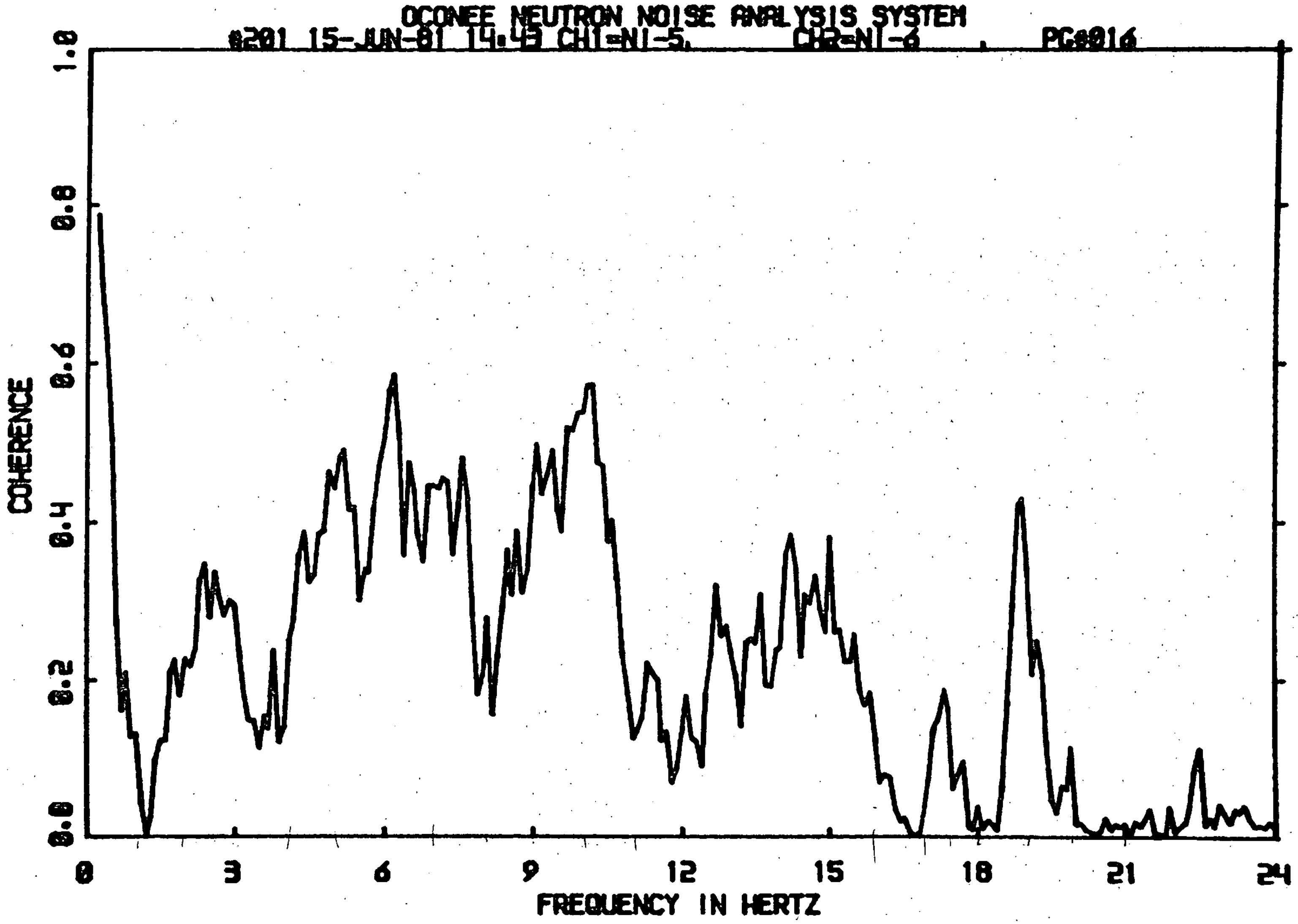
CONTENTS

Neutron noise data for MOC 5
Unit 2, taken April 16, 1981

TEST#	DETECTOR PAIRS*
201	NI-5 total × NI-6 total
202	NI-5 total × NI-7 total
203	NI-5 total × NI-8 total
204	NI-6 total × NI-7 total
205	NI-6 total × NI-8 total
206	NI-7 total × NI-8 total

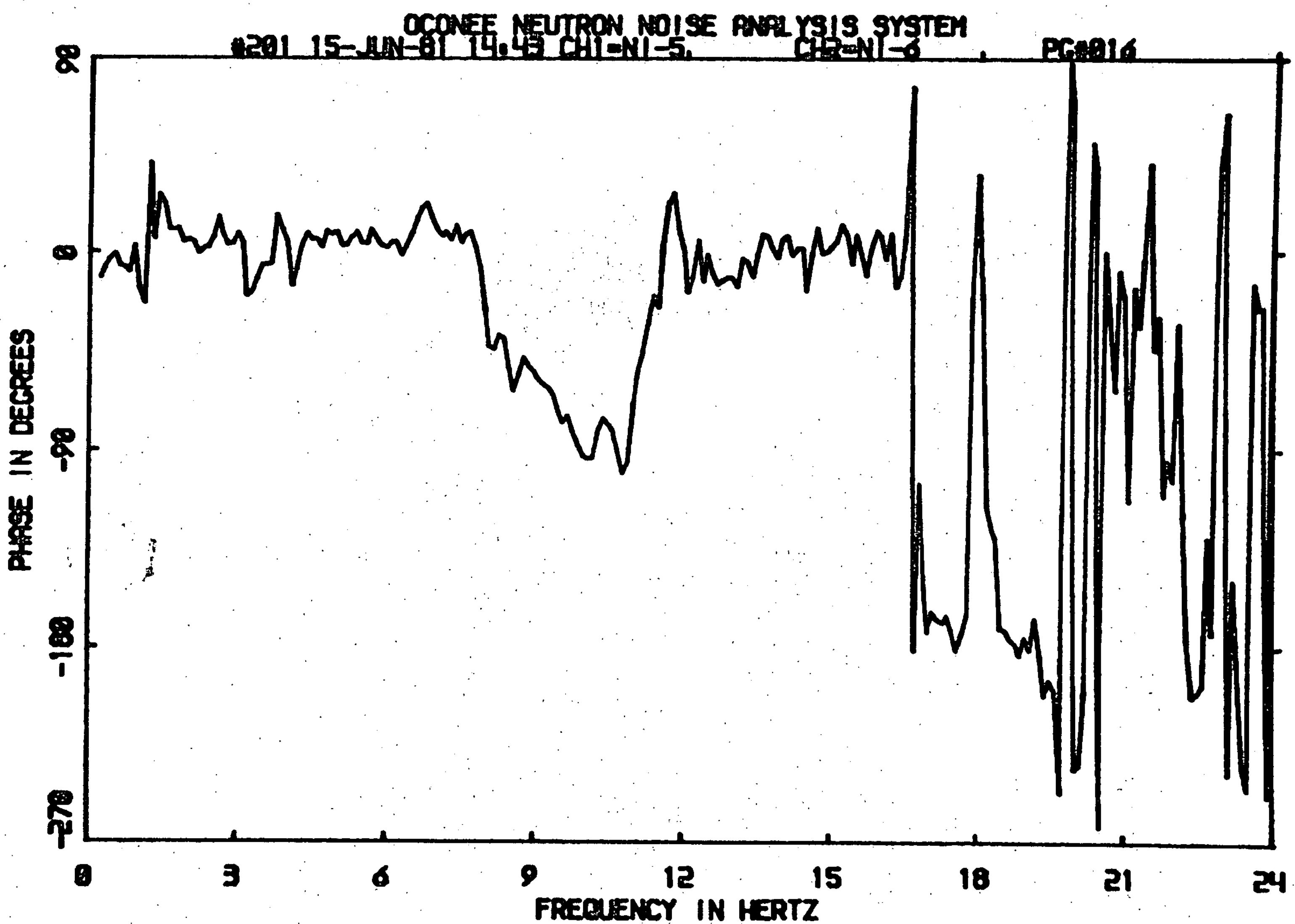
*Total indicates the sum of lower and upper chambers.

MOC-2



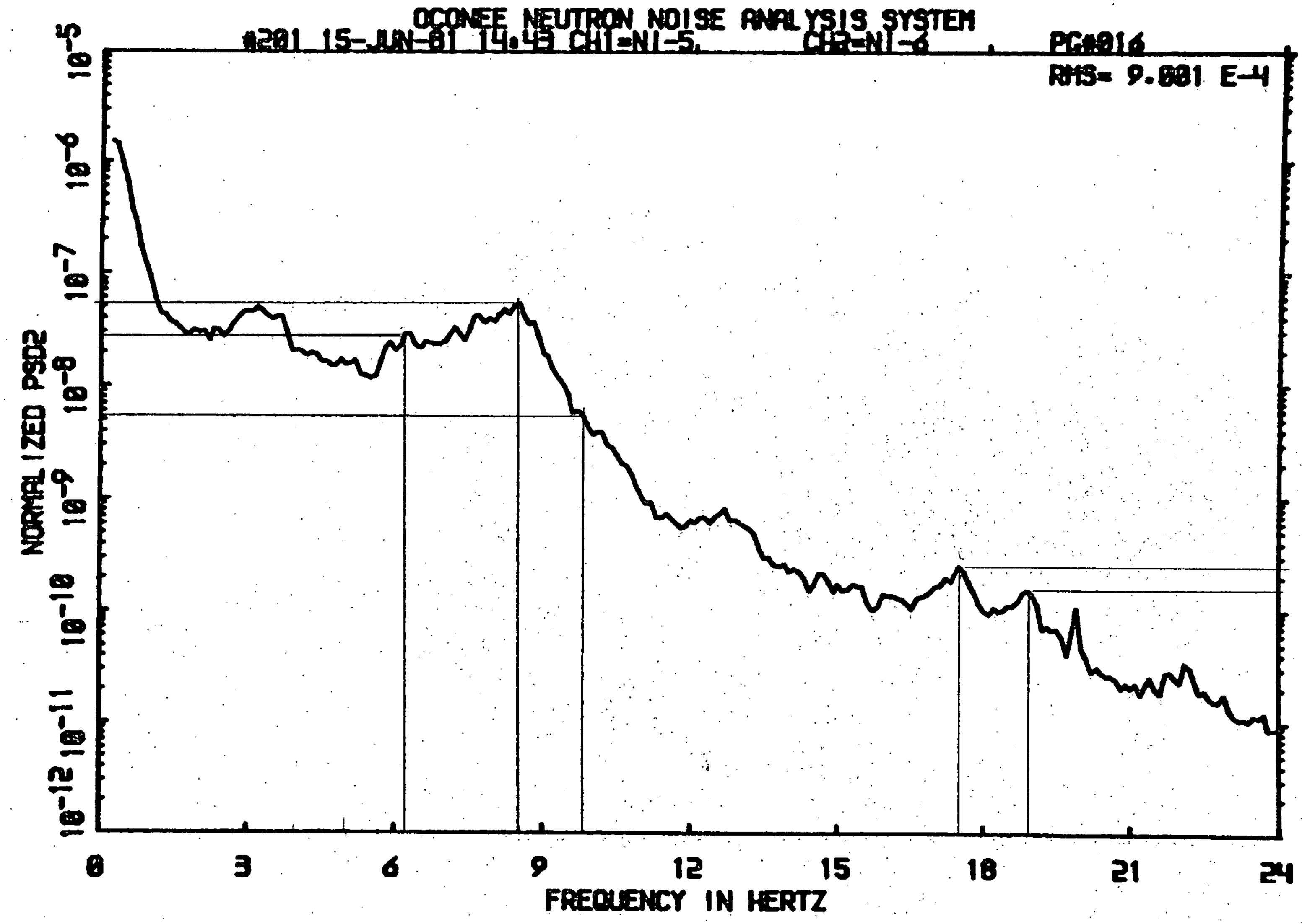
OCONEE NEUTRON NOISE ANALYSIS SYSTEM
#201 15-JUN-81 14:43 CH1=NI-5, CH2=NI-6 , PG#016
COHERENCE
0.0
0.2
0.4
0.6
0.8
1.0
0
3
6
9
12
15
18
21
24
FREQUENCY IN HERTZ

MOC-2

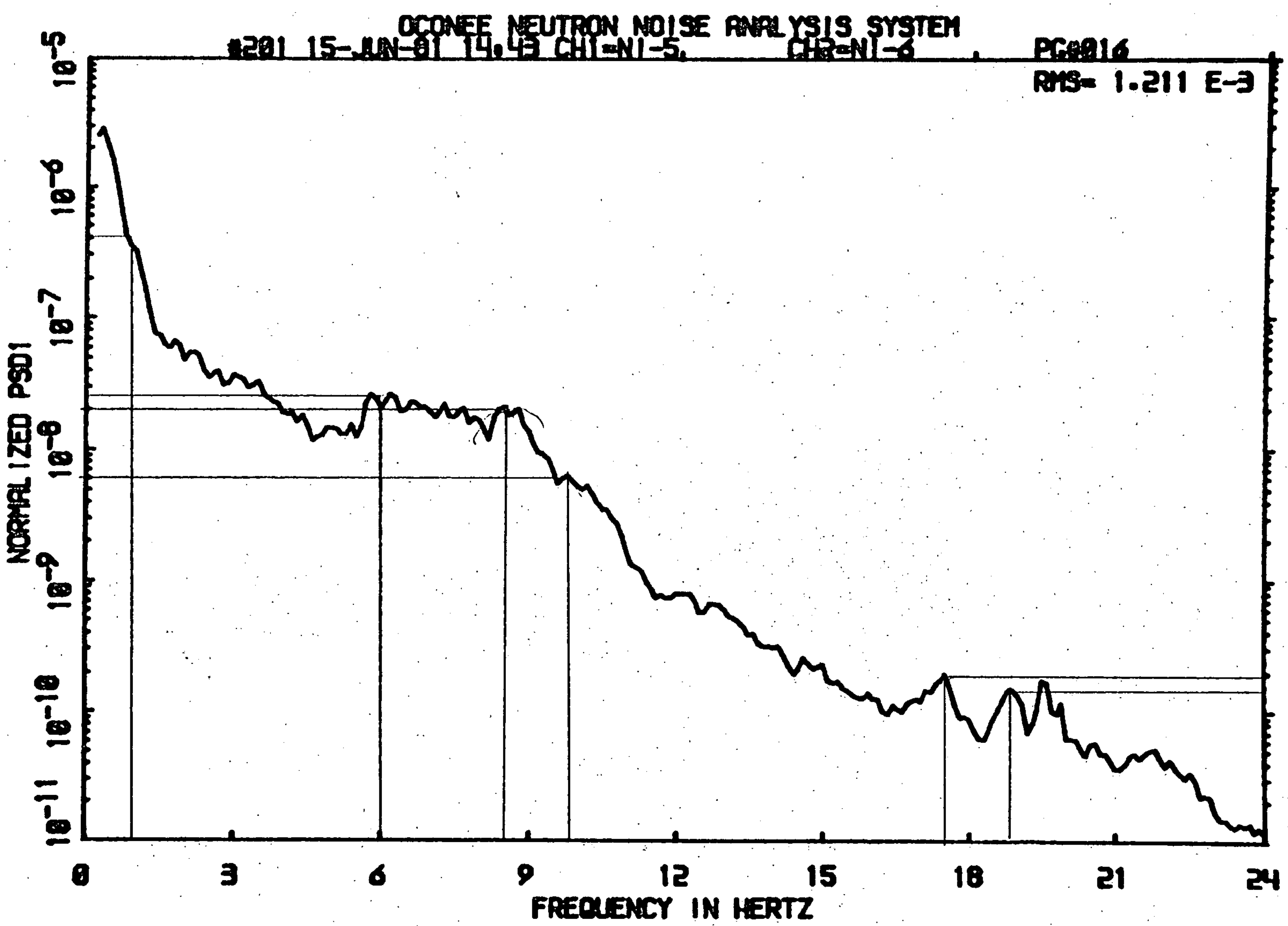


OCONEE NEUTRON NOISE ANALYSIS SYSTEM
#201 15-JUN-81 14:43 CH1=NI-5, CH2=NI-6 , PG#016
PHASE IN DEGREES
90
0
-90
-180
-270
0
3
6
9
12
15
18
21
24
FREQUENCY IN HERTZ

MOC-2 / Recorded on 4-16-81

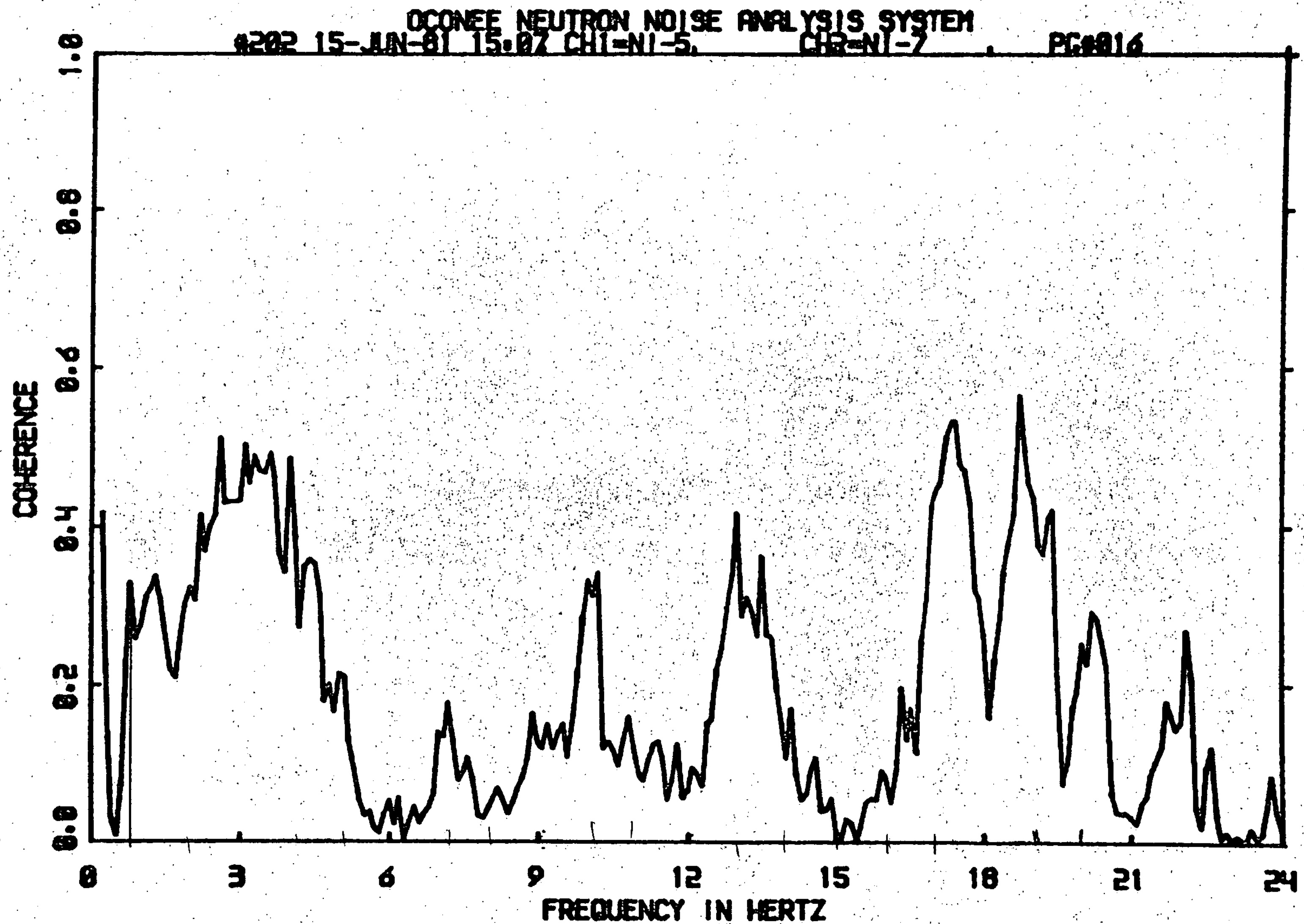


MOC-2

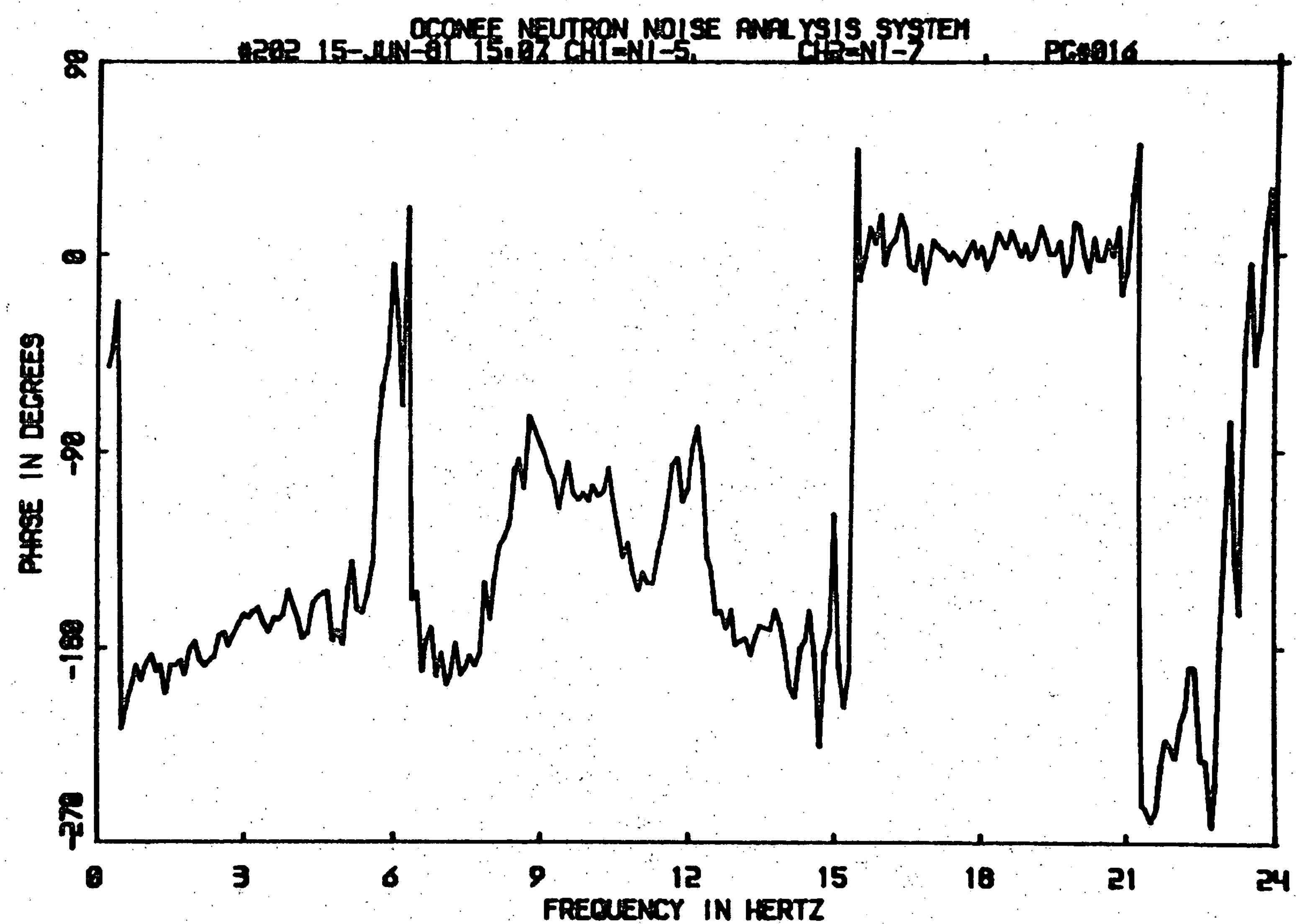


OCONEE NEUTRON NOISE ANALYSIS SYSTEM
#201 15-JUN-01 14.43 CH1=NI-5, CH2=NI-6 , PC#016
RMS= 1.211 E-3
NORMALIZED PSD1
10^{-5}
10^{-6}
10^{-7}
10^{-8}
10^{-9}
10^{-10}
10^{-11}
0
3
6
9
12
15
18
21
24
FREQUENCY IN HERTZ

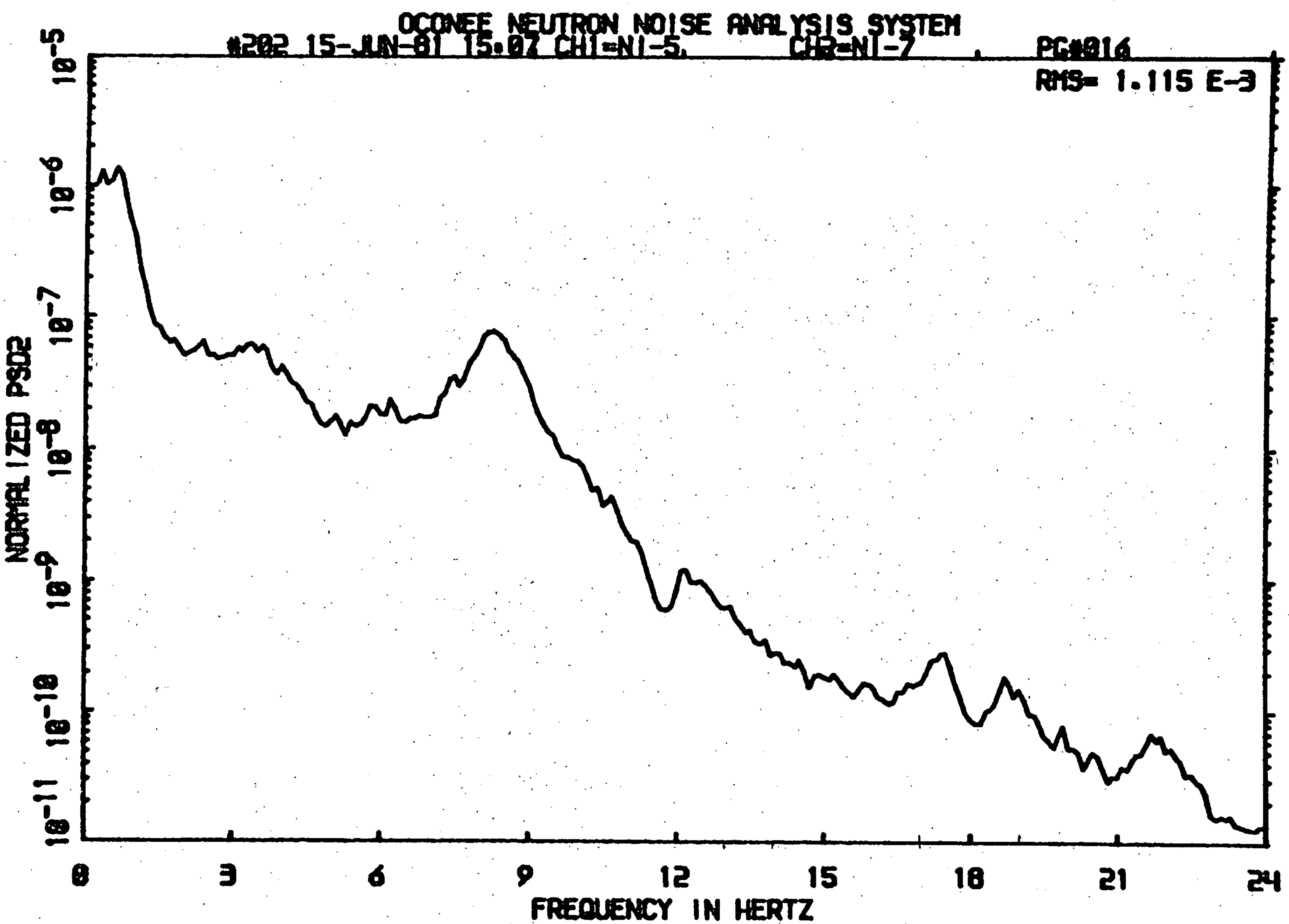
MOC-2


OCONEE NEUTRON NOISE ANALYSIS SYSTEM
#202 15-JUN-81 15:07 CH1=NI-5, CH2=NI-7 , PG#016
COHERENCE
0.0
0.2
0.4
0.6
0.8
1.0
0
3
6
9
12
15
18
21
24
FREQUENCY IN HERTZ

MOC-2

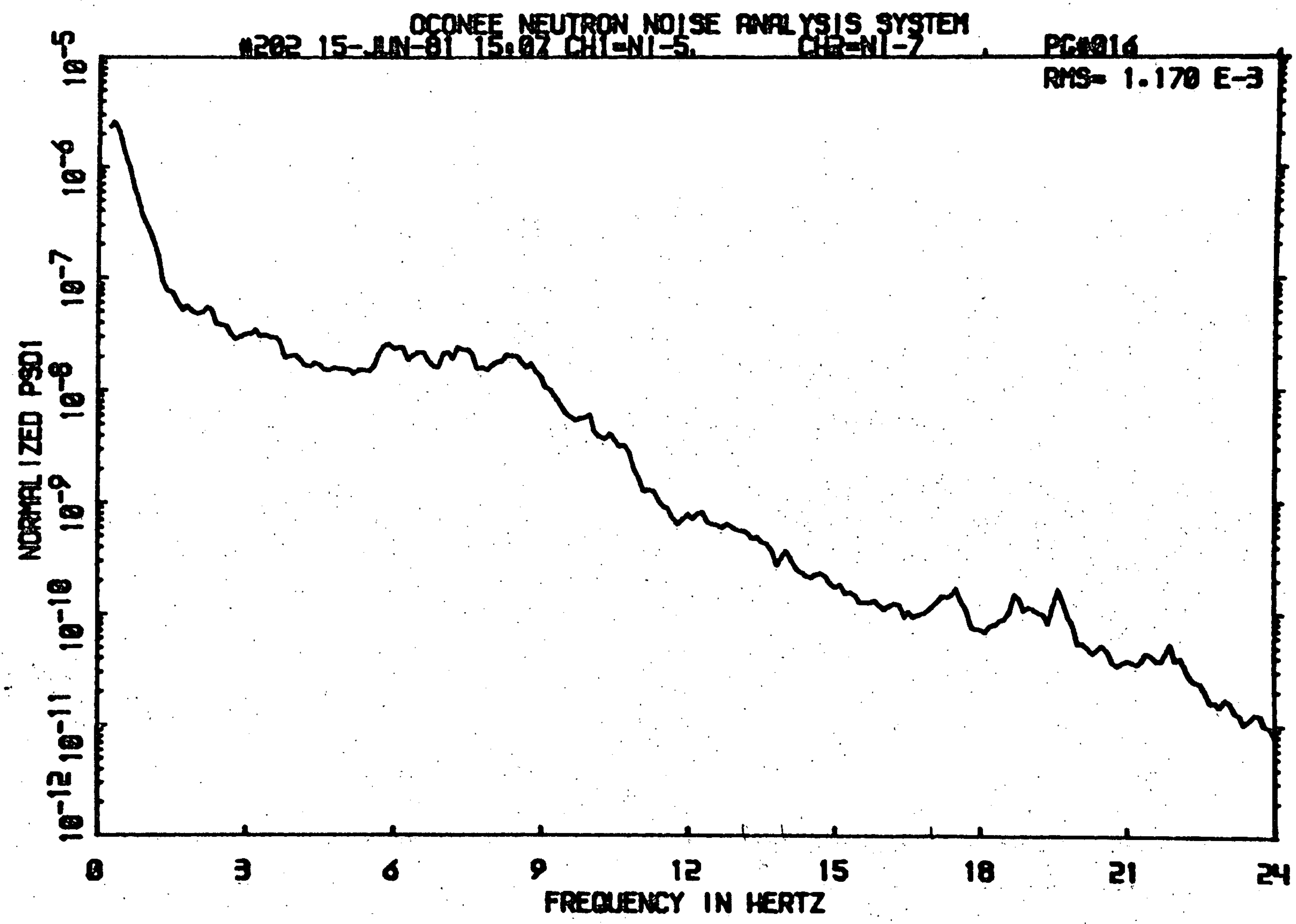

OCONEE NEUTRON NOISE ANALYSIS SYSTEM
#202 15-JUN-81 15:07 CH1=NI-5, CH2=NI-7 , PG#016
PHASE IN DEGREES
90
0
-90
-180
-270
0
3
6
9
12
15
18
21
24
FREQUENCY IN HERTZ

MOC-2



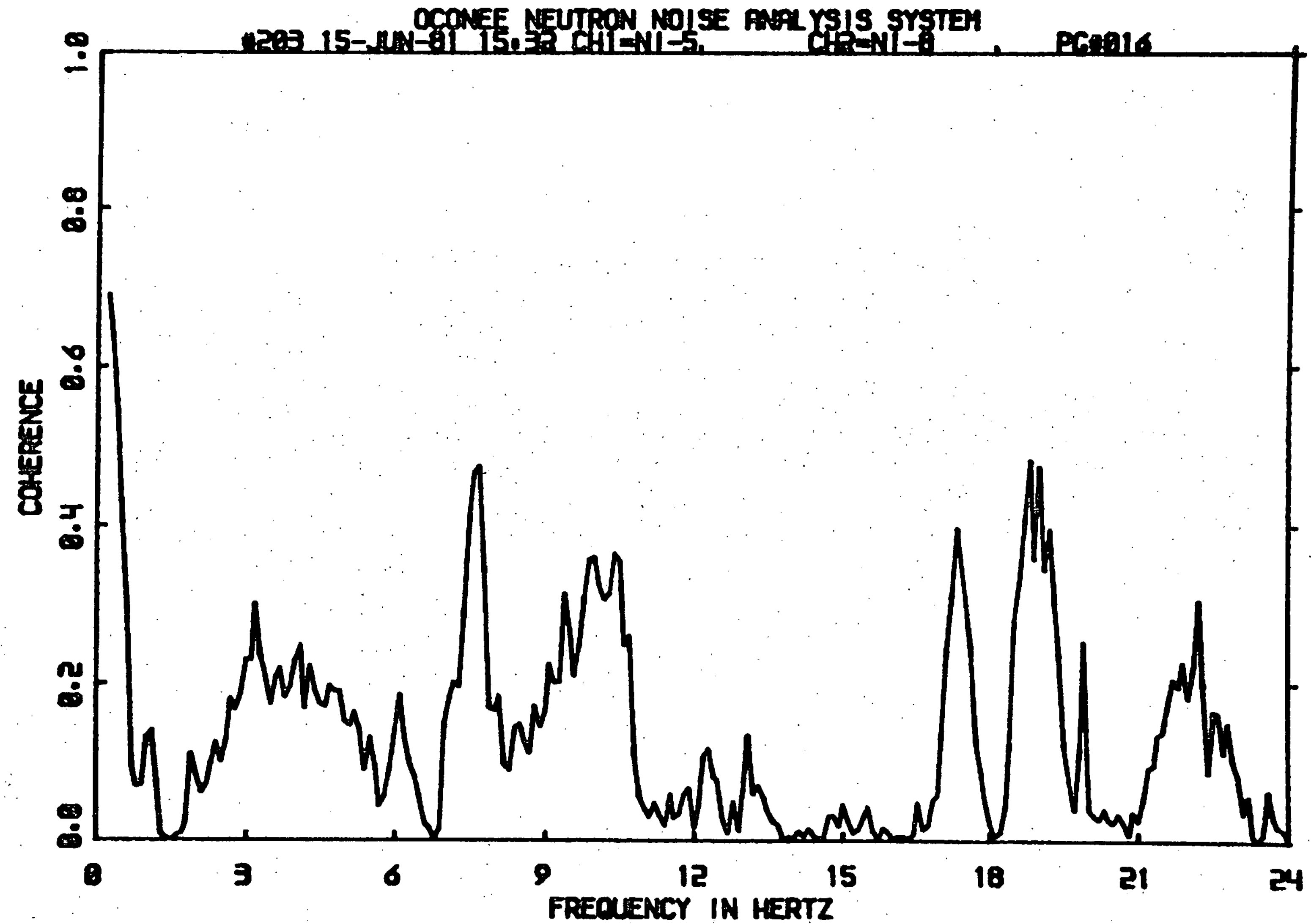
OCONEE NEUTRON NOISE ANALYSIS SYSTEM
#202 15-JUN-81 15:07 CH1=NI-5, CH2=NI-7 , PG#016
RMS= 1.115 E-3
NORMALIZED PSD2
10-5
10-6
10-7
10-8
10-9
10-10
10-11
0
3
6
9
12
15
18
21
24
FREQUENCY IN HERTZ

MOC-2



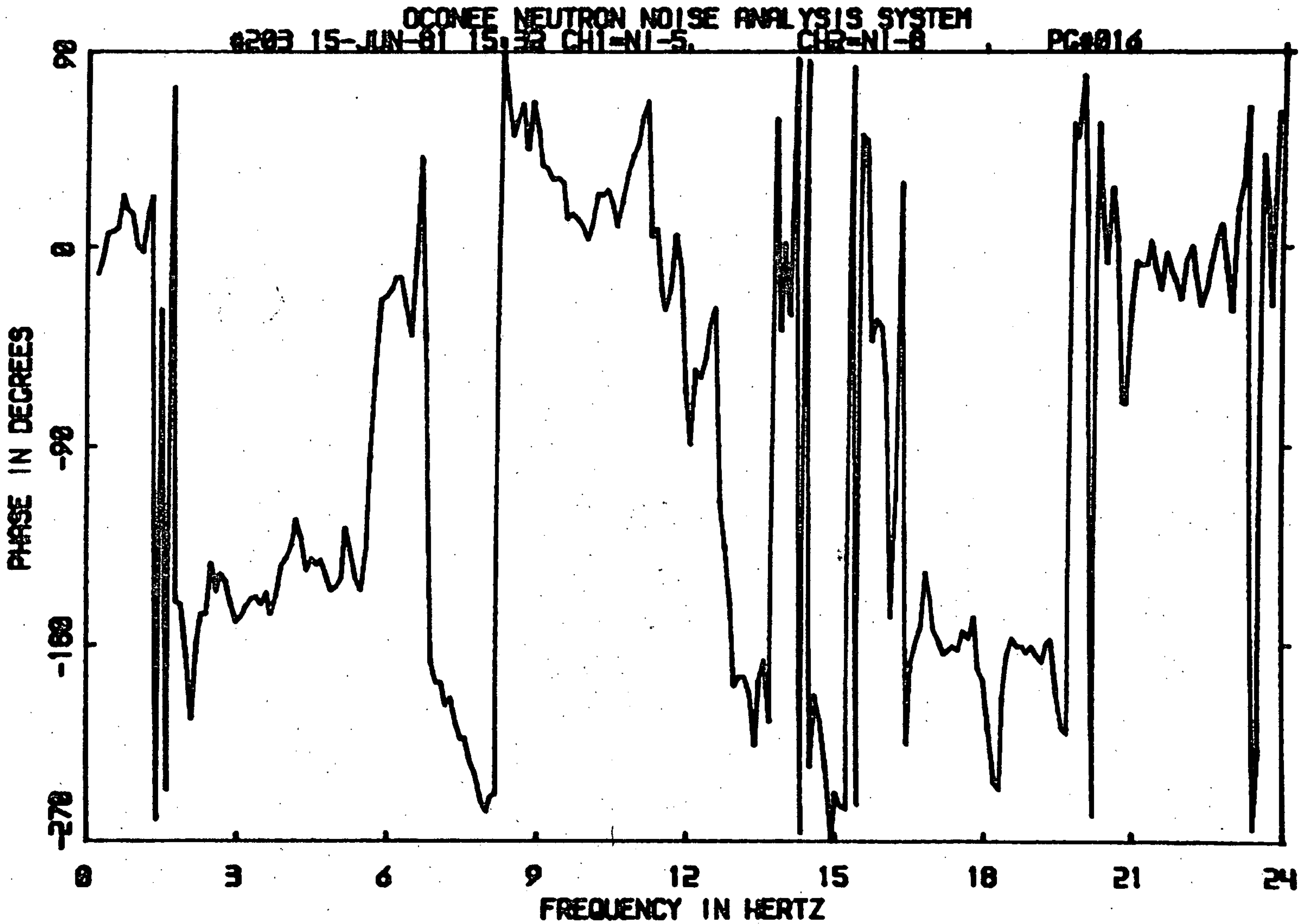
OCONEE NEUTRON NOISE ANALYSIS SYSTEM
#202 15-JUN-81 15:07 CH1=NI-5, CH2=NI-7 , PG#016
RMS= 1.170 E-3
NORMALIZED PSD1
10^{-5}
10^{-6}
10^{-7}
10^{-8}
10^{-9}
10^{-10}
10^{-11}
10^{-12}
0
3
6
9
12
15
18
21
24
FREQUENCY IN HERTZ

MOC-2



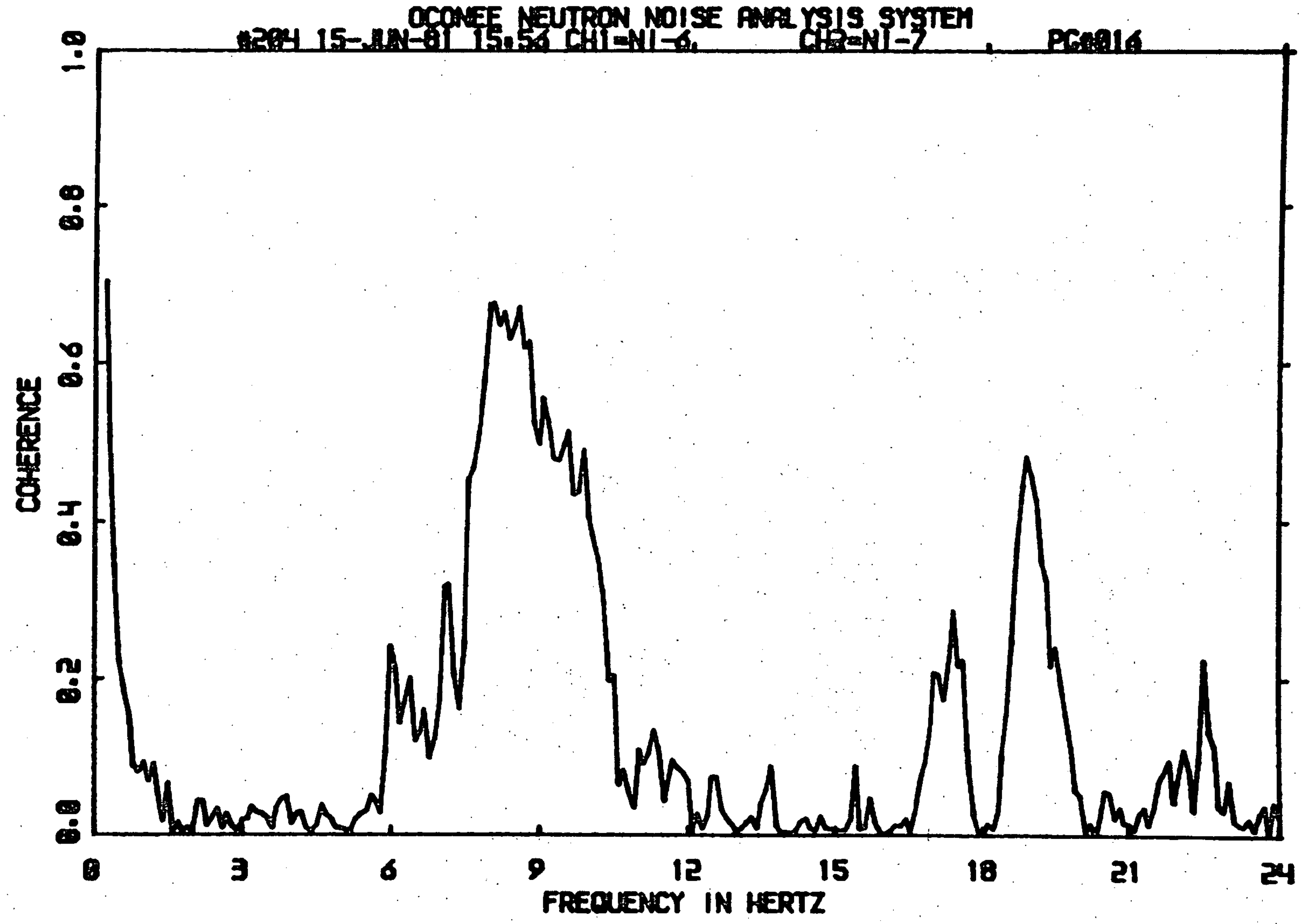
OCONEE NEUTRON NOISE ANALYSIS SYSTEM
#203 15-JUN-81 15:32 CH1=NI-5, CH2=NI-8 , PG#016
COHERENCE
0.0
0.2
0.4
0.6
0.8
1.0
0
3
6
9
12
15
18
21
24
FREQUENCY IN HERTZ

MOC-2



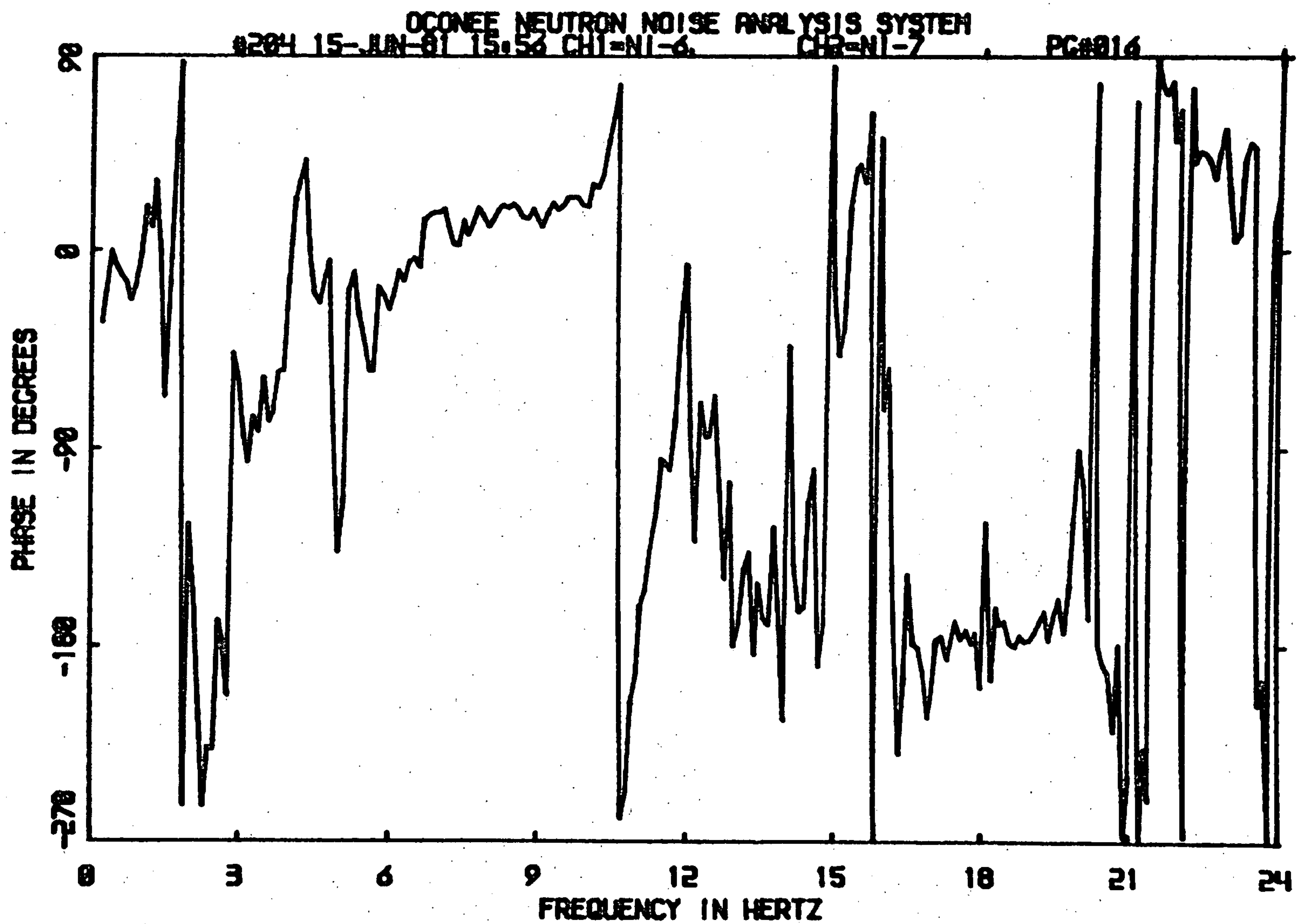
OCONEE NEUTRON NOISE ANALYSIS SYSTEM
#203 15-JUN-81 15:32 CH1=NI-5, CH2=NI-8 , PG#016
PHASE IN DEGREES
90
0
-90
-180
-270
0
3
6
9
12
15
18
21
24
FREQUENCY IN HERTZ

MOC-2



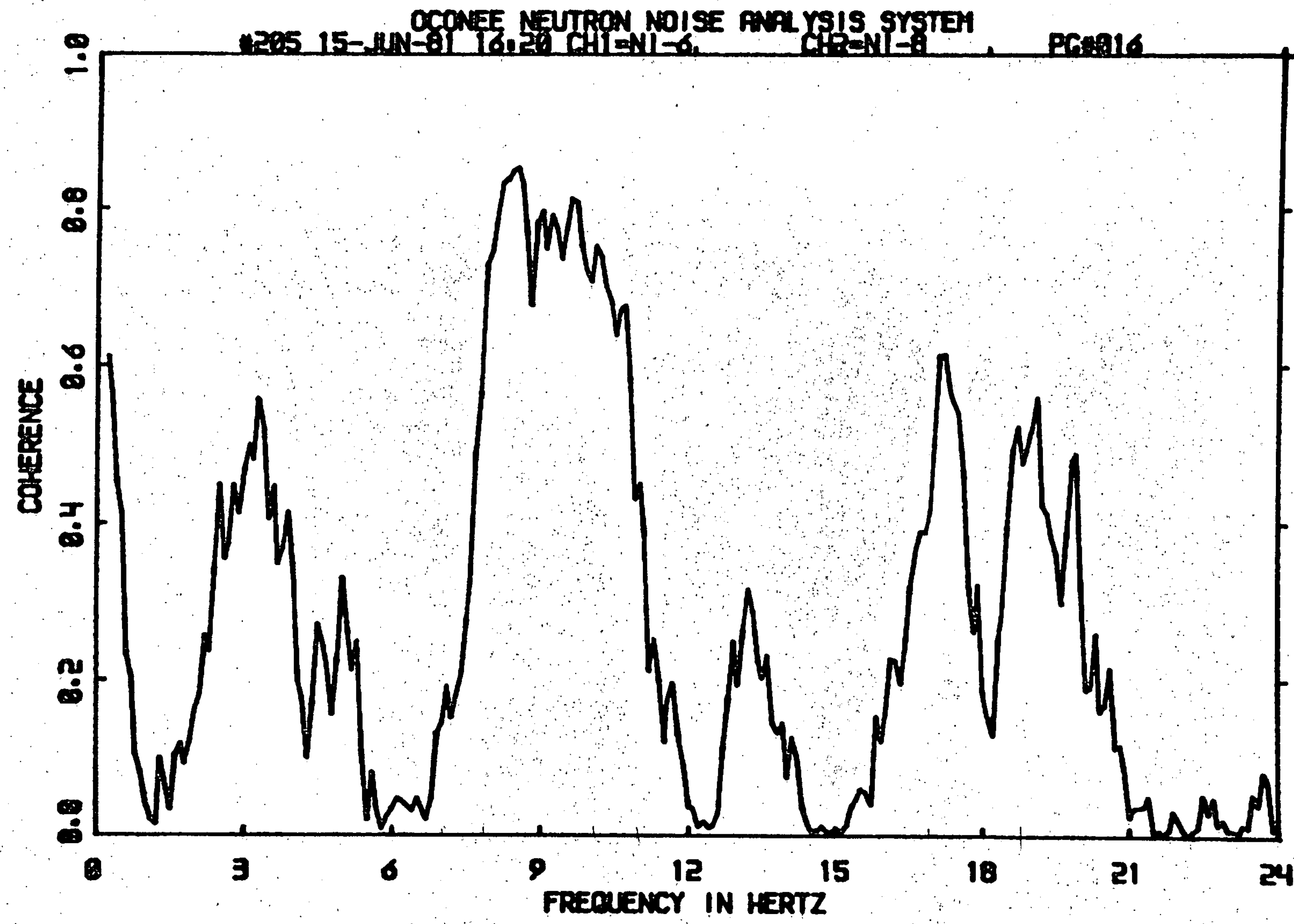
OCONEE NEUTRON NOISE ANALYSIS SYSTEM
#204 15-JUN-81 15:56 CH1=NI-6, CH2=NI-7 , PG#016
COHERENCE
0.0
0.2
0.4
0.6
0.8
1.0
0
3
6
9
12
15
18
21
24
FREQUENCY IN HERTZ

MOC-2



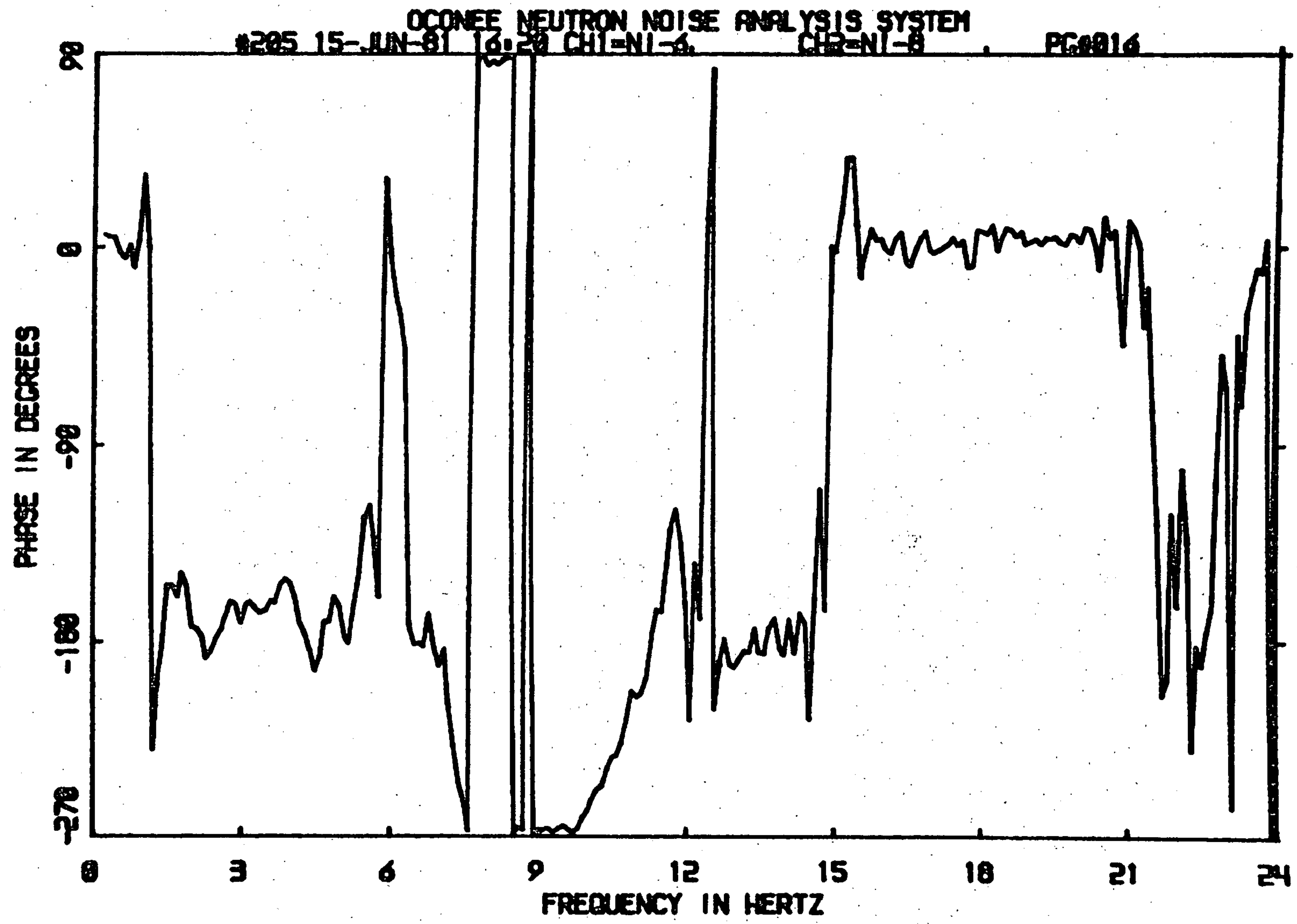
OCONEE NEUTRON NOISE ANALYSIS SYSTEM
#204 15-JUN-81 15:56 CH1=NI-6, CH2=NI-7 , PC#016
PHASE IN DEGREES
90
0
-90
-180
-270
0
3
6
9
12
15
18
21
24
FREQUENCY IN HERTZ

MOC-2



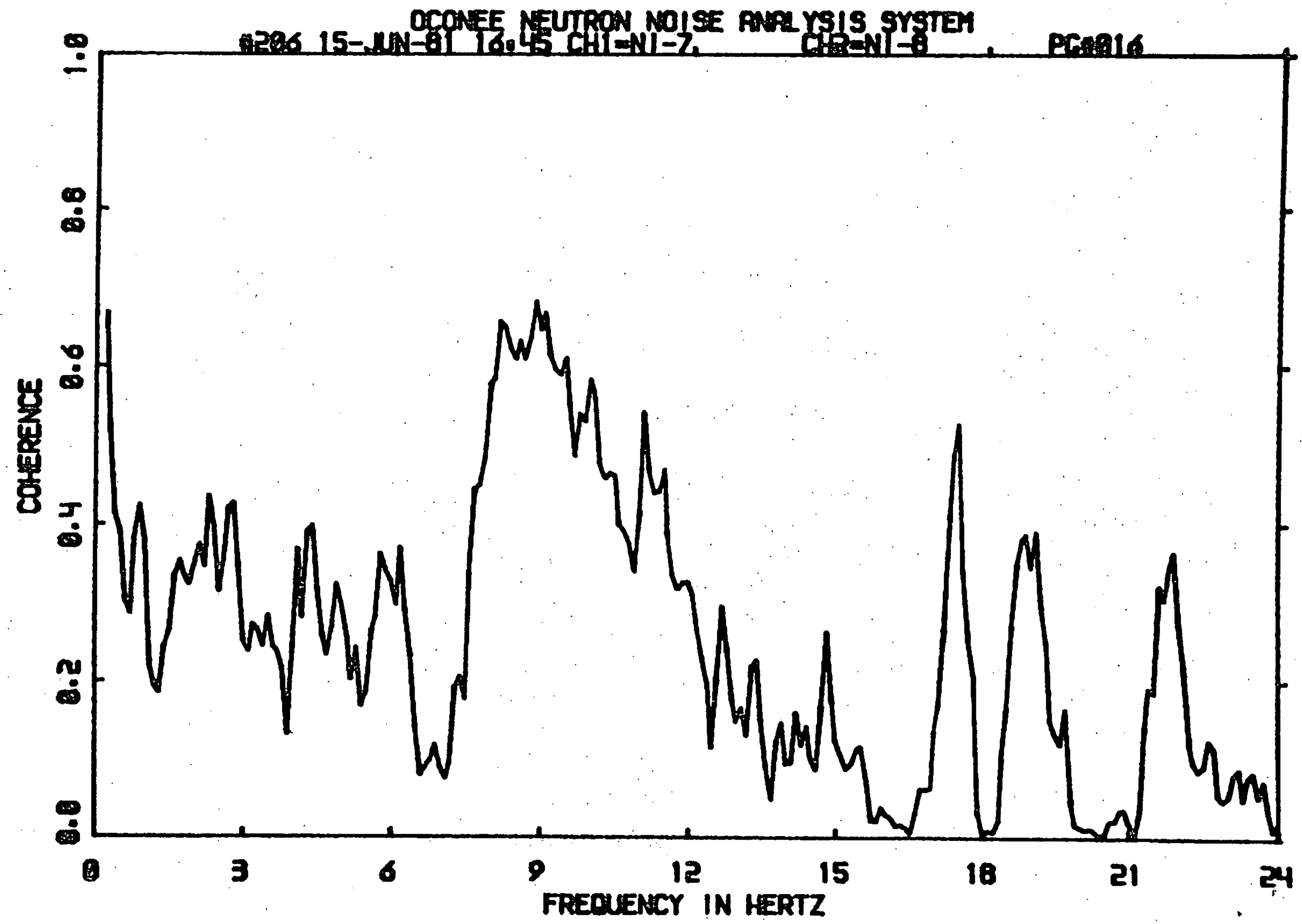
OCONEE NEUTRON NOISE ANALYSIS SYSTEM
#205 15-JUN-81 16:20 CH1=NI-6, CH2=NI-8 , PG#016
COHERENCE
0.0
0.2
0.4
0.6
0.8
1.0
0
3
6
9
12
15
18
21
24
FREQUENCY IN HERTZ

MOC-2



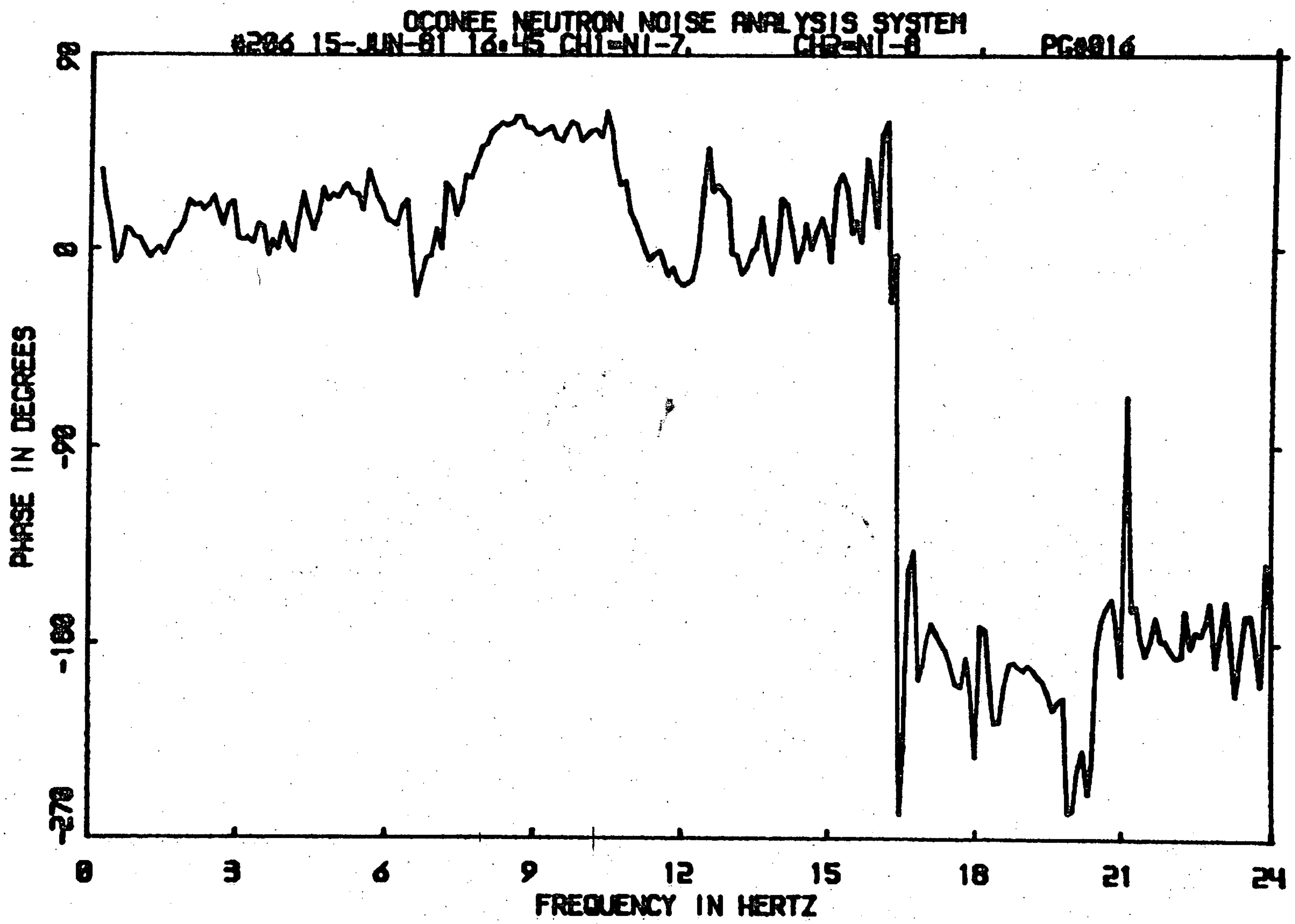
OCONEE NEUTRON NOISE ANALYSIS SYSTEM
#205 15-JUN-81 16:20 CH1=NI-6, CH2=NI-8 , PG#016
PHASE IN DEGREES
90
0
-90
-180
-270
0
3
6
9
12
15
18
21
24
FREQUENCY IN HERTZ

MOC-2



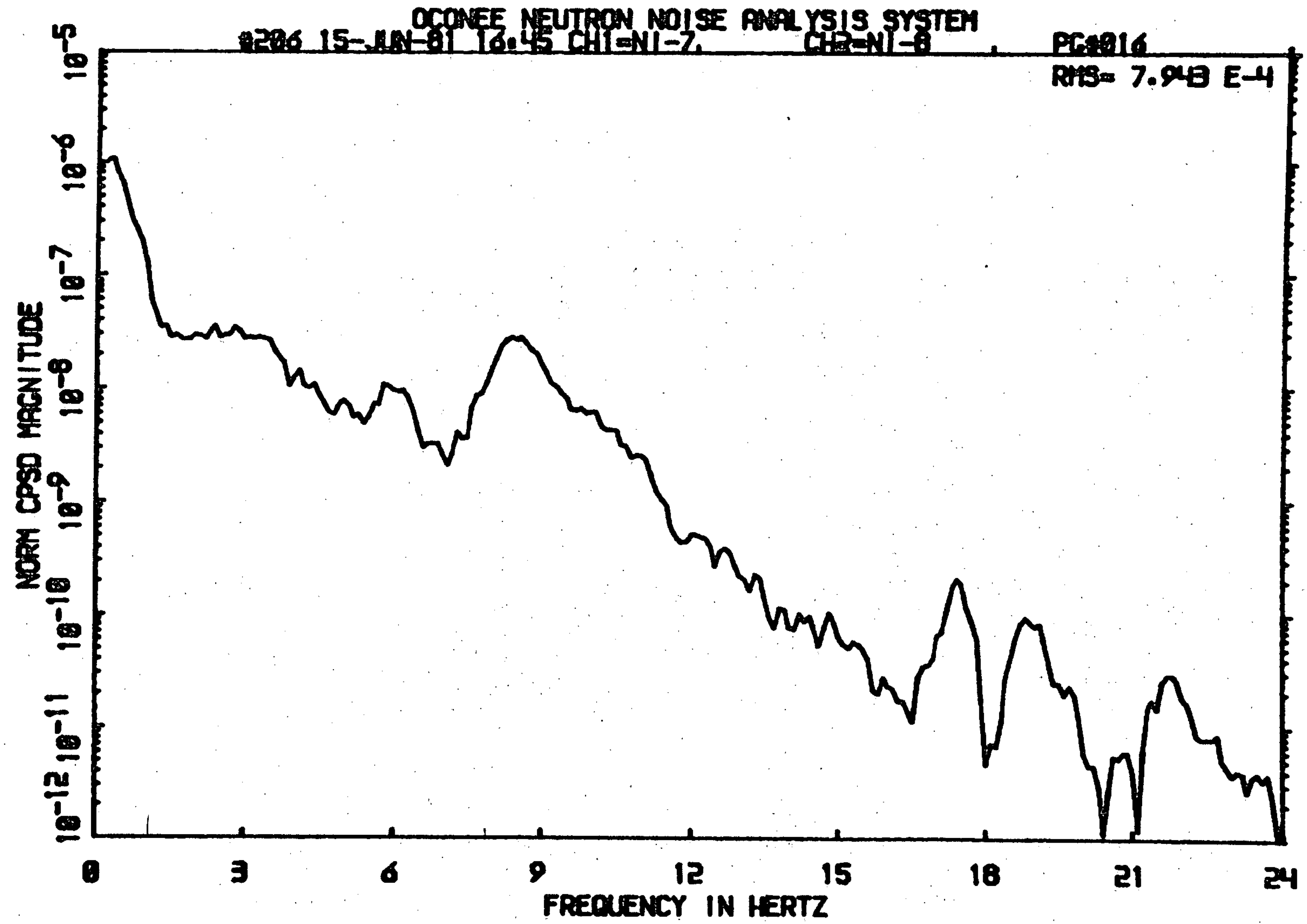
OCONEE NEUTRON NOISE ANALYSIS SYSTEM
#206 15-JUN-81 16:45 CH1=NI-7, CH2=NI-8 , PG#016
COHERENCE
0.0
0.2
0.4
0.6
0.8
1.0
0
3
6
9
12
15
18
21
24
FREQUENCY IN HERTZ

MOC-2

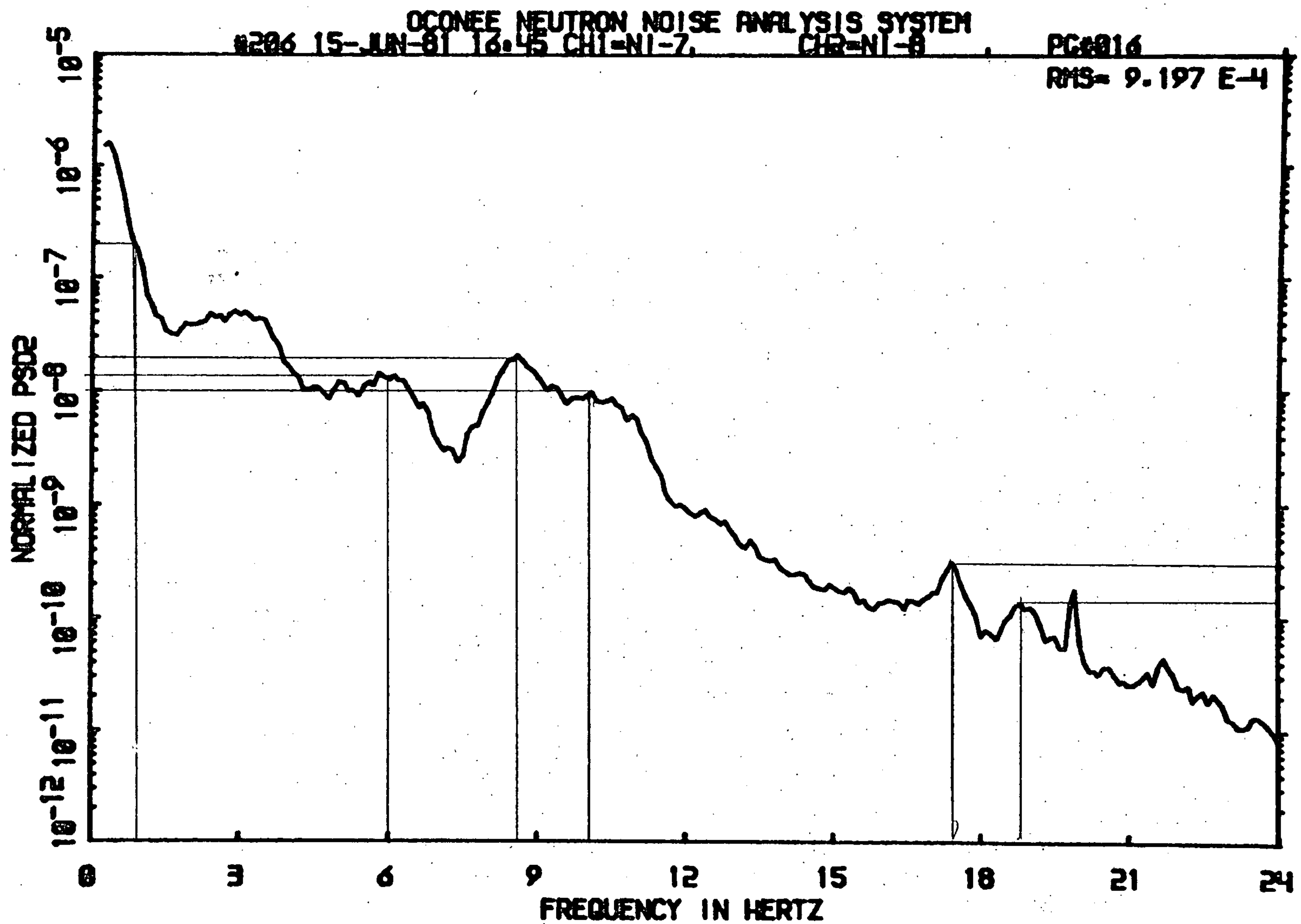


OCONEE NEUTRON NOISE ANALYSIS SYSTEM
#206 15-JUN-81 16:45 CH1=NI-7, CH2=NI-8 , PG#016
90
0
-90
-180
-270
PHASE IN DEGREES
0
3
6
9
12
15
18
21
24
FREQUENCY IN HERTZ

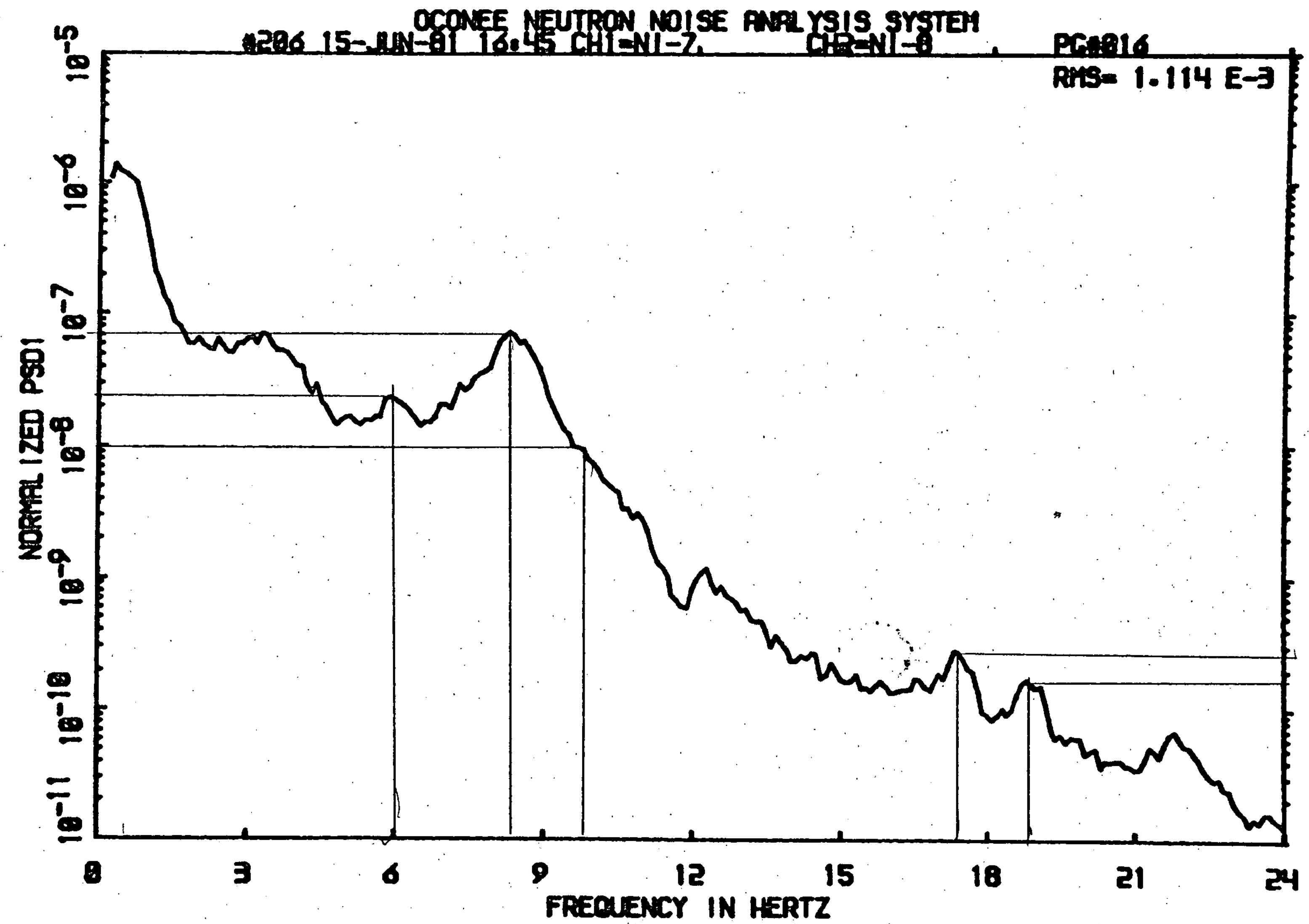
M02-2


OCONEE NEUTRON NOISE ANALYSIS SYSTEM
#206 15-JUN-81 16:45 CH1=NI-7, CH2=NI-8 , PG#016
RMS= 7.943 E-4
NORM CPSD MAGNITUDE
10^-12 10^-11 10^-10 10^-9 10^-8 10^-7 10^-6 10^-5
0 3 6 9 12 15 18 21 24
FREQUENCY IN HERTZ

MOC-2


OCONEE NEUTRON NOISE ANALYSIS SYSTEM
#206 15-JUN-81 16:45 CH1=NI-7, CH2=NI-8 , PG#016
RMS= 9.197 E-4
NORMALIZED PSD2
10^-12 10^-11 10^-10 10^-9 10^-8 10^-7 10^-6 10^-5
0 3 6 9 12 15 18 21 24
FREQUENCY IN HERTZ

MOC-2



OCONEE NEUTRON NOISE ANALYSIS SYSTEM
#206 15-JUN-81 16:45 CH1=NI-7, CH2=NI-8 , PG#016
RMS= 1.114 E-3
NORMALIZED PSD1
10^-5
10^-6
10^-7
10^-8
10^-9
10^-10
10^-11
0
3
6
9
12
15
18
21
24
FREQUENCY IN HERTZ

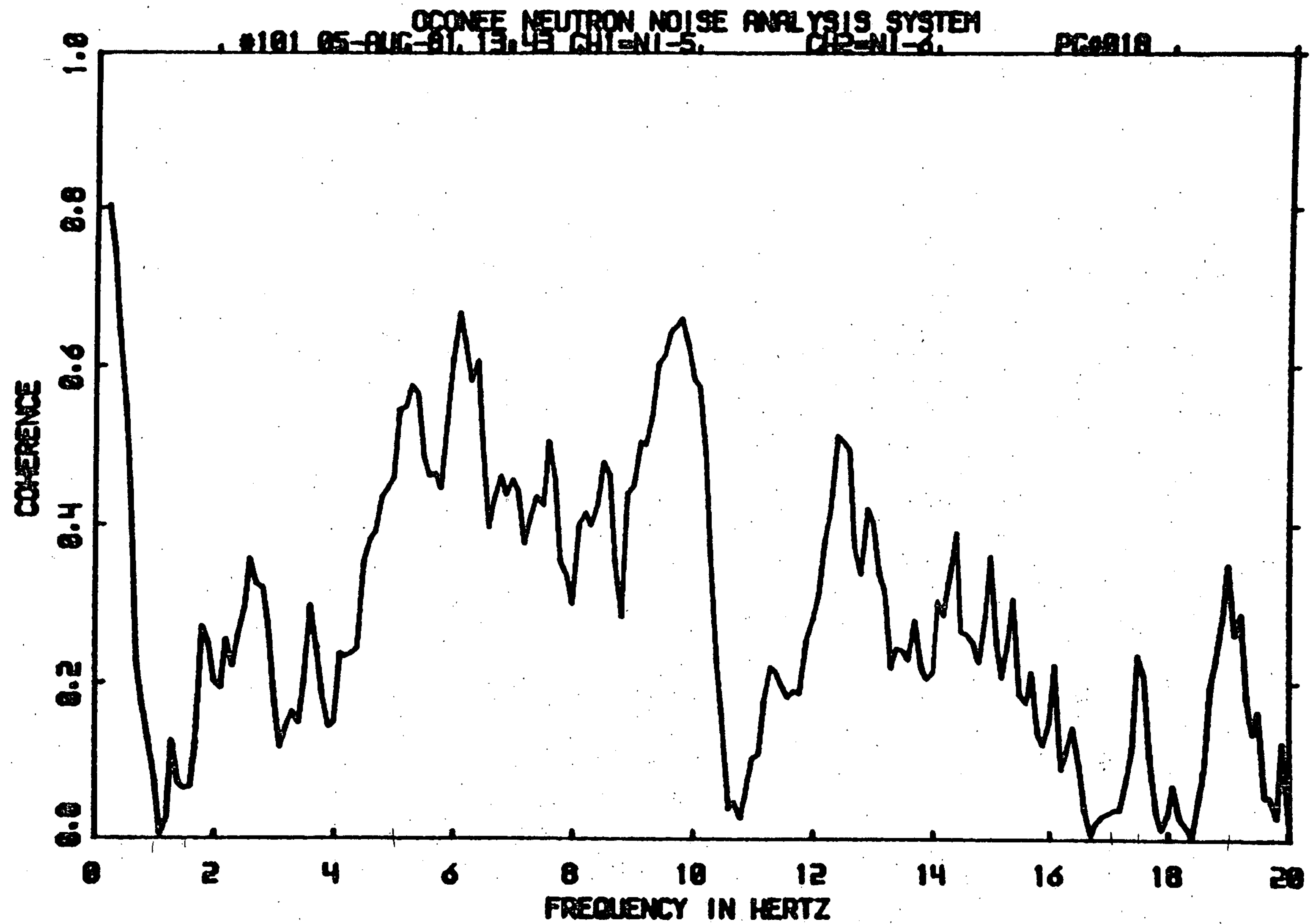
CONTENTS

Neutron noise data for MOC 5 Unit 2, taken August 5, 1981 in plant by TEC

TEST #	DETECTOR PAIRS*
101	NI-5 total × NI-6 total
102	NI-5 total × NI-7 total
103	NI-5 total × NI-8 total
104	NI-6 total × NI-7 total
105	NI-6 total × NI-8 total
106	NI-7 total × NI-8 total

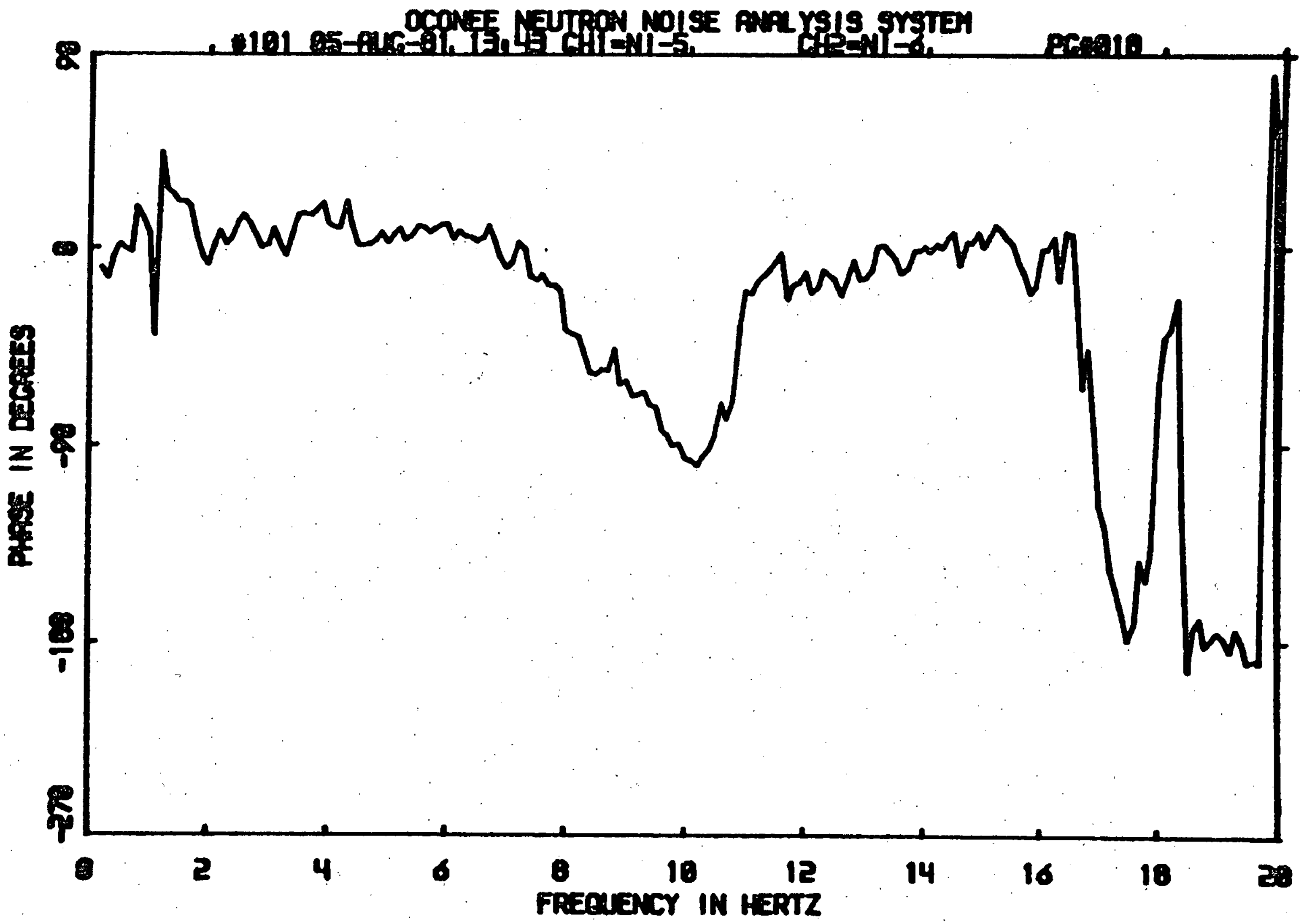
*Total indicates the sum of lower and upper chambers.

SP moc 2



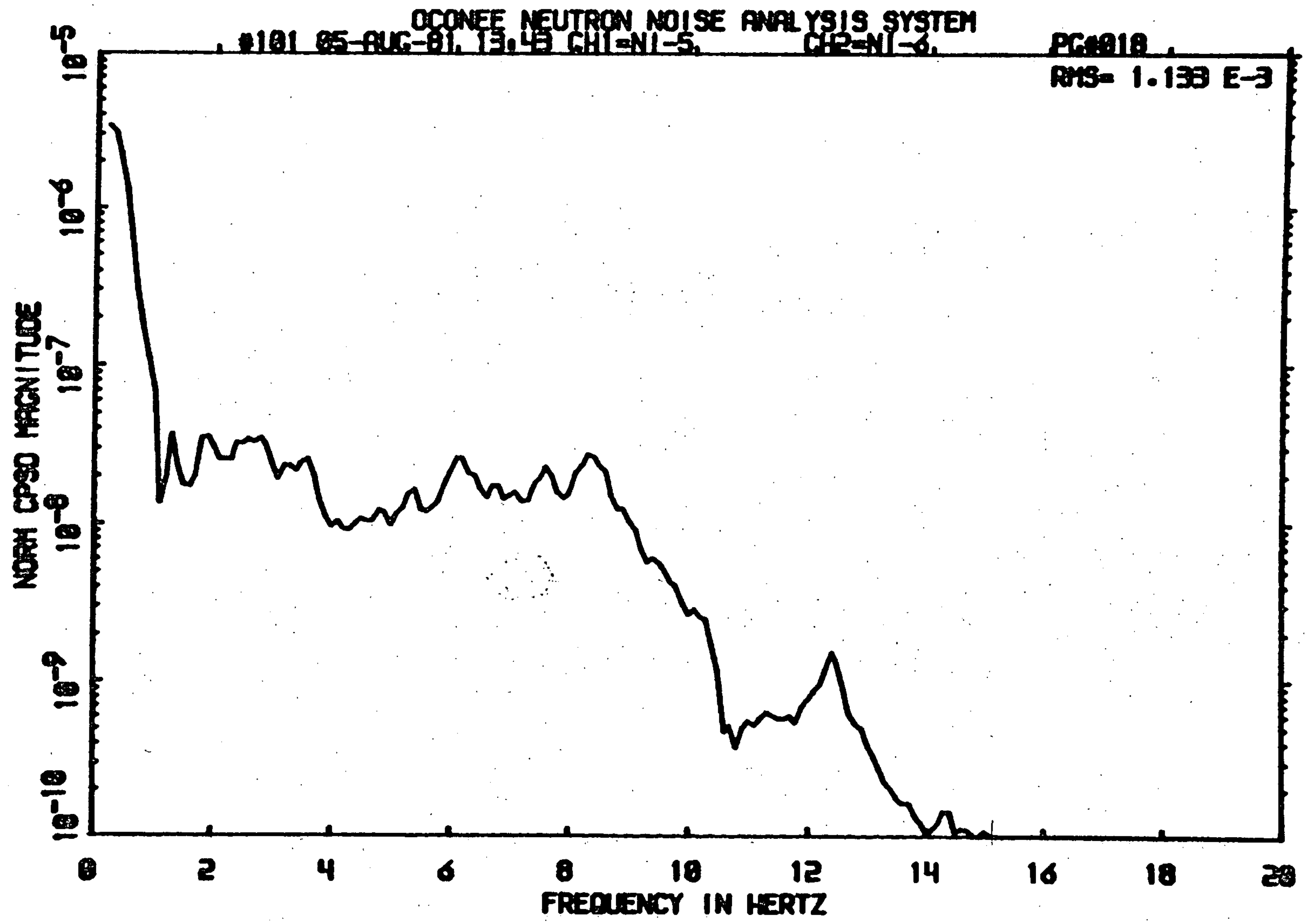
OCONEE NEUTRON NOISE ANALYSIS SYSTEM
#101 05-AUG-81, 13:43 CH1=NI-5, CH2=NI-6, PG#010
COHERENCE
0.0
0.2
0.4
0.6
0.8
1.0
0
2
4
6
8
10
12
14
16
18
20
FREQUENCY IN HERTZ

Sp moc 2



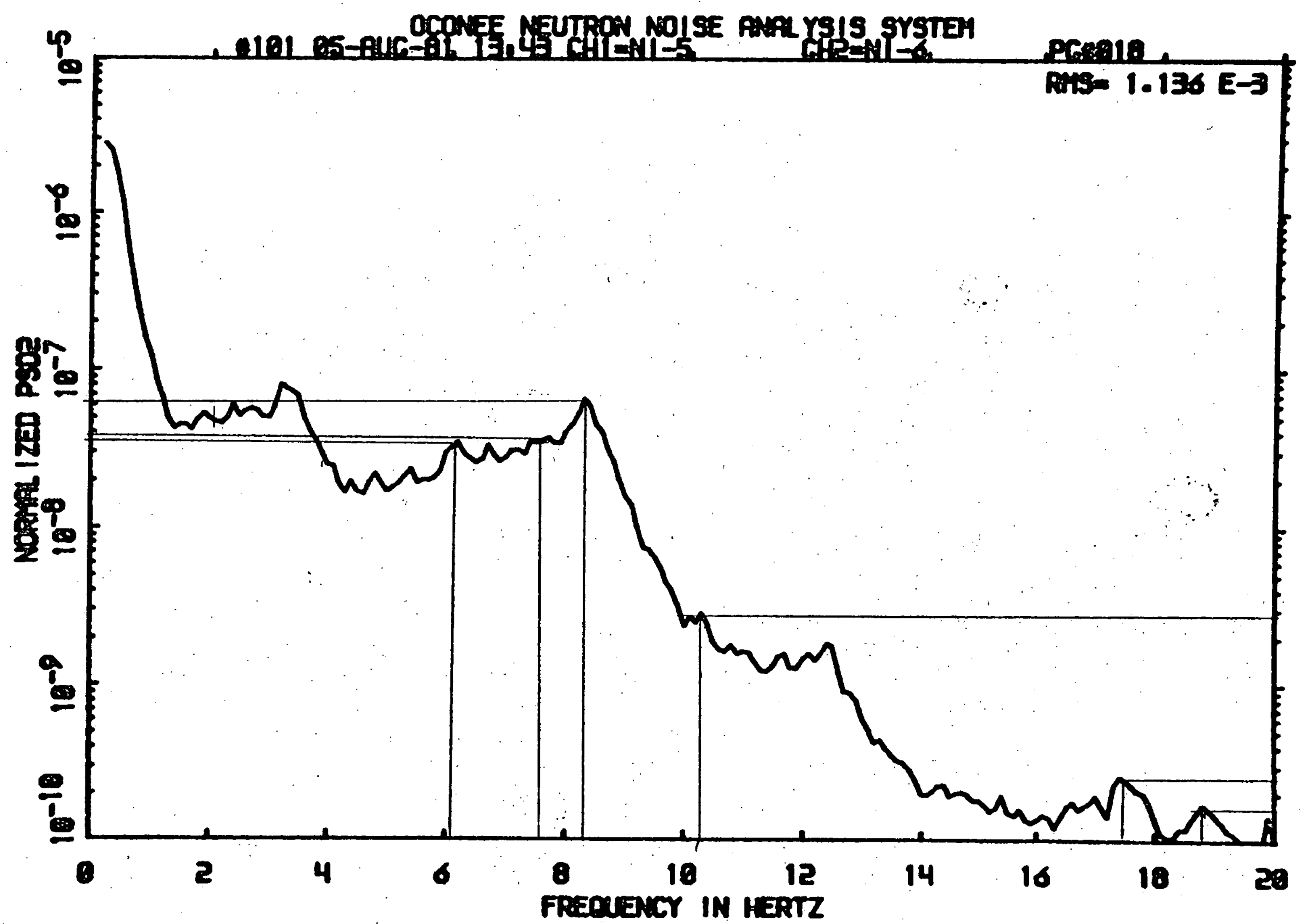
OCONEE NEUTRON NOISE ANALYSIS SYSTEM
#101 05-AUG-81, 13:43 CH1=NI-5, CH2=NI-6, PC#010
PHASE IN DEGREES
90
0
-90
-180
-270
0
2
4
6
8
10
12
14
16
18
20
FREQUENCY IN HERTZ

SP moc2

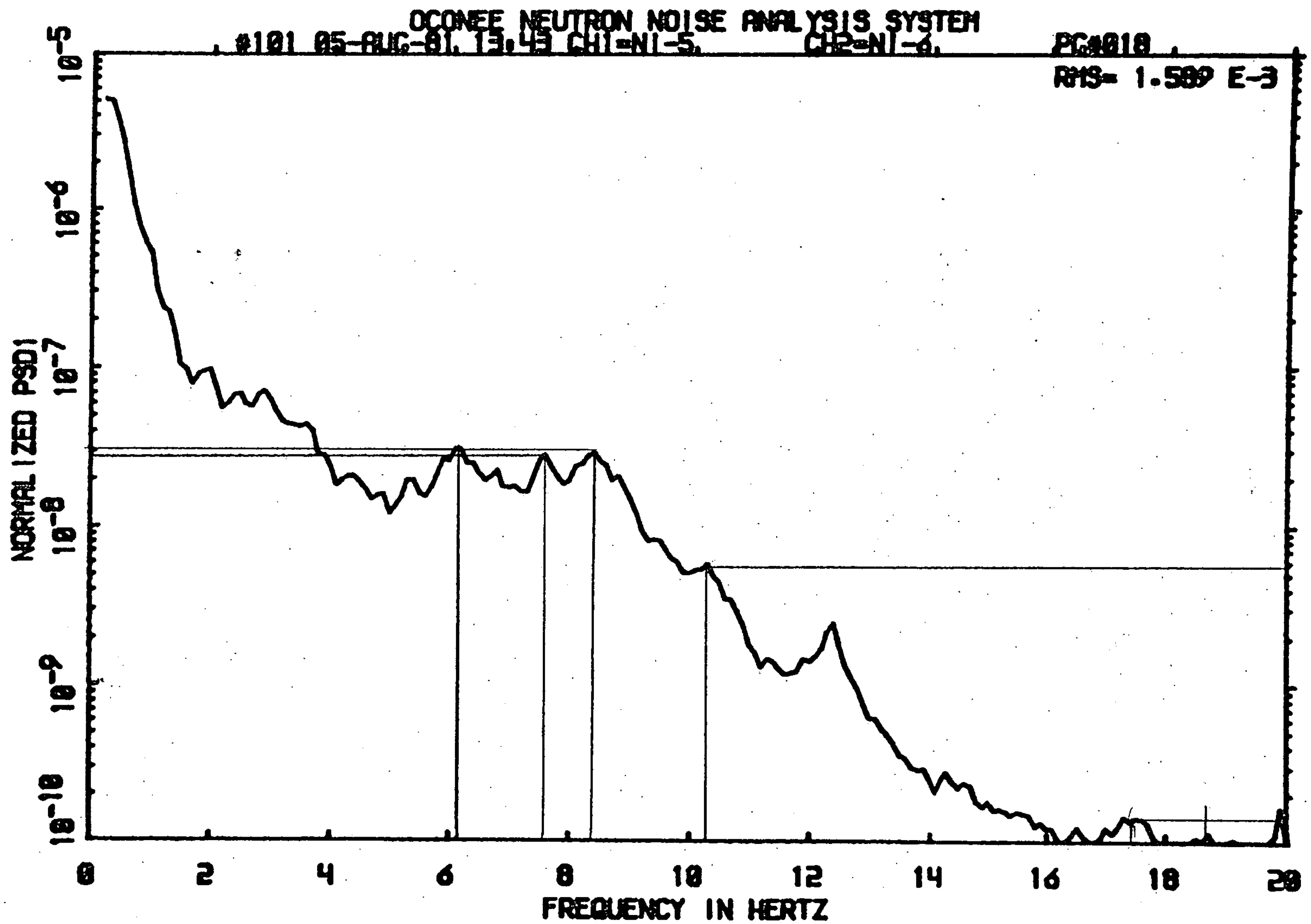


OCONEE NEUTRON NOISE ANALYSIS SYSTEM
#101 05-AUG-81, 13:43 CH1=NI-5, CH2=NI-6,
PG#018
RMS= 1.133 E-3
NORM CPSD MAGNITUDE
10^-10
10^-9
10^-8
10^-7
10^-6
10^-5
0
2
4
6
8
10
12
14
16
18
20
FREQUENCY IN HERTZ

SP MOC2

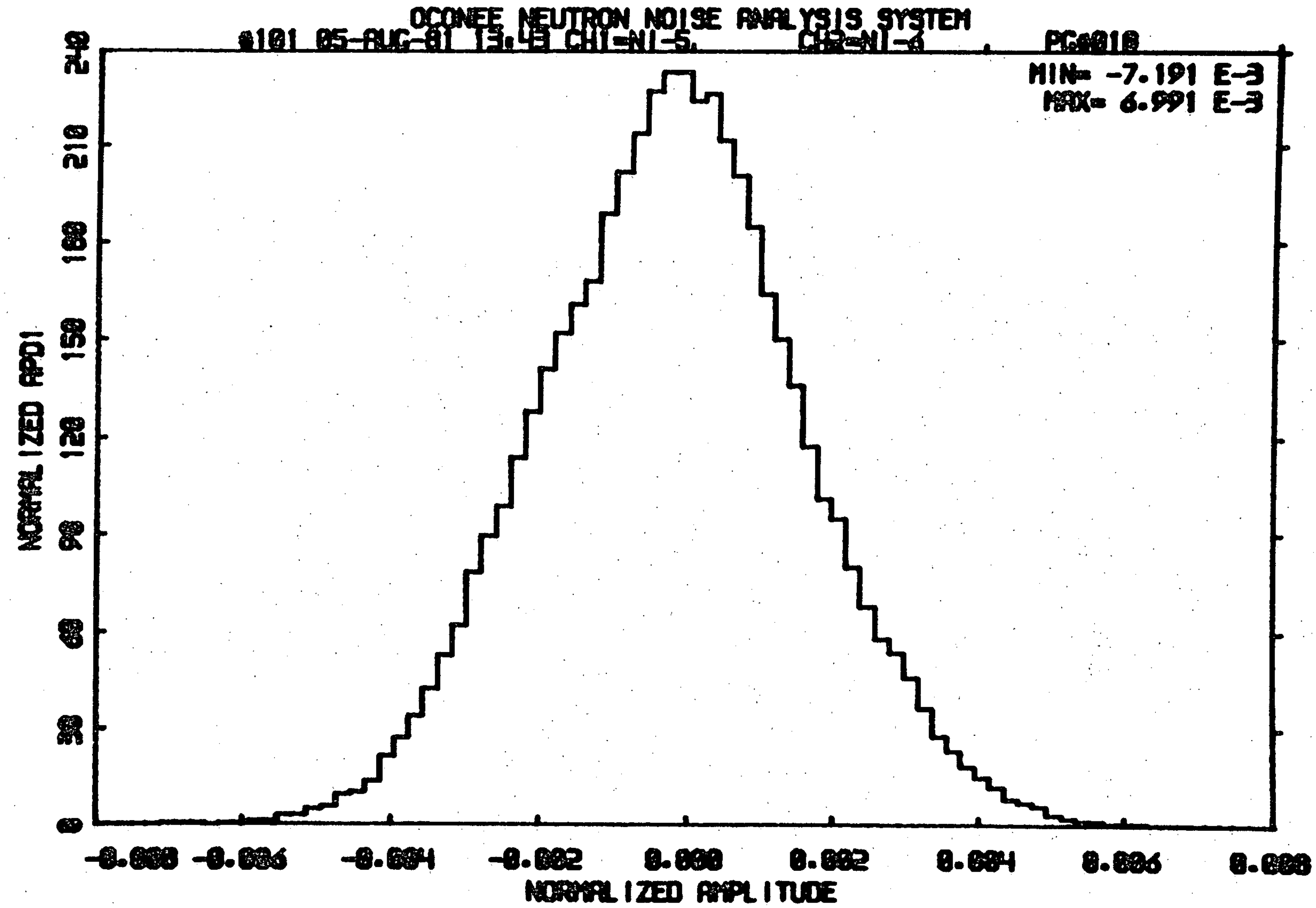

OCONEE NEUTRON NOISE ANALYSIS SYSTEM
#101 05-AUG-81 13:43 CH1=NI-5 CH2=NI-6
PG#018
RMS= 1.136 E-3
NORMALIZED PSD2
10-5
10-6
10-7
10-8
10-9
10-10
0
2
4
6
8
10
12
14
16
18
20
FREQUENCY IN HERTZ

SPMOC2

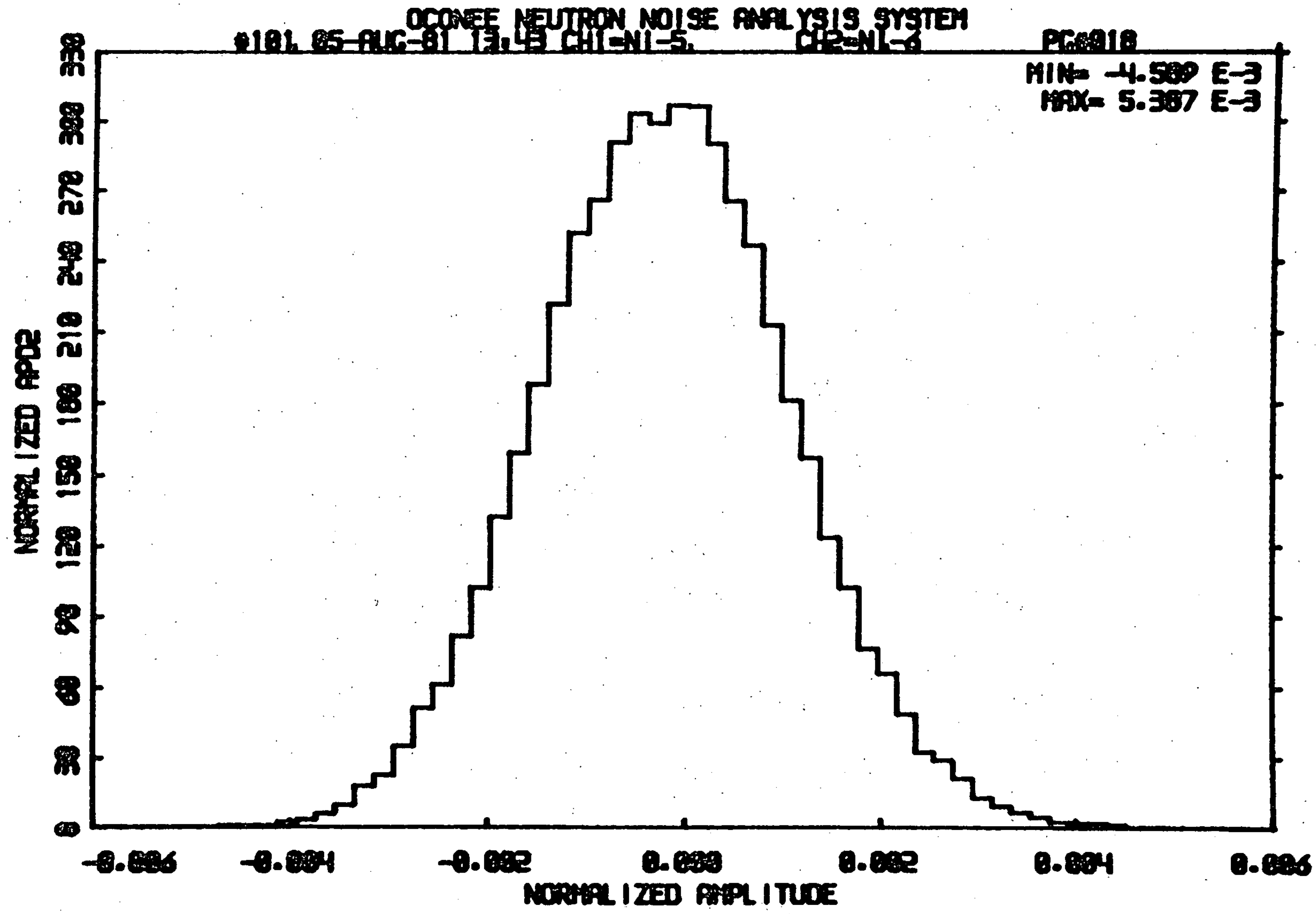


OCONEE NEUTRON NOISE ANALYSIS SYSTEM
#101 05-AUG-81, 13:43 CH1=NI-5, CH2=NI-6, PC#010
RMS= 1.589 E-3
NORMALIZED PSD1
10^-5
10^-6
10^-7
10^-8
10^-9
10^-10
0 2 4 6 8 10 12 14 16 18 20
FREQUENCY IN HERTZ

Sp moc2

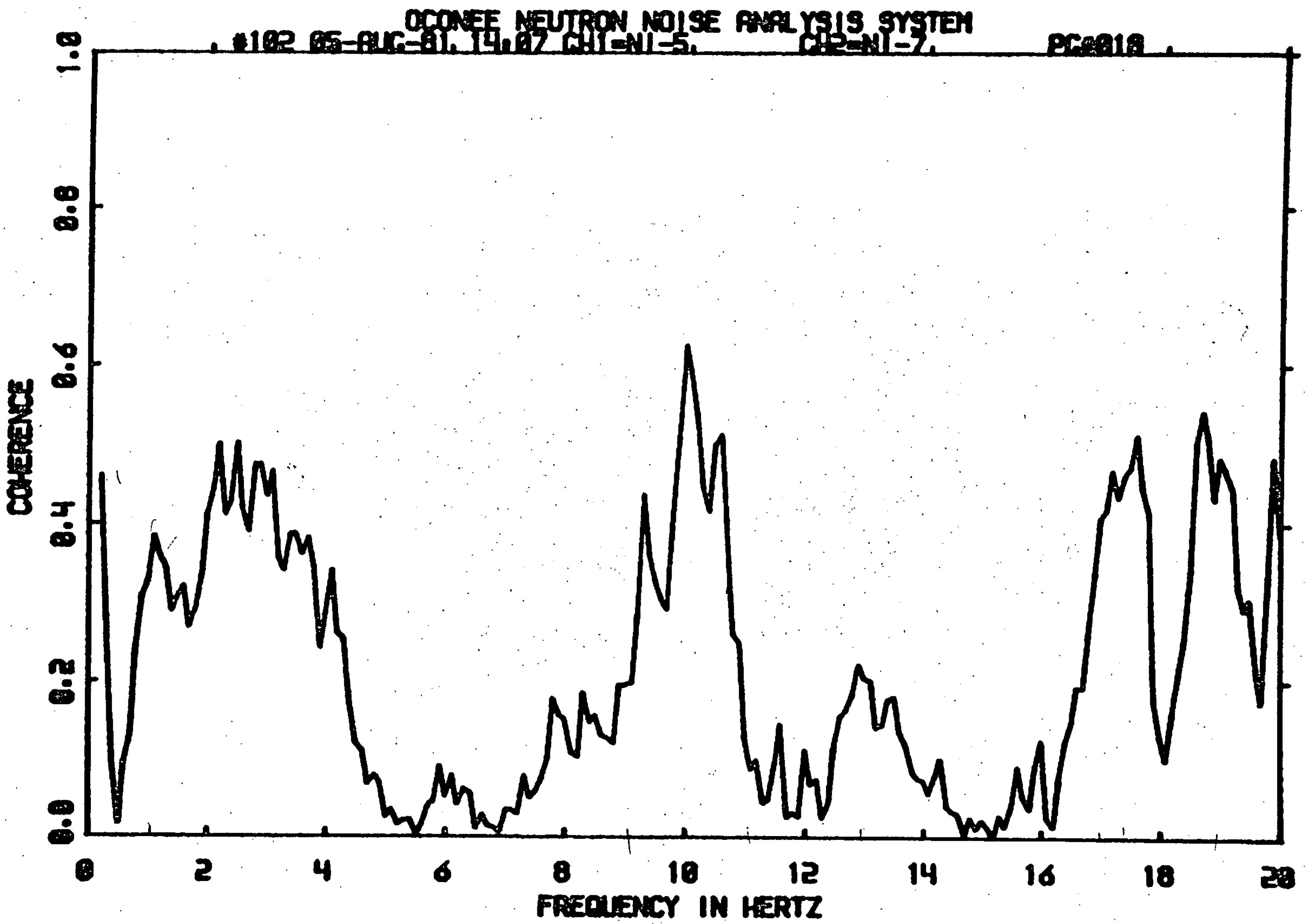

OCONEE NEUTRON NOISE ANALYSIS SYSTEM
#101 05-AUG-81 13.43 CH1=NI-5, CH2=NI-6 , PG#010
MIN= -7.191 E-3
MAX= 6.991 E-3
NORMALIZED APD1
0
30
60
90
120
150
180
210
240
-0.008 -0.006 -0.004 -0.002 0.000 0.002 0.004 0.006 0.008
NORMALIZED AMPLITUDE

Spmoc2

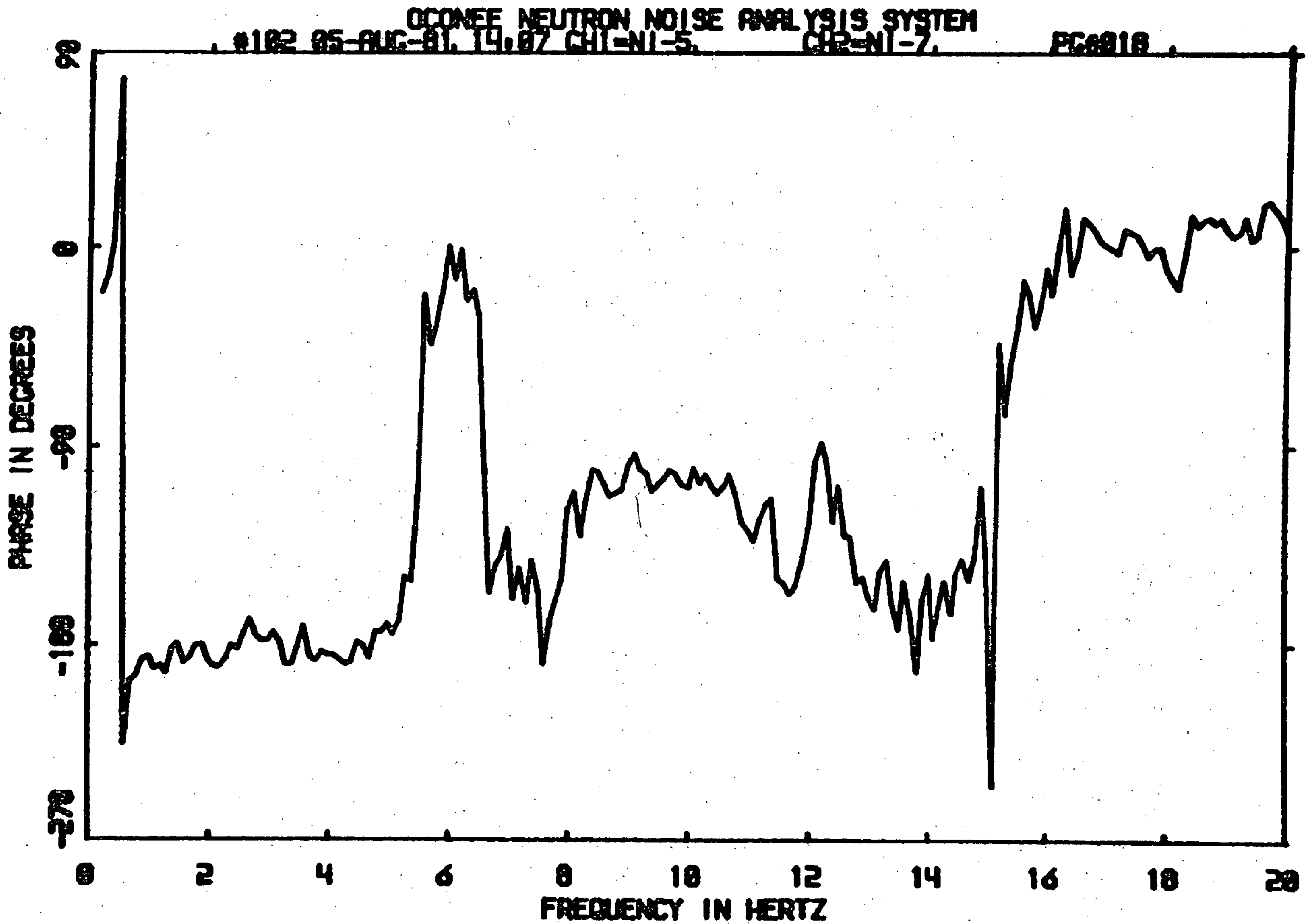


OCONEE NEUTRON NOISE ANALYSIS SYSTEM
#101 05-AUG-81 13:43 CH1=NI-5, CH2=NI-6
PG#018
MIN= -4.589 E-3
MAX= 5.387 E-3
NORMALIZED APD2
0
30
60
90
120
150
180
210
240
270
300
330
-0.006
-0.004
-0.002
0.000
0.002
0.004
0.006
NORMALIZED AMPLITUDE

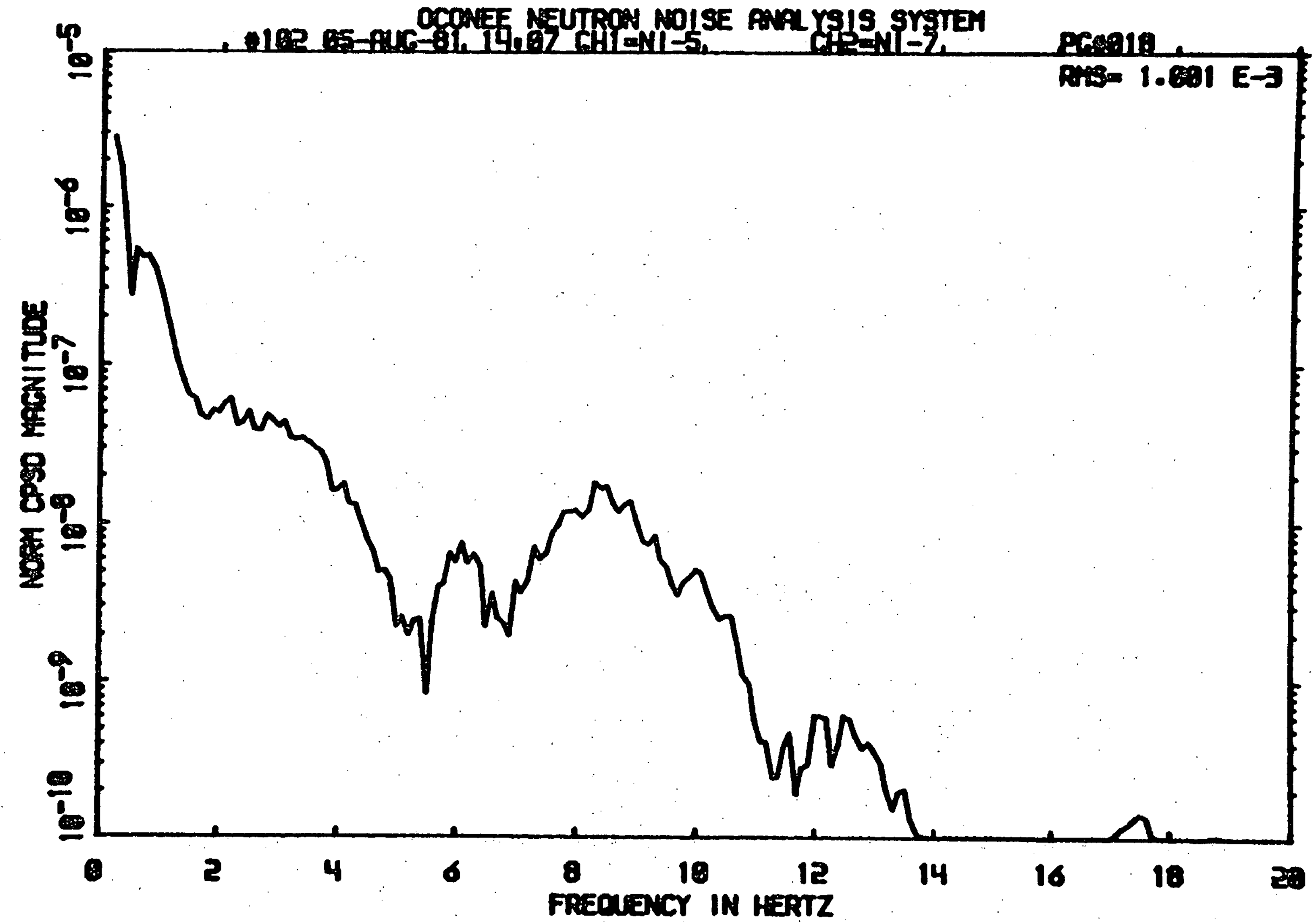
SPMOCZ


OCONEE NEUTRON NOISE ANALYSIS SYSTEM
#102 05-AUG-81, 14:07 CH1=NI-5, CH2=NI-7, PC=018
COHERENCE
0.0
0.2
0.4
0.6
0.8
1.0
0
2
4
6
8
10
12
14
16
18
20
FREQUENCY IN HERTZ

Sp mocz

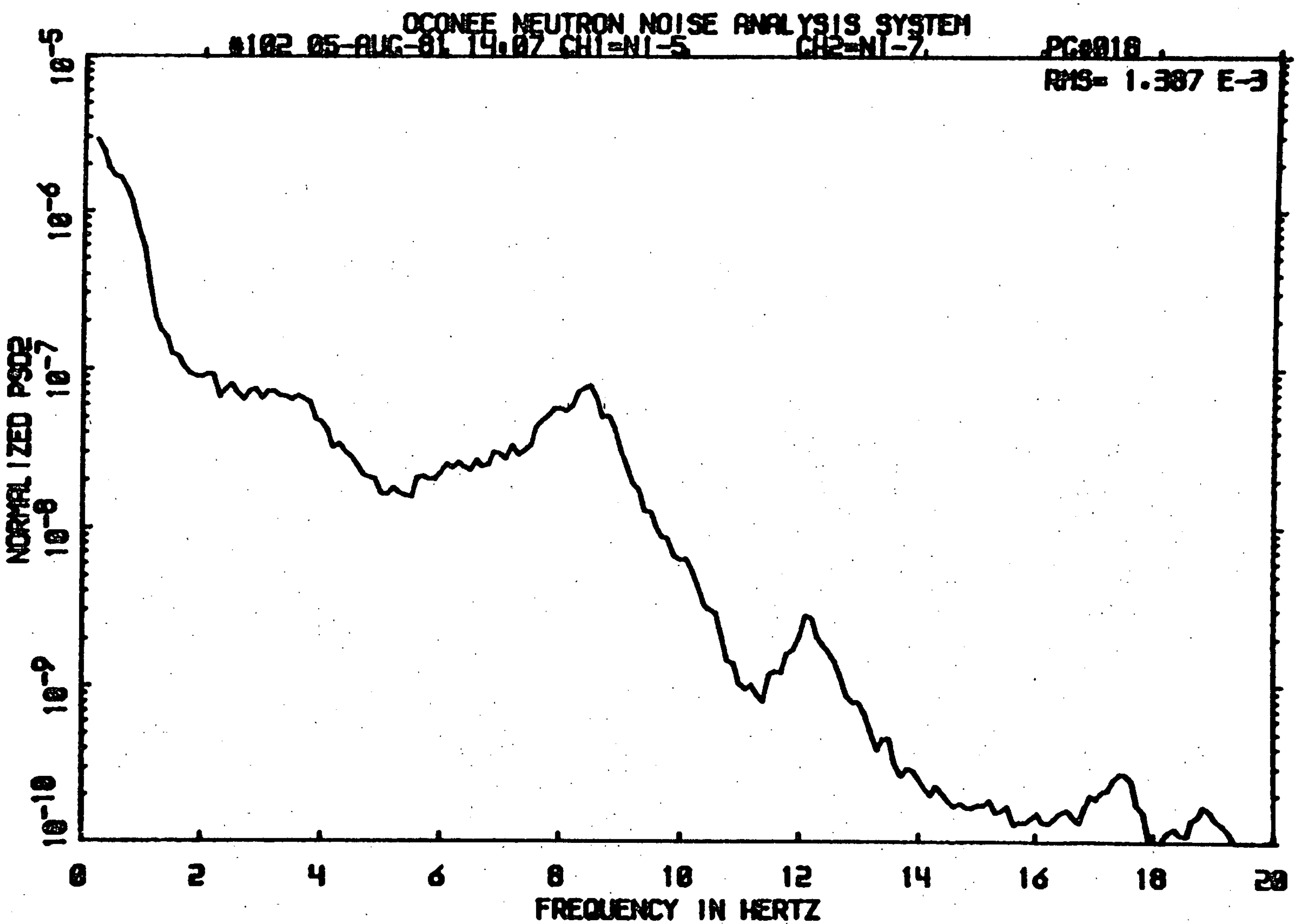

OCONEE NEUTRON NOISE ANALYSIS SYSTEM
#102 05-AUG-81, 14:07 CH1=NI-5, CH2=NI-7, PG#010
PHASE IN DEGREES
90
0
-90
-180
-270
FREQUENCY IN HERTZ
0
2
4
6
8
10
12
14
16
18
20

SP moc2



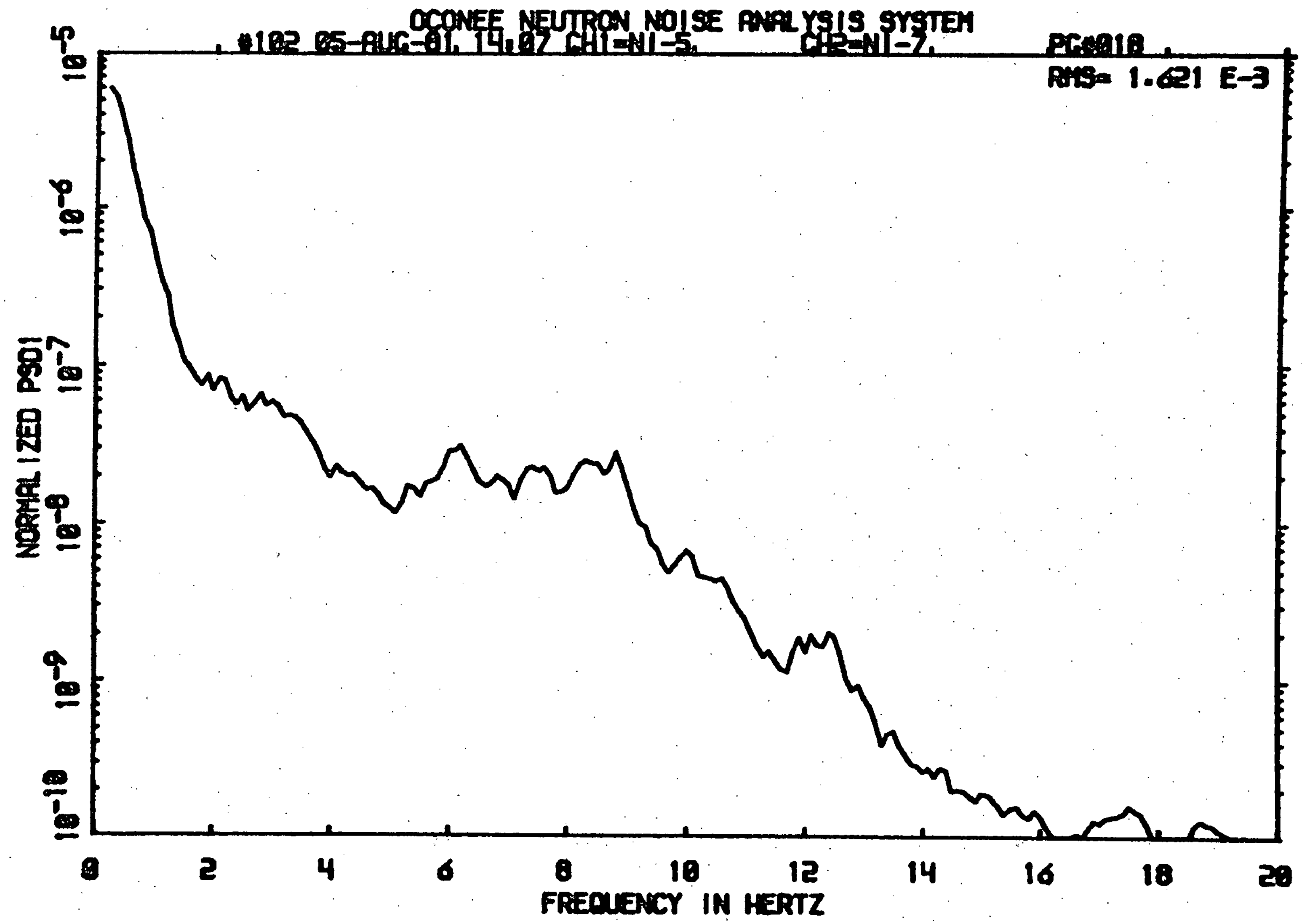
OCONEE NEUTRON NOISE ANALYSIS SYSTEM
#102 05-AUG-81, 14:07 CH1=NI-5, CH2=NI-7,
PC=010
RMS= 1.001 E-3
NORM CPSD MAGNITUDE
10^-5
10^-6
10^-7
10^-8
10^-9
10^-10
0
2
4
6
8
10
12
14
16
18
20
FREQUENCY IN HERTZ

Spmoc2

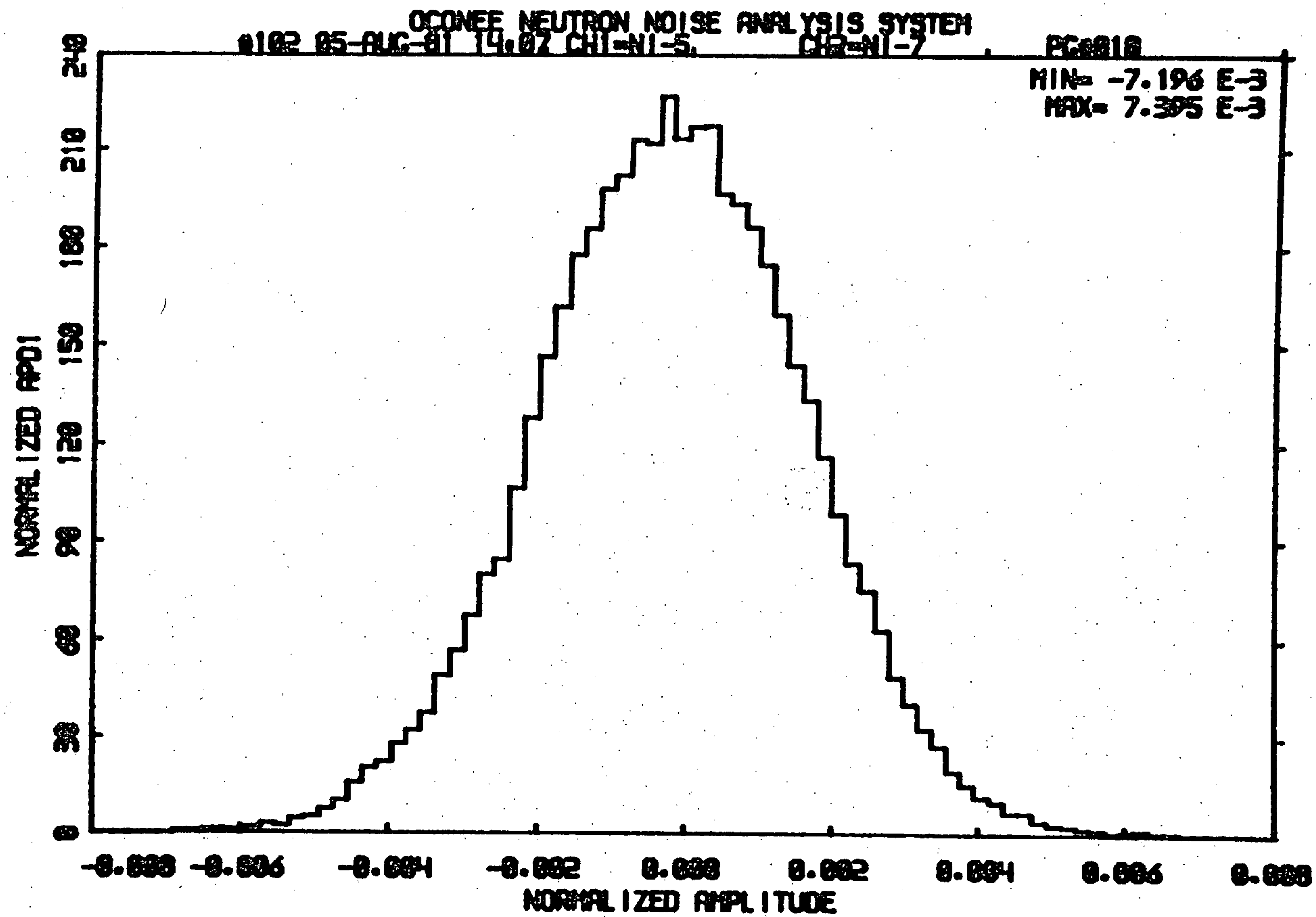


OCONEE NEUTRON NOISE ANALYSIS SYSTEM
#102 05-AUG-81 14.07 CH1=NI-5 CH2=NI-7
PG#018
RMS= 1.387 E-3
NORMALIZED PSD2
10^-10
10^-9
10^-8
10^-7
10^-6
10^-5
0
2
4
6
8
10
12
14
16
18
20
FREQUENCY IN HERTZ

SP MOC2

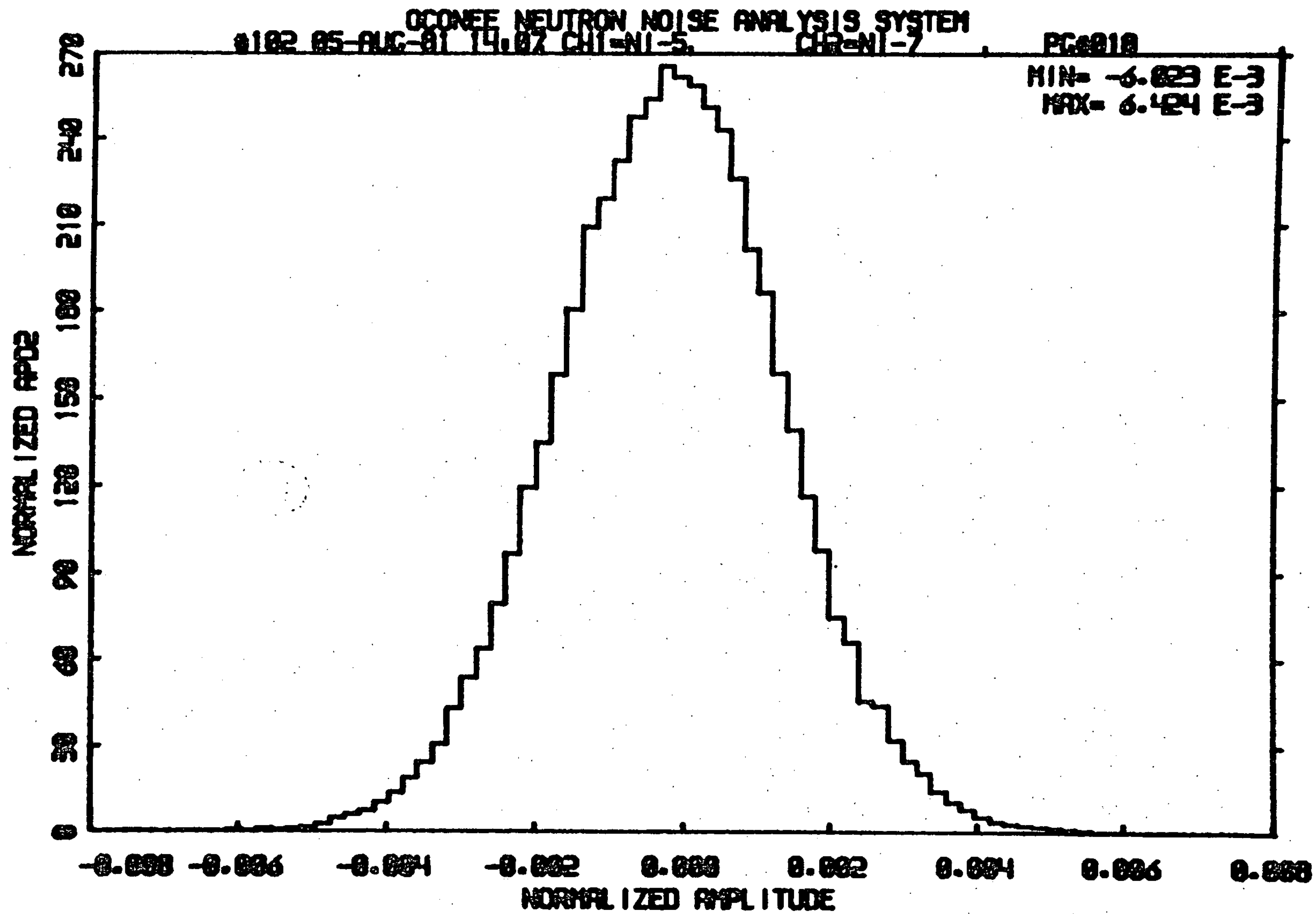

OCONEE NEUTRON NOISE ANALYSIS SYSTEM
#102 05-AUG-01, 14:07 CH1=NI-5, CH2=NI-7,
PC#018
RMS= 1.621 E-3
NORMALIZED PSD1
10^-10
10^-9
10^-8
10^-7
10^-6
10^-5
0
2
4
6
8
10
12
14
16
18
20
FREQUENCY IN HERTZ

SPMOC2

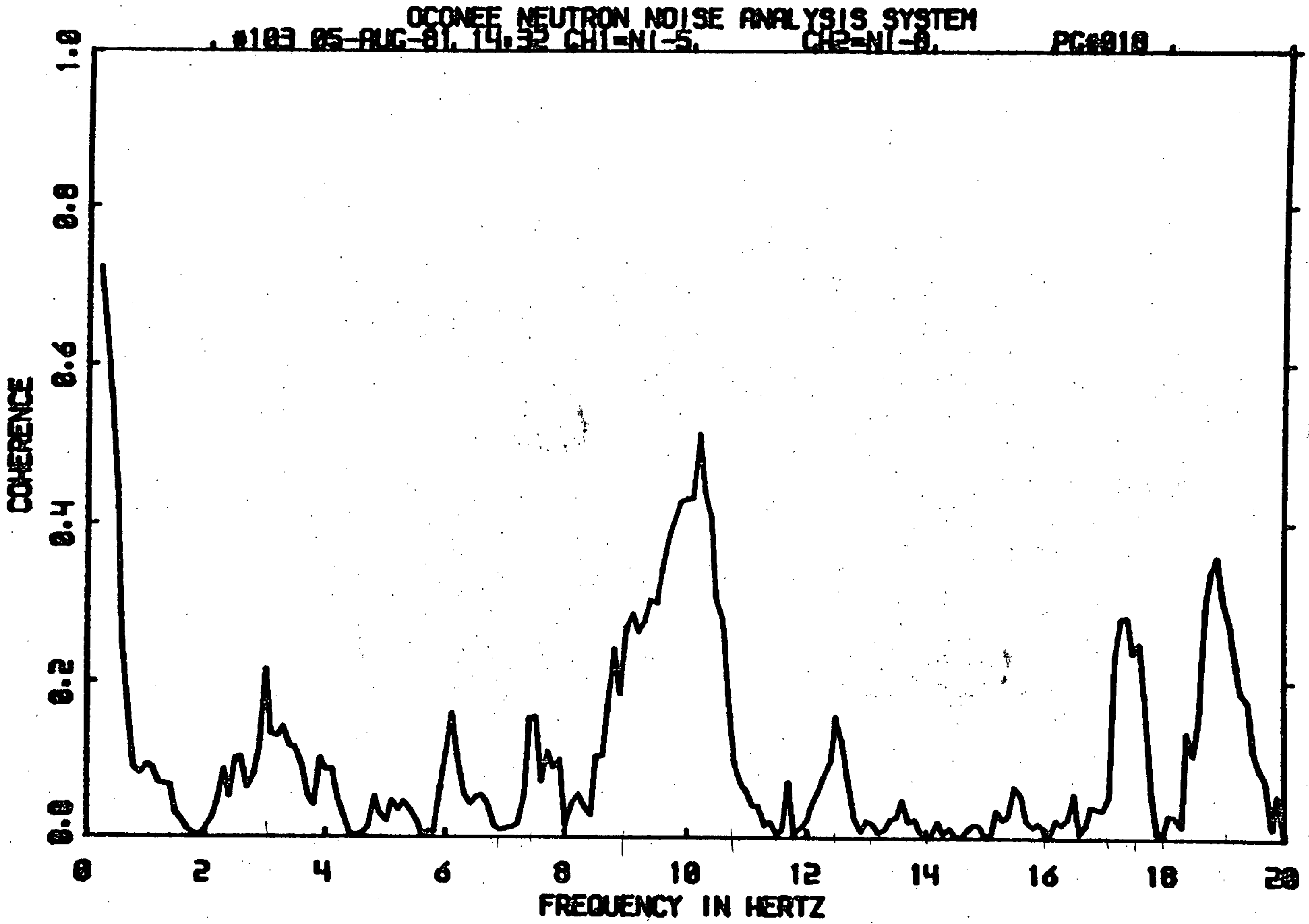


OCONEE NEUTRON NOISE ANALYSIS SYSTEM
#102 05-AUG-81 14.07 CH1=NI-5, CH2=NI-7 , PG#010
MIN= -7.196 E-3
MAX= 7.395 E-3
NORMALIZED APD1
0
30
60
90
120
150
180
210
240
-0.008
-0.006
-0.004
-0.002
0.000
0.002
0.004
0.006
0.008
NORMALIZED AMPLITUDE

SPMOC2

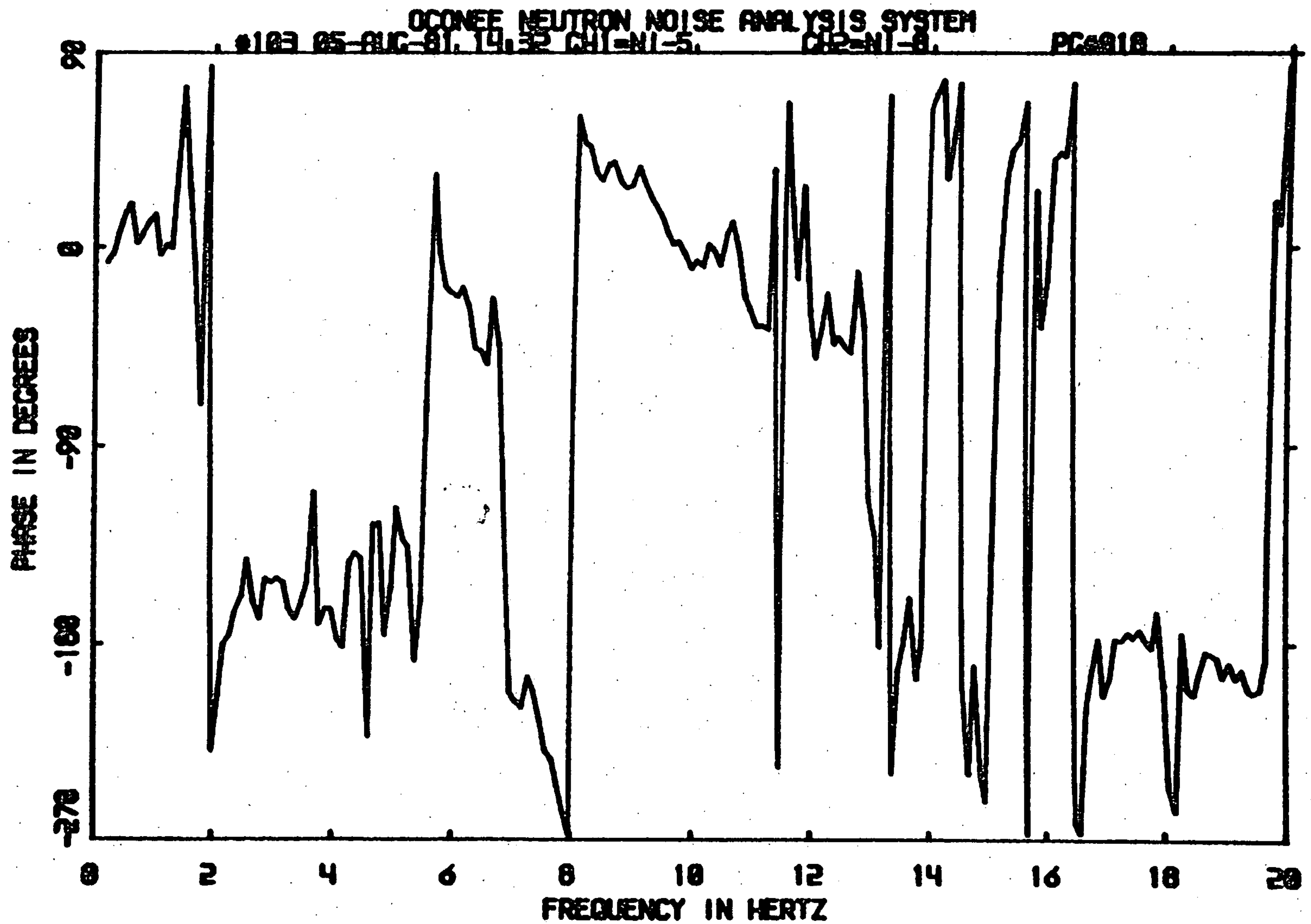

OCONEE NEUTRON NOISE ANALYSIS SYSTEM
#102 05-AUG-81 14.07 CH1=NI-5, CH2=NI-7
PG#010
MIN= -6.023 E-3
MAX= 6.424 E-3
NORMALIZED APD2
0
30
60
90
120
150
180
210
240
270
-0.008
-0.006
-0.004
-0.002
0.000
0.002
0.004
0.006
0.008
NORMALIZED AMPLITUDE

Spmoc2



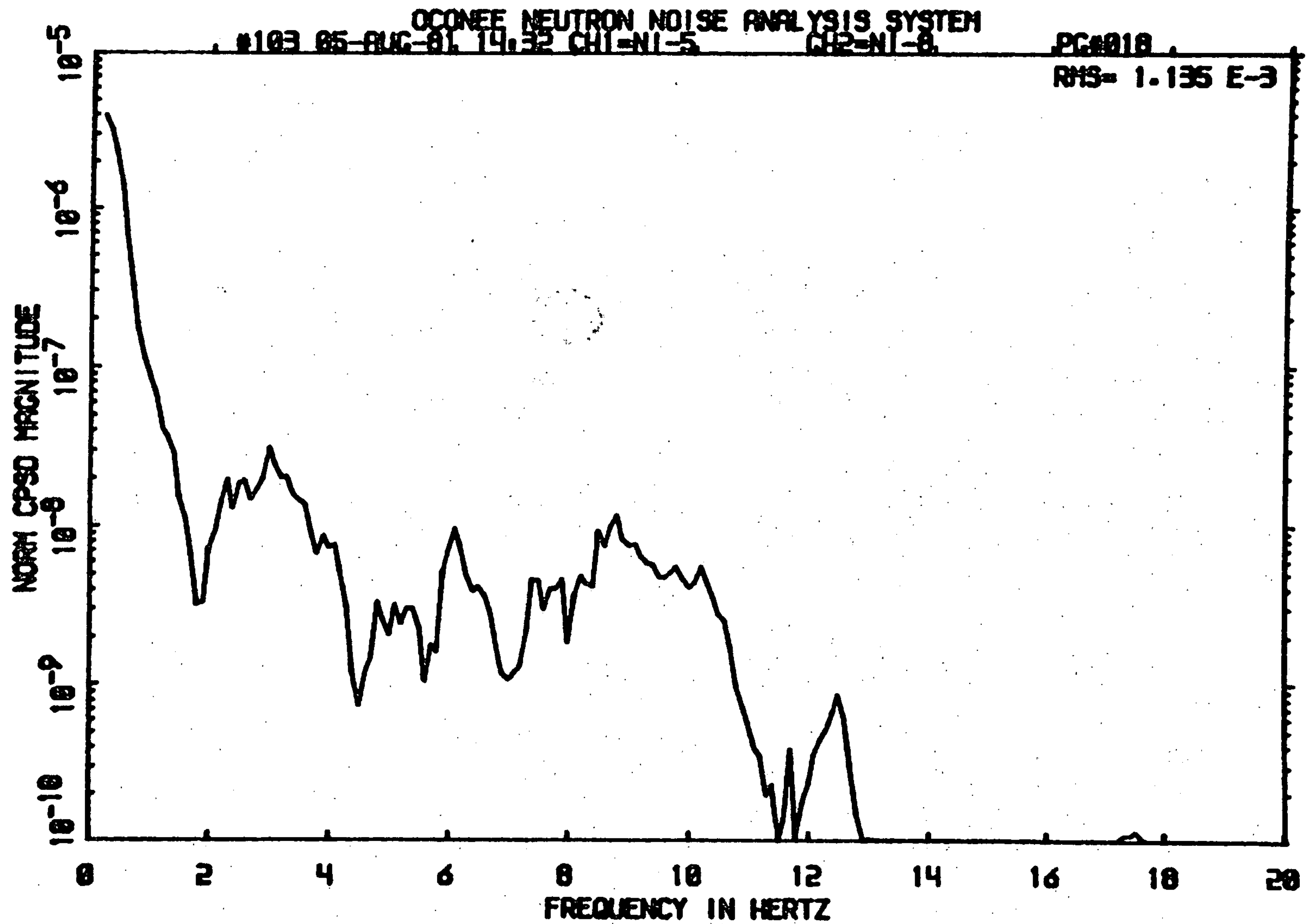
OCONEE NEUTRON NOISE ANALYSIS SYSTEM
#103 05-AUG-81, 14.32 CH1=NI-5, CH2=NI-8, PG#010
COHERENCE
0.0
0.2
0.4
0.6
0.8
1.0
0
2
4
6
8
10
12
14
16
18
20
FREQUENCY IN HERTZ

SP MOC 2



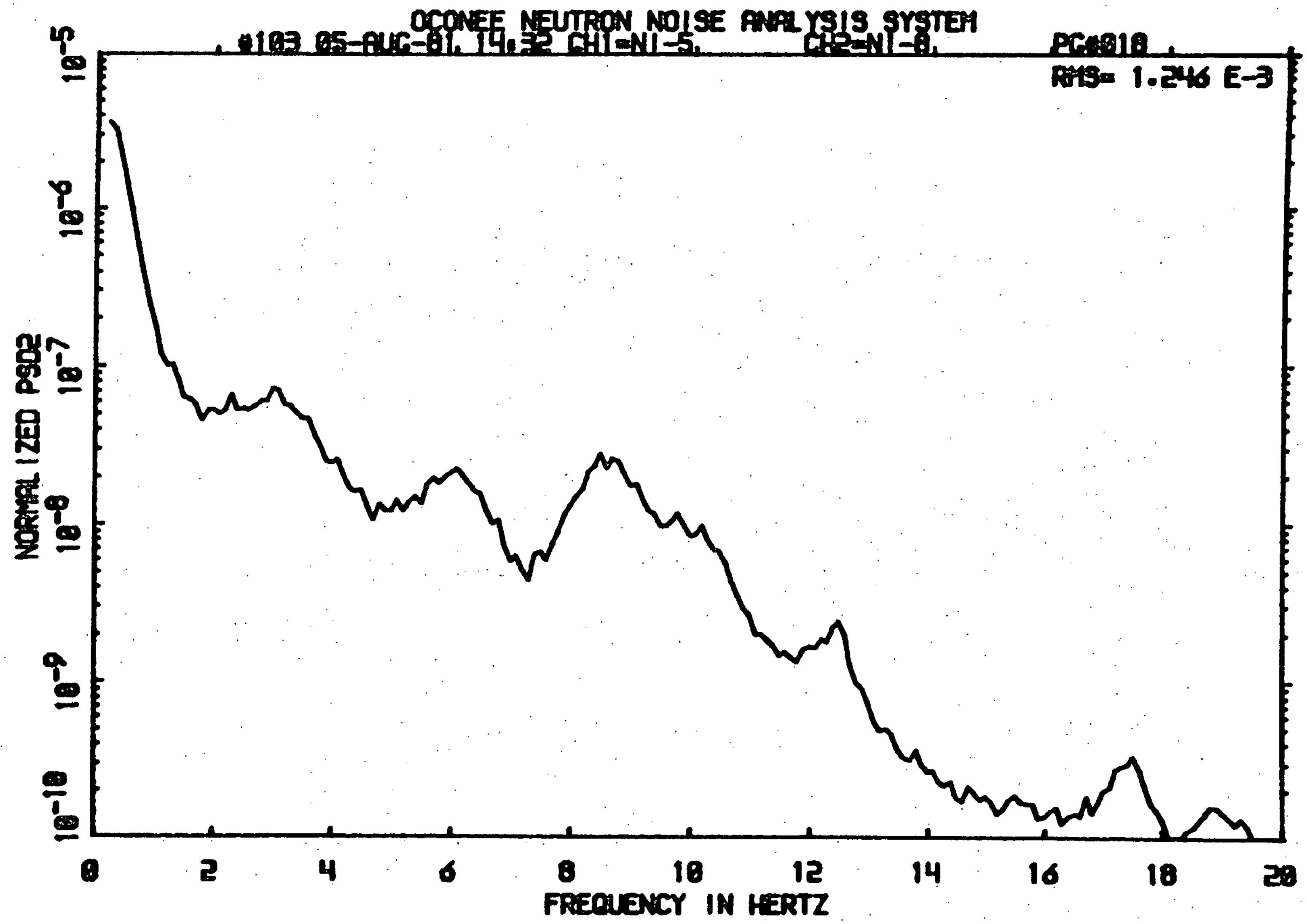
OCONEE NEUTRON NOISE ANALYSIS SYSTEM
#103 05-AUG-81, 14.32 CH1=NI-5, CH2=NI-8, PG=010
PHASE IN DEGREES
90
0
-90
-180
-270
0
2
4
6
8
10
12
14
16
18
20
FREQUENCY IN HERTZ

SP MOCZ

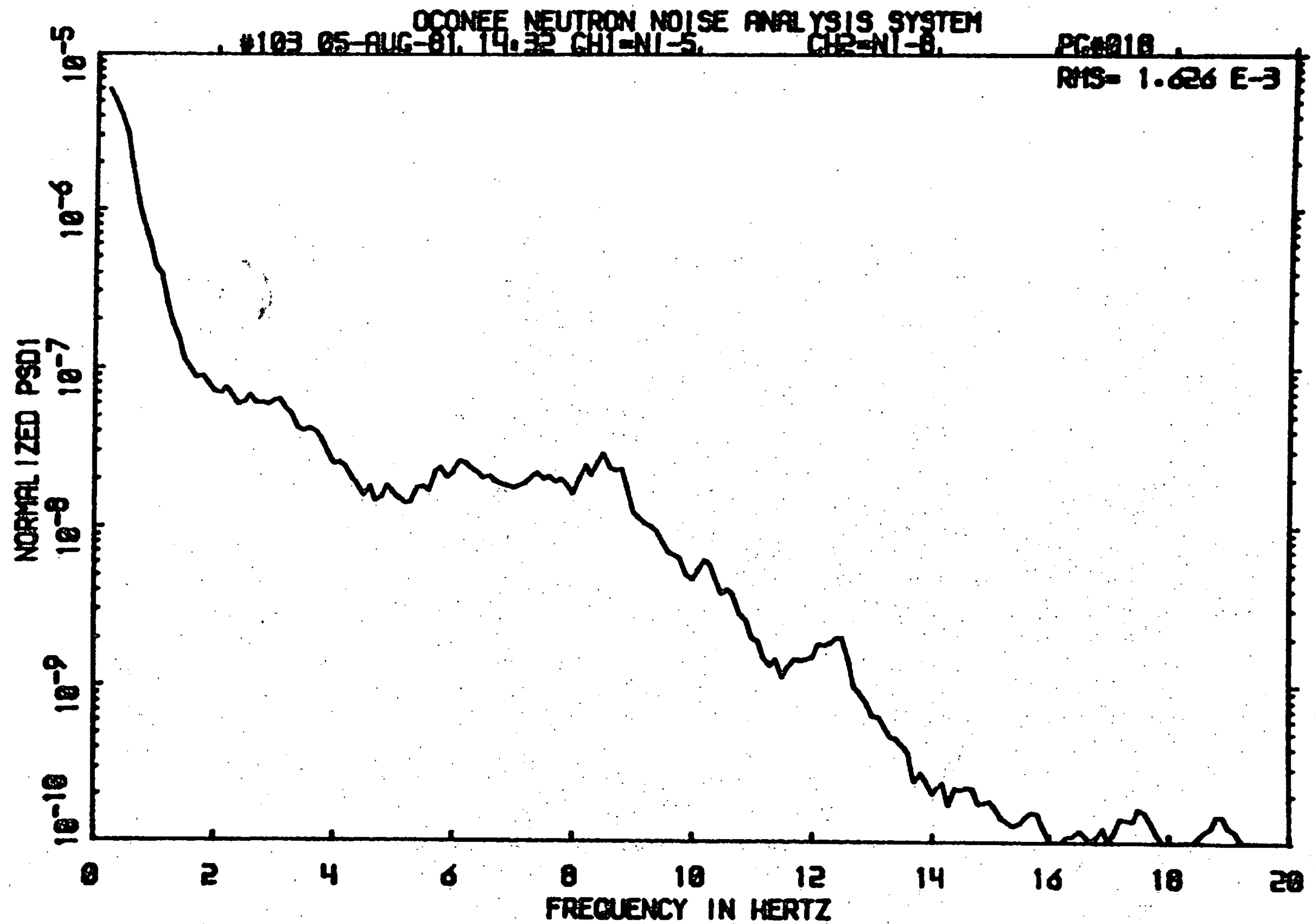


OCONEE NEUTRON NOISE ANALYSIS SYSTEM
#103 05-AUG-81 14.32 CH1=NI-5 CH2=NI-8
PG#018
RMS= 1.135 E-3
NORM CPSD MAGNITUDE
10^-10
10^-9
10^-8
10^-7
10^-6
10^-5
0
2
4
6
8
10
12
14
16
18
20
FREQUENCY IN HERTZ

SP MOC 2

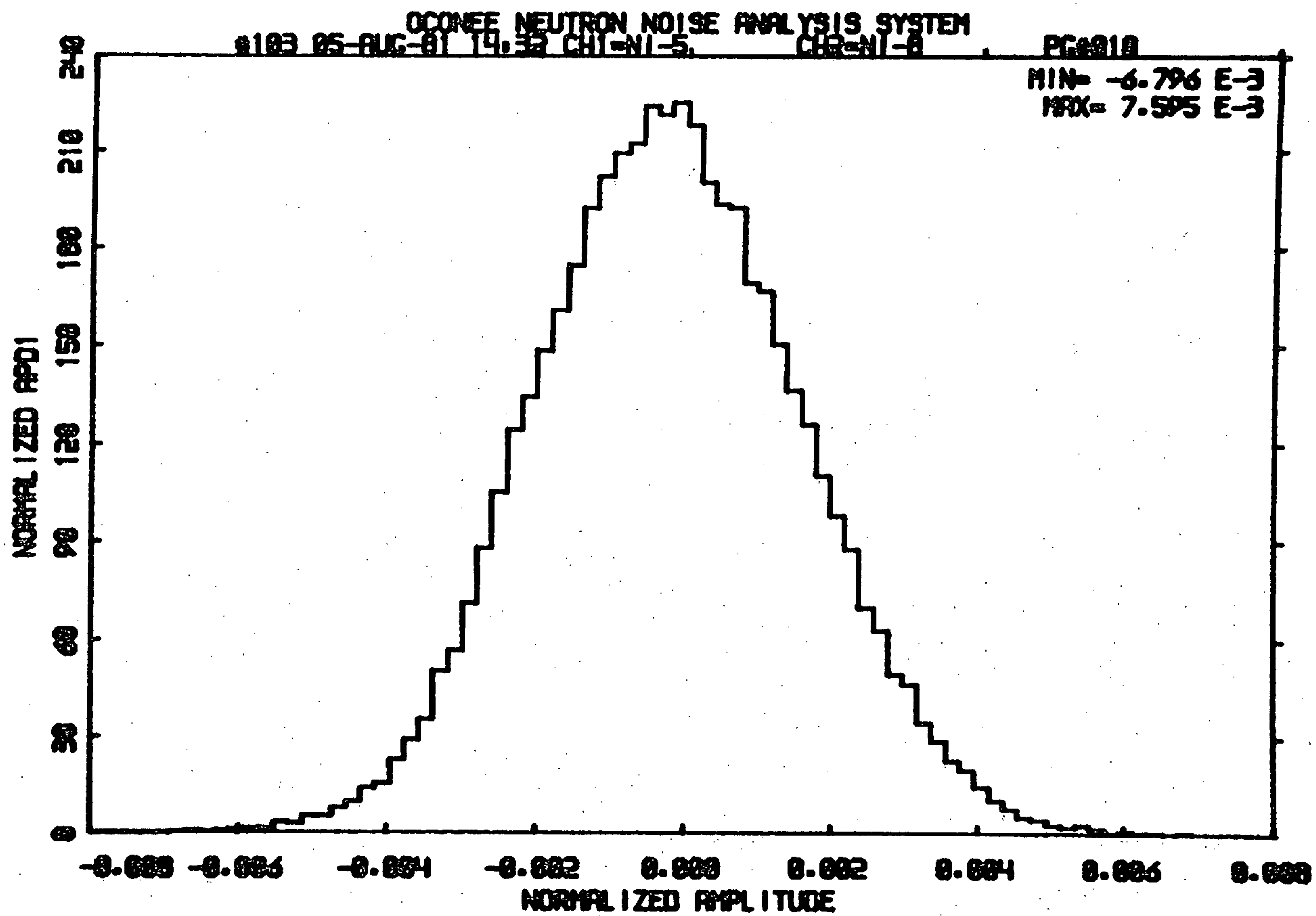

OCONEE NEUTRON NOISE ANALYSIS SYSTEM
#103 05-AUG-81, 14.32 CH1=NI-5, CH2=NI-8, PG#018
RMS= 1.246 E-3
NORMALIZED PSD2
10-5
10-6
10-7
10-8
10-9
10-10
0
2
4
6
8
10
12
14
16
18
20
FREQUENCY IN HERTZ

SP MOC2 ✓

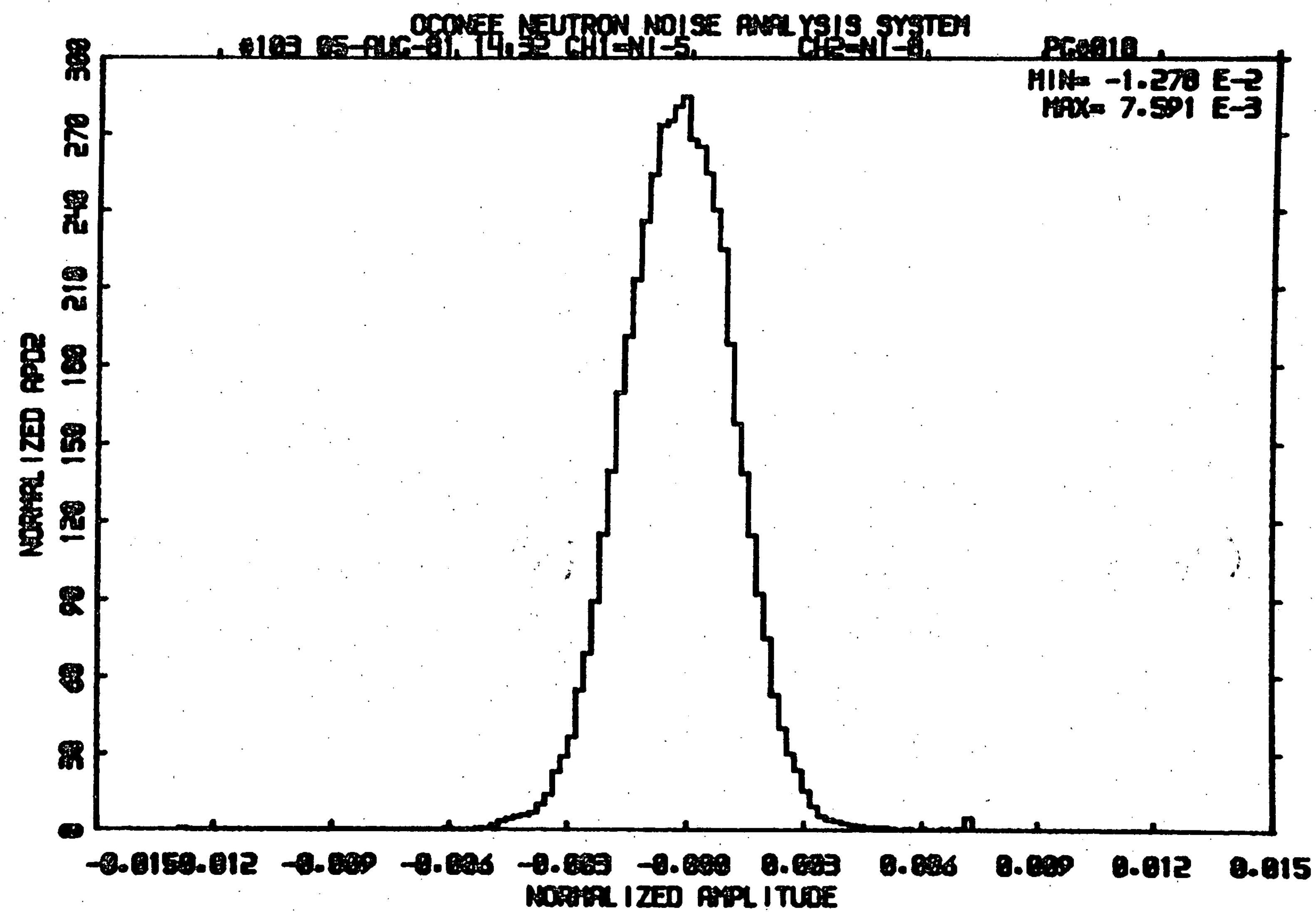


OCONEE NEUTRON NOISE ANALYSIS SYSTEM
#103 05-AUG-81, 14:32 CH1=NI-5, CH2=NI-8,
PG#018
RMS= 1.626 E-3
NORMALIZED PSD1
10^-10
10^-9
10^-8
10^-7
10^-6
10^-5
0
2
4
6
8
10
12
14
16
18
20
FREQUENCY IN HERTZ

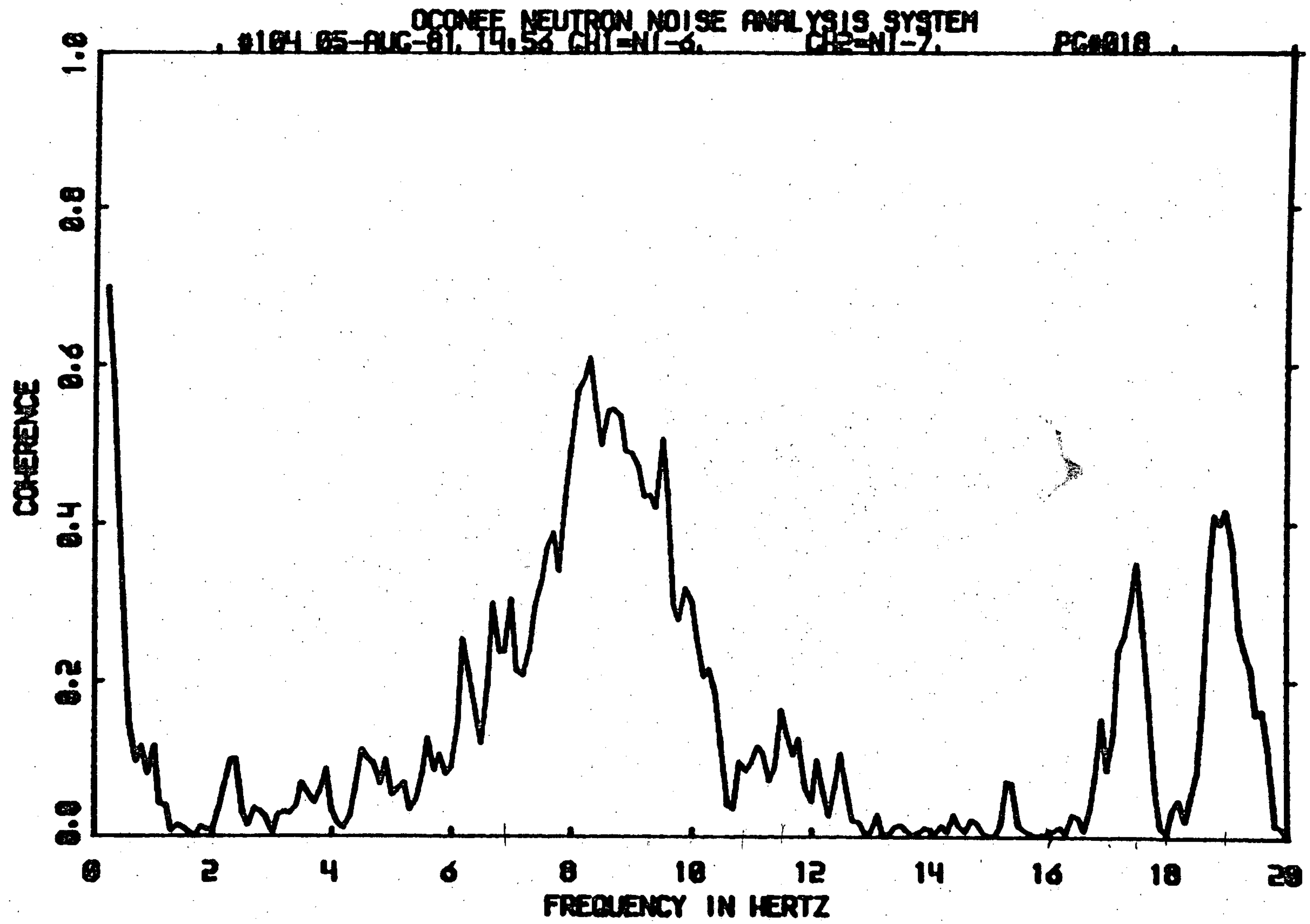
Sp moc 2


OCONEE NEUTRON NOISE ANALYSIS SYSTEM
#103 05-AUG-81 14:32 CH1=NI-5, CH2=NI-8 , PG#010
MIN= -6.796 E-3
MAX= 7.595 E-3
NORMALIZED APD1
0
30
60
90
120
150
180
210
240
-0.008
-0.006
-0.004
-0.002
0.000
0.002
0.004
0.006
0.008
NORMALIZED AMPLITUDE

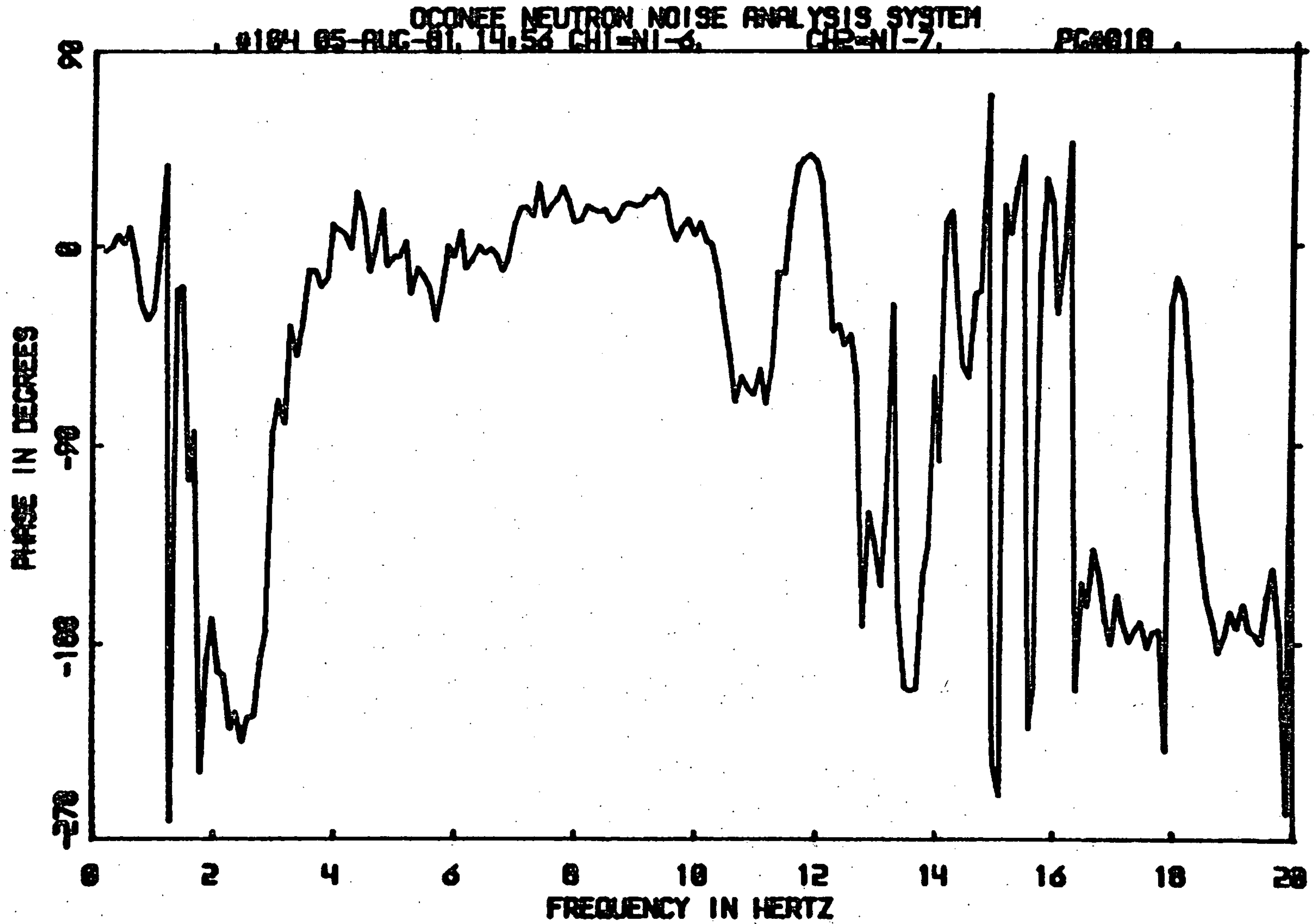
sp mocz


OCONEE NEUTRON NOISE ANALYSIS SYSTEM
#103 05-AUG-81, 14:32 CH1=NI-5, CH2=NI-8, PG#010
MIN= -1.270 E-2
MAX= 7.591 E-3
NORMALIZED APD2
0
30
60
90
120
150
180
210
240
270
300
-0.015
-0.012
-0.009
-0.006
-0.003
-0.000
0.003
0.006
0.009
0.012
0.015
NORMALIZED AMPLITUDE

SP MOCZ

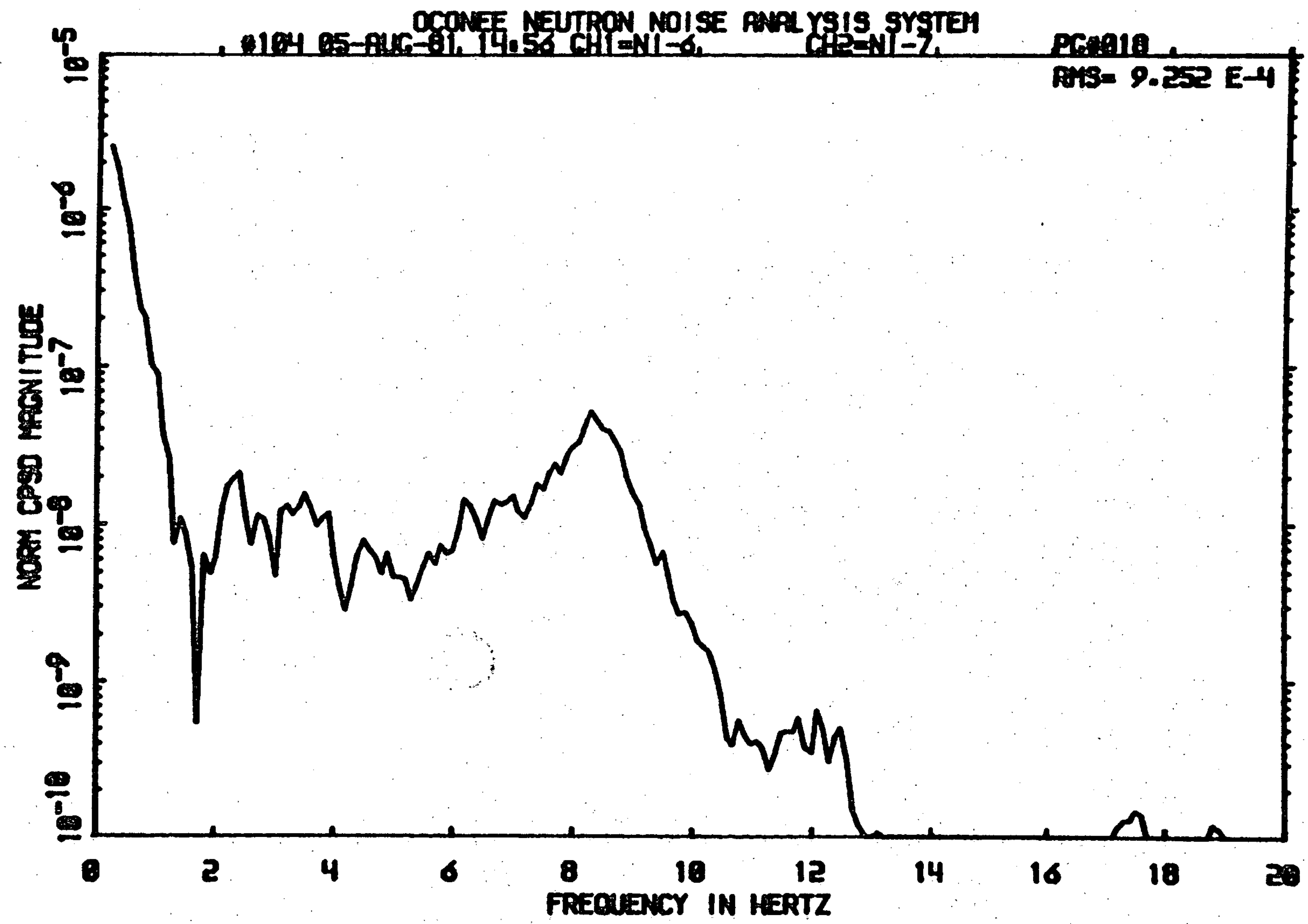

OCONEE NEUTRON NOISE ANALYSIS SYSTEM
#104 05-AUG-81, 14:56 CH1=NI-6, CH2=NI-7, PG#018
COHERENCE
0.0
0.2
0.4
0.6
0.8
1.0
0
2
4
6
8
10
12
14
16
18
20
FREQUENCY IN HERTZ

Sp moc 2



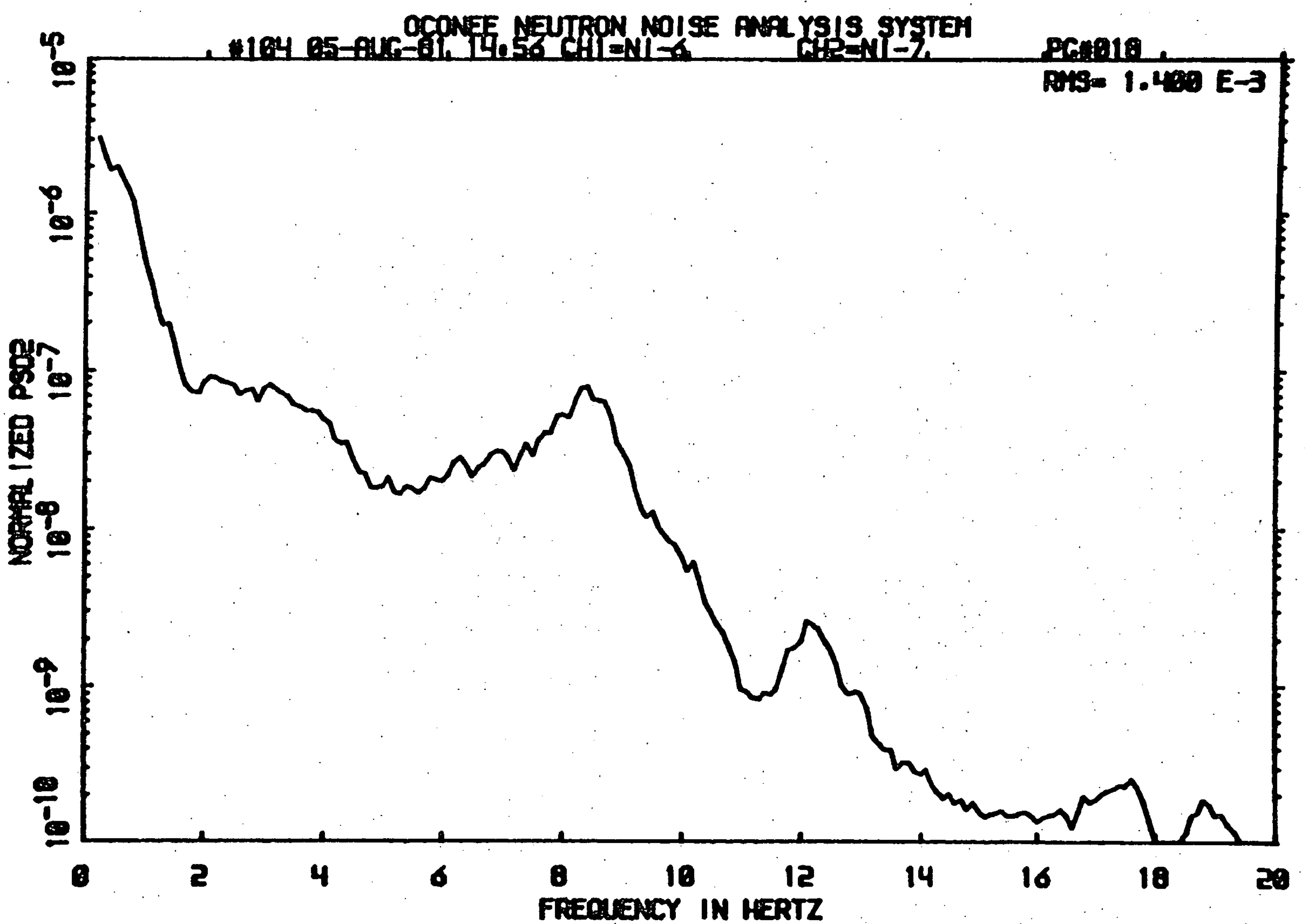
OCONEE NEUTRON NOISE ANALYSIS SYSTEM
#104 05-AUG-81, 14:53 CH1=NI-6, CH2=NI-7, PG#010
PHASE IN DEGREES
90
0
-90
-180
-270
0
2
4
6
8
10
12
14
16
18
20
FREQUENCY IN HERTZ

SP MOC2



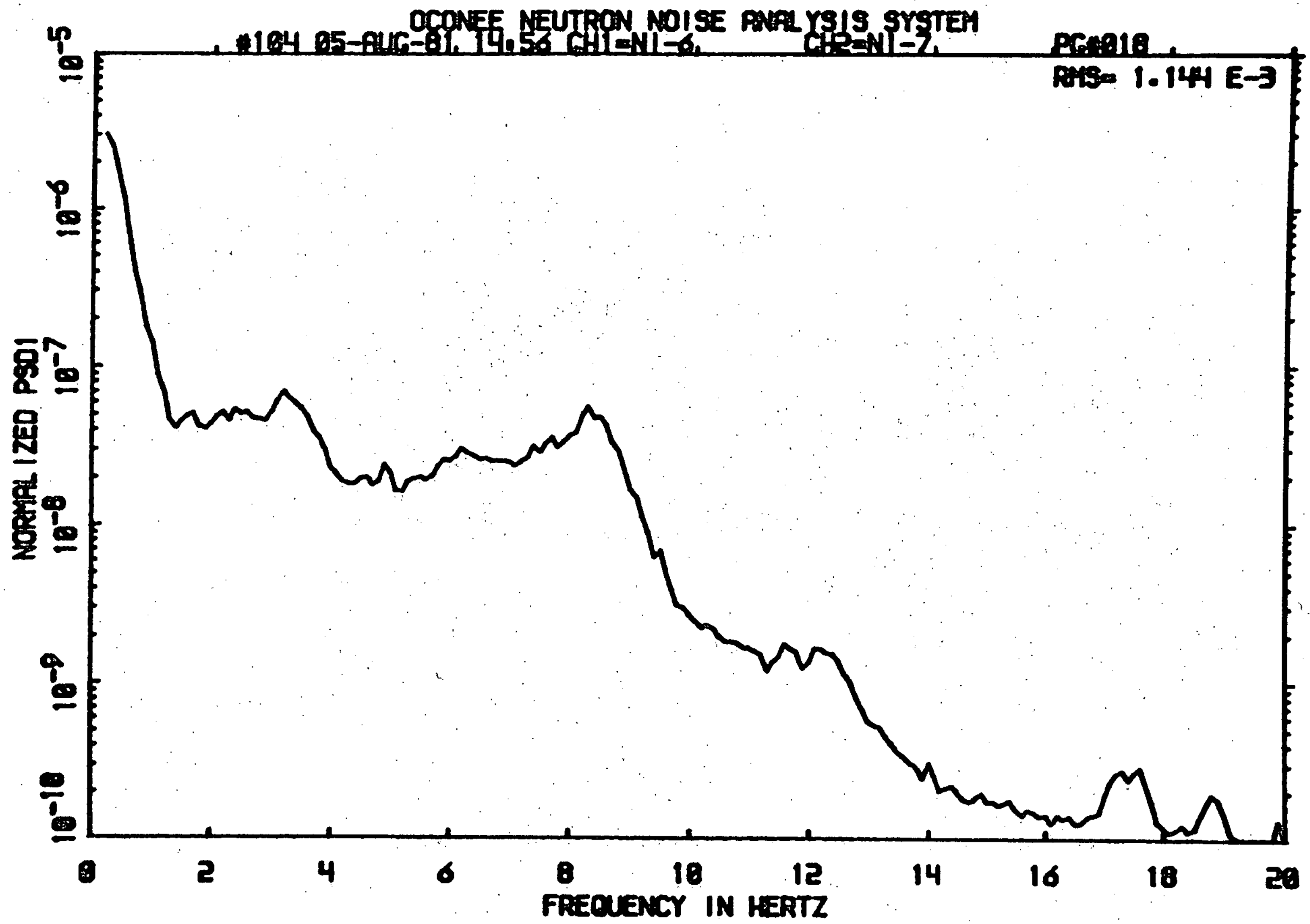
OCONEE NEUTRON NOISE ANALYSIS SYSTEM
#104 05-AUG-81, 14:56 CH1=NI-6, CH2=NI-7, PG#010
RMS= 9.252 E-4
NORM CPSD MAGNITUDE
10^-10
10^-9
10^-8
10^-7
10^-6
10^-5
0
2
4
6
8
10
12
14
16
18
20
FREQUENCY IN HERTZ

SP MOC2



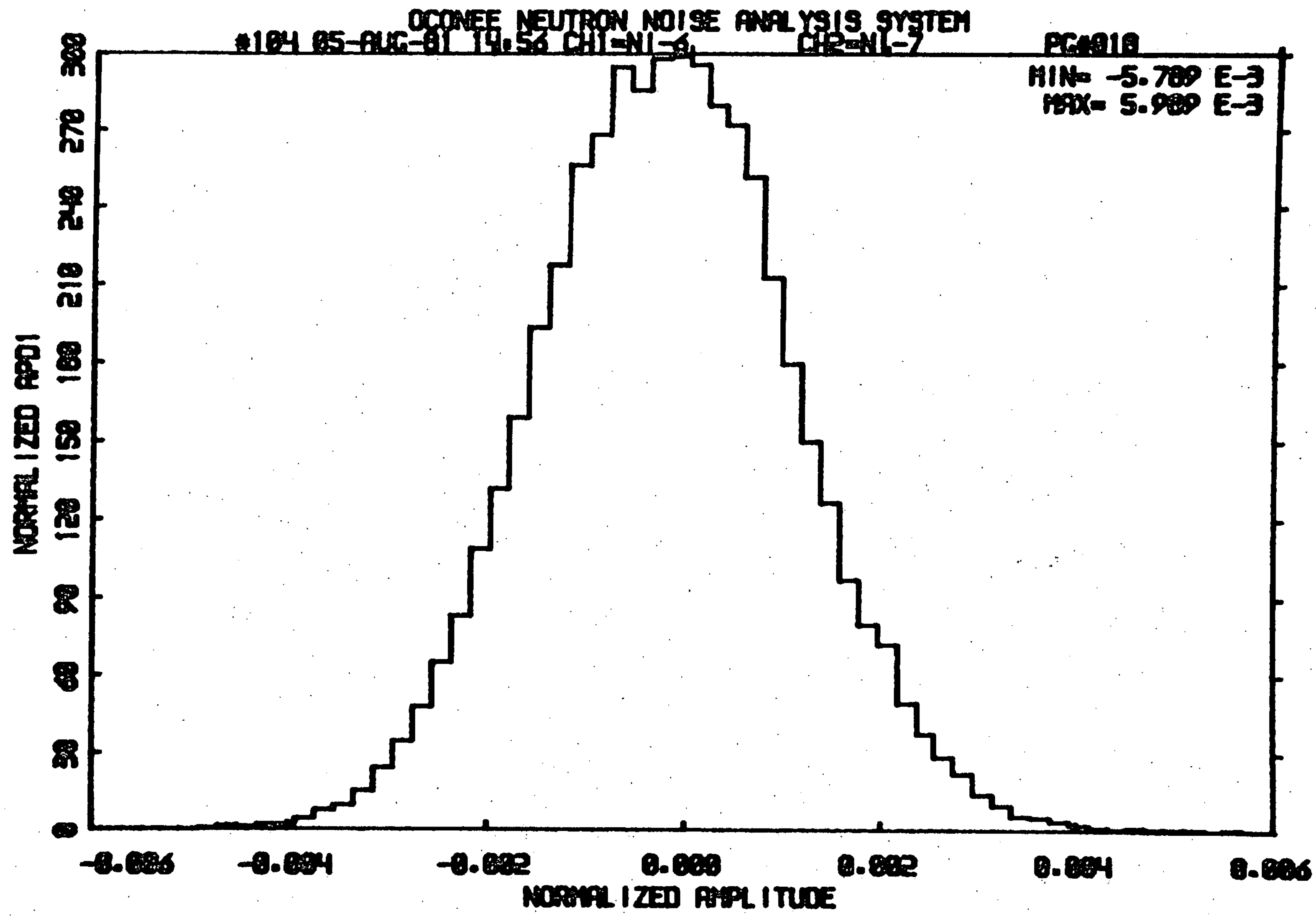
OCONEE NEUTRON NOISE ANALYSIS SYSTEM
#104 05-AUG-81 14:56 CH1=NI-6 CH2=NI-7
PG#018
RMS= 1.400 E-3
NORMALIZED PSD2
10^-5
10^-6
10^-7
10^-8
10^-9
10^-10
0
2
4
6
8
10
12
14
16
18
20
FREQUENCY IN HERTZ

SPMOC2



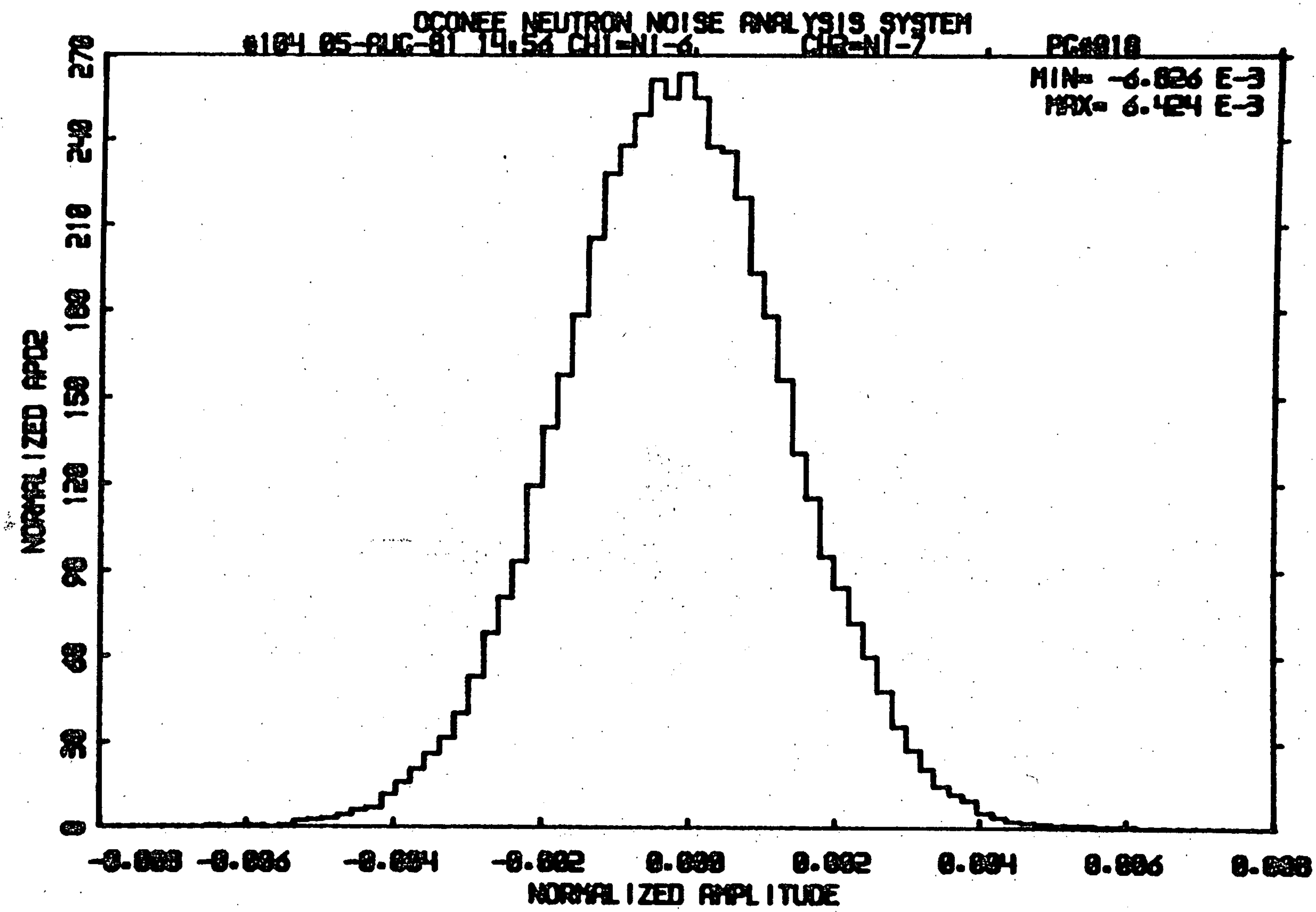
OCONEE NEUTRON NOISE ANALYSIS SYSTEM
#104 05-AUG-81, 14.56 CH1=NI-6, CH2=NI-7,
PG#018
RMS= 1.144 E-3
NORMALIZED PSD1
10^-5
10^-6
10^-7
10^-8
10^-9
10^-10
0
2
4
6
8
10
12
14
16
18
20
FREQUENCY IN HERTZ

SP moc 2



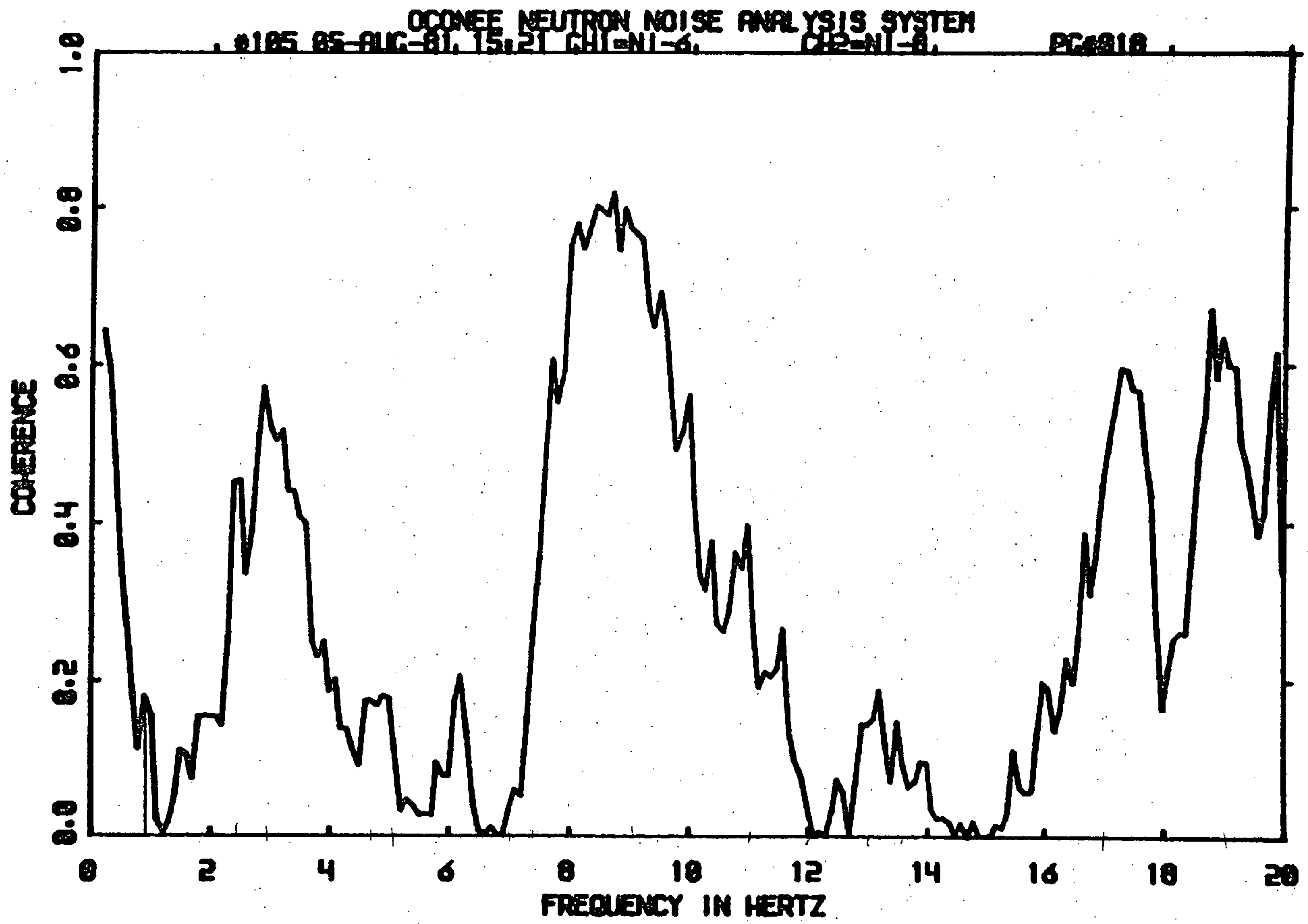
OCONEE NEUTRON NOISE ANALYSIS SYSTEM
#104 05-AUG-81 14:56 CH1=NI-6 CH2=NI-7
PG#010
MIN= -5.789 E-3
MAX= 5.989 E-3
NORMALIZED APD1
0
30
60
90
120
150
180
210
240
270
300
-0.006
-0.004
-0.002
0.000
0.002
0.004
0.006
NORMALIZED AMPLITUDE

sp mOC2



OCONEE NEUTRON NOISE ANALYSIS SYSTEM
#104 05-AUG-81 14:54 CH1=NI-6, CH2=NI-7
PG#010
MIN= -6.826 E-3
MAX= 6.424 E-3
NORMALIZED APD2
0
30
60
90
120
150
180
210
240
270
-0.008
-0.006
-0.004
-0.002
0.000
0.002
0.004
0.006
0.008
NORMALIZED AMPLITUDE

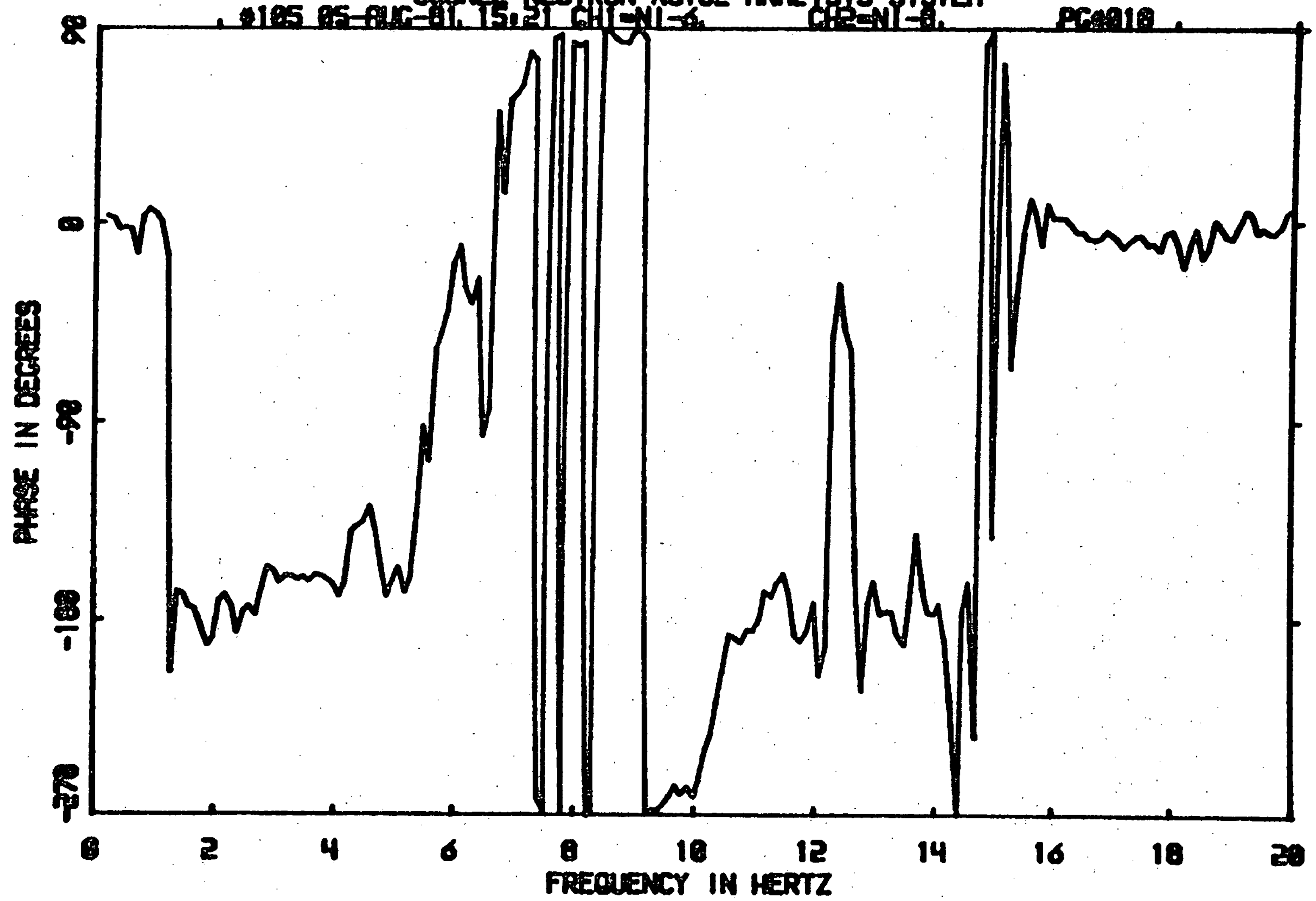
SPMOC 2



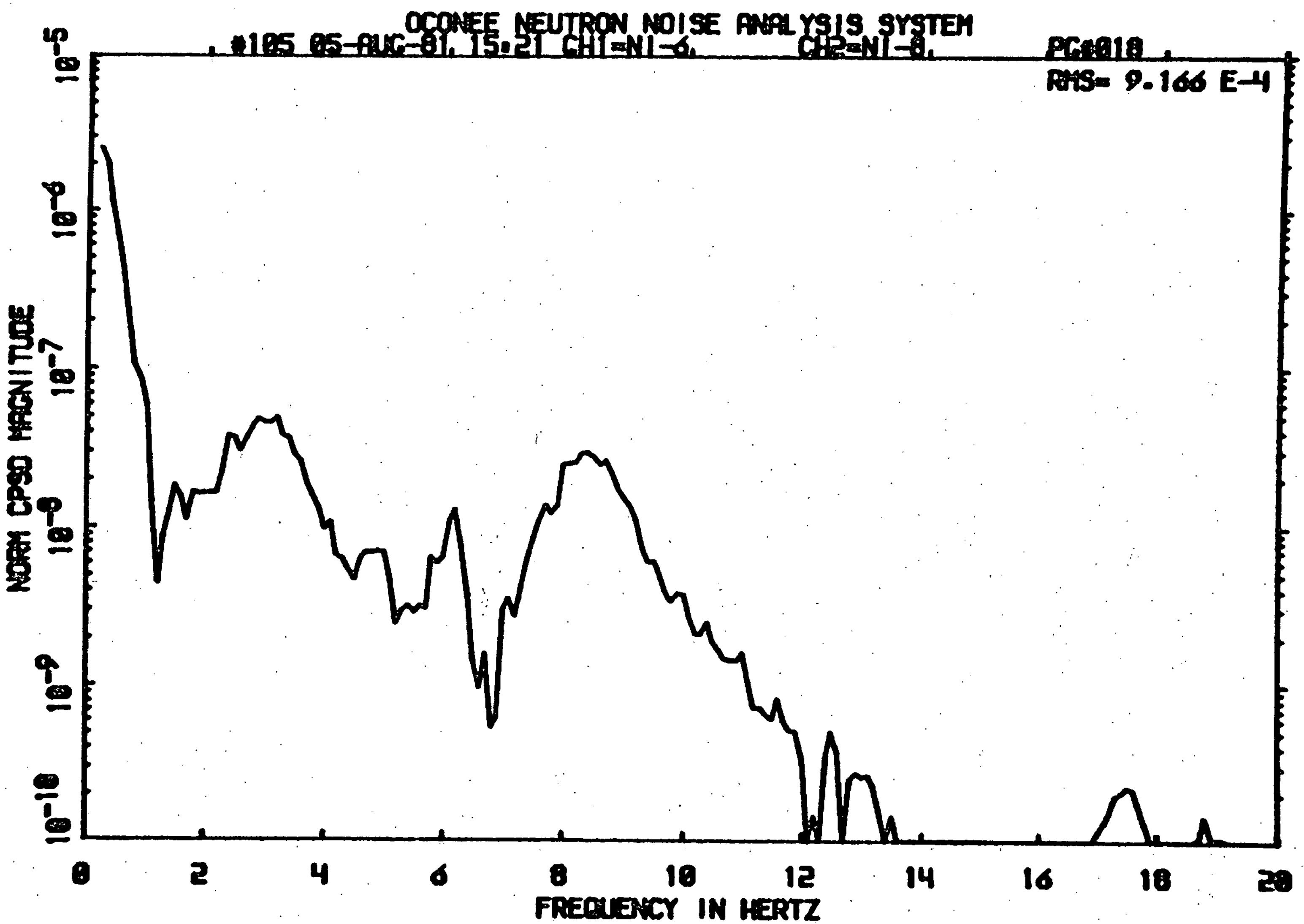
OCONEE NEUTRON NOISE ANALYSIS SYSTEM
#105 05-AUG-81, 15:21 CH1=NI-6, CH2=NI-8, PG#010
COHERENCE
0.0
0.2
0.4
0.6
0.8
1.0
0
2
4
6
8
10
12
14
16
18
20
FREQUENCY IN HERTZ

SP moc 2

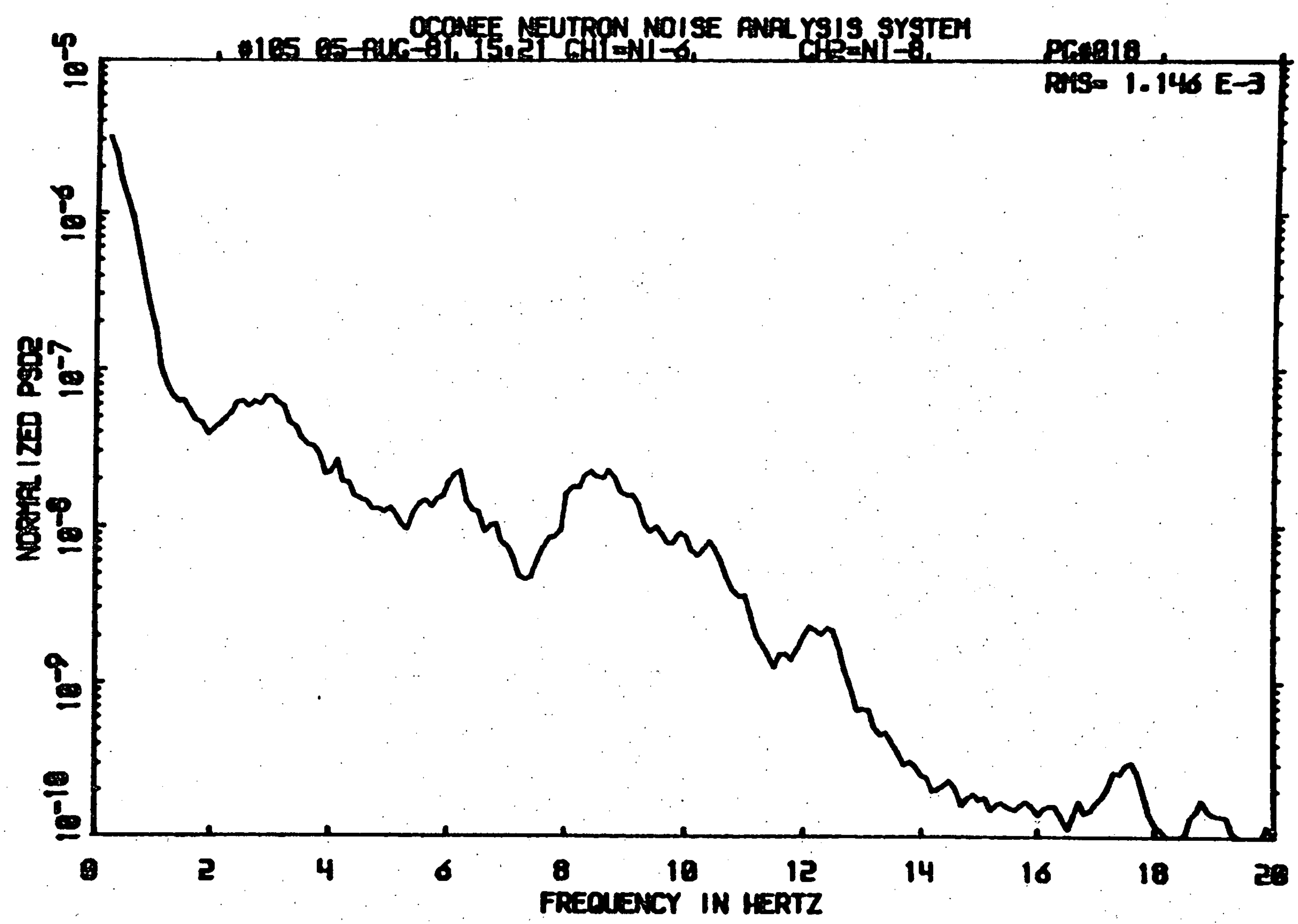
OCONEE NEUTRON NOISE ANALYSIS SYSTEM



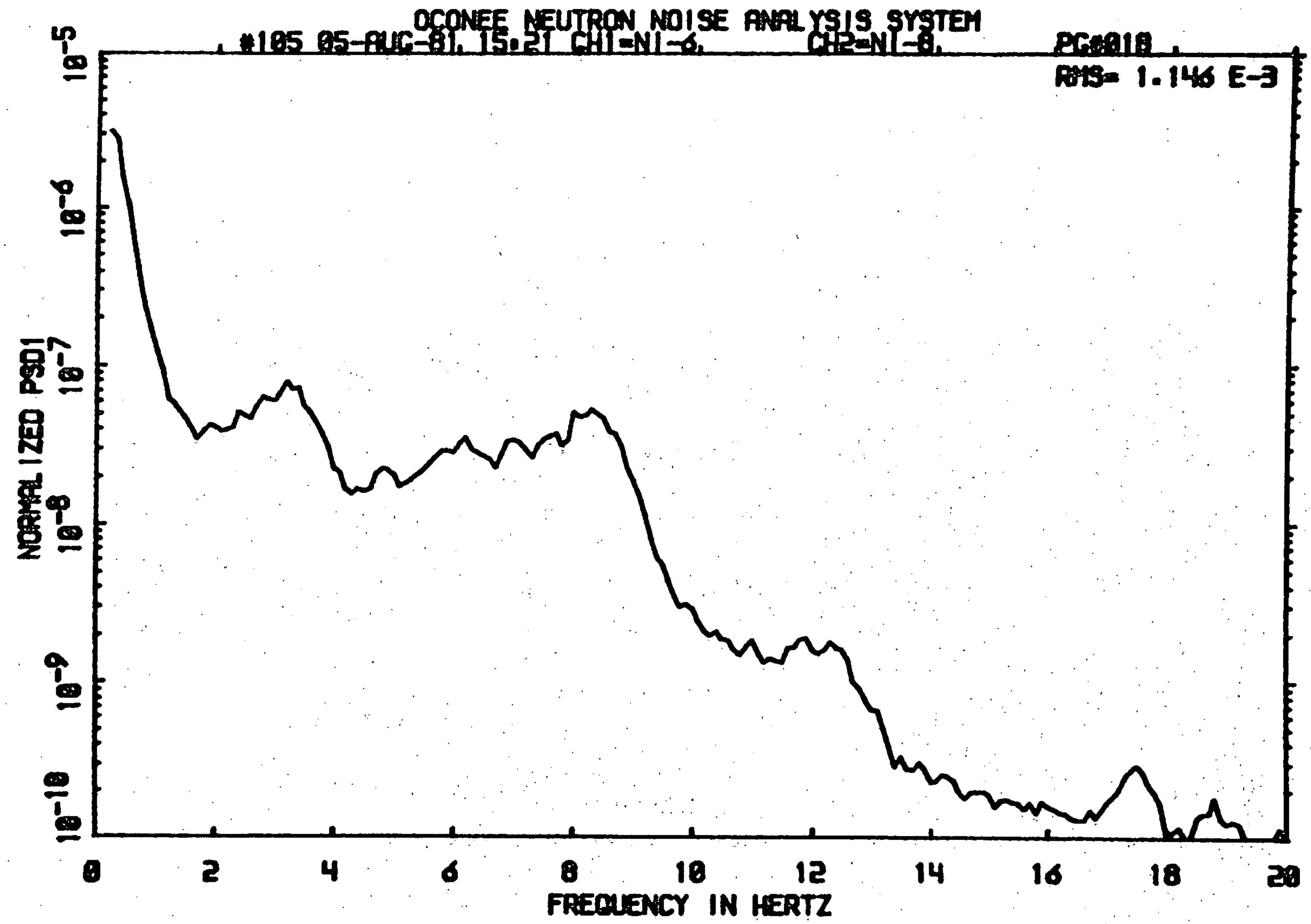
SPmac2


OCONEE NEUTRON NOISE ANALYSIS SYSTEM
#105 05-AUG-81, 15:21 CH1=NI-6, CH2=NI-8, PG#018
RMS= 9.166 E-4
NORM CPSD MAGNITUDE
10^{-10}
10^{-9}
10^{-8}
10^{-7}
10^{-6}
10^{-5}
0 2 4 6 8 10 12 14 16 18 20
FREQUENCY IN HERTZ

SP moc 2

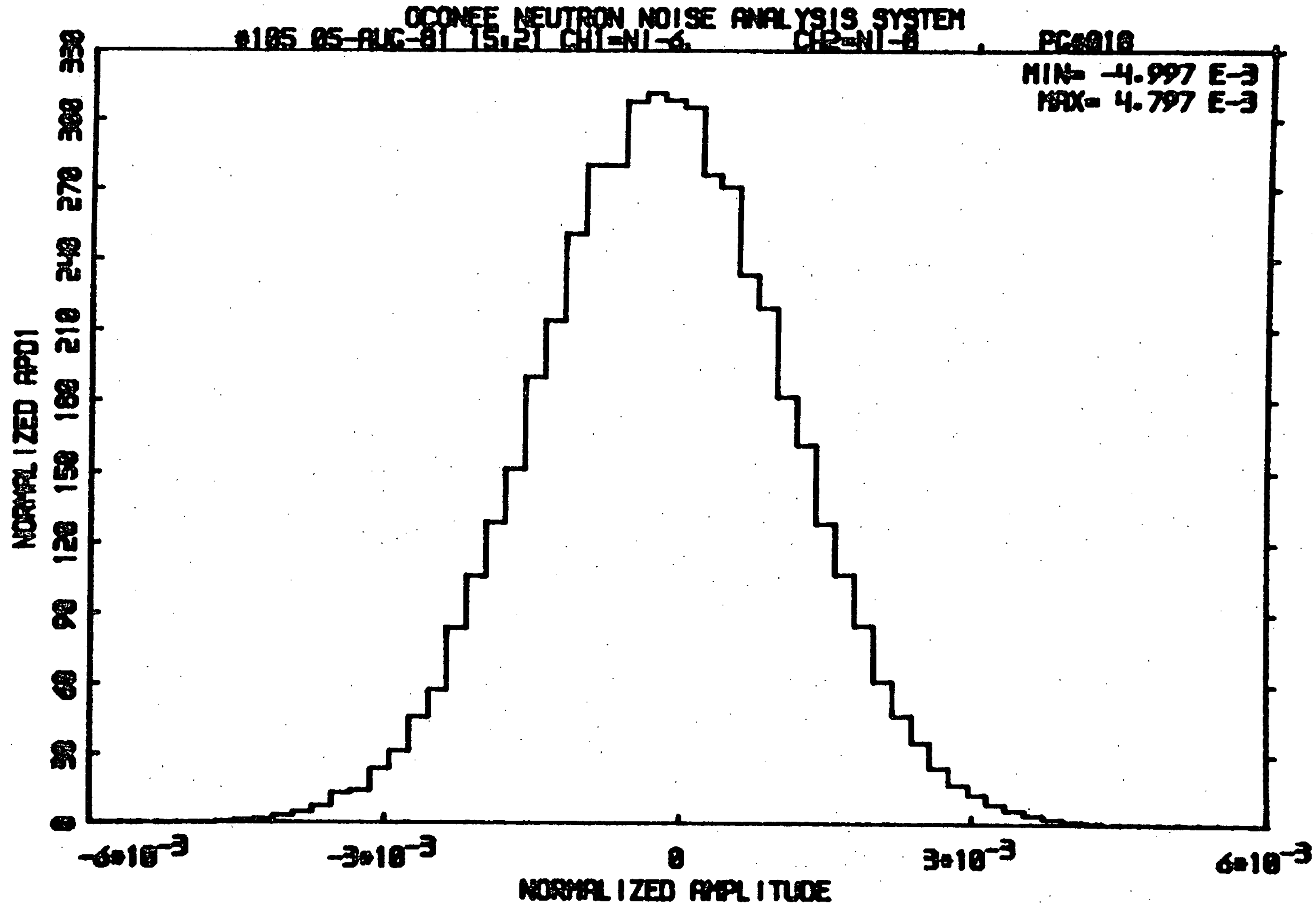

OCONEE NEUTRON NOISE ANALYSIS SYSTEM
#105 05-AUG-81, 15:21 CH1=NI-6, CH2=NI-8, PC#018
RMS= 1.146 E-3
NORMALIZED PSD2
10^-5
10^-6
10^-7
10^-8
10^-9
10^-10
0
2
4
6
8
10
12
14
16
18
20
FREQUENCY IN HERTZ

Sfmoc 2



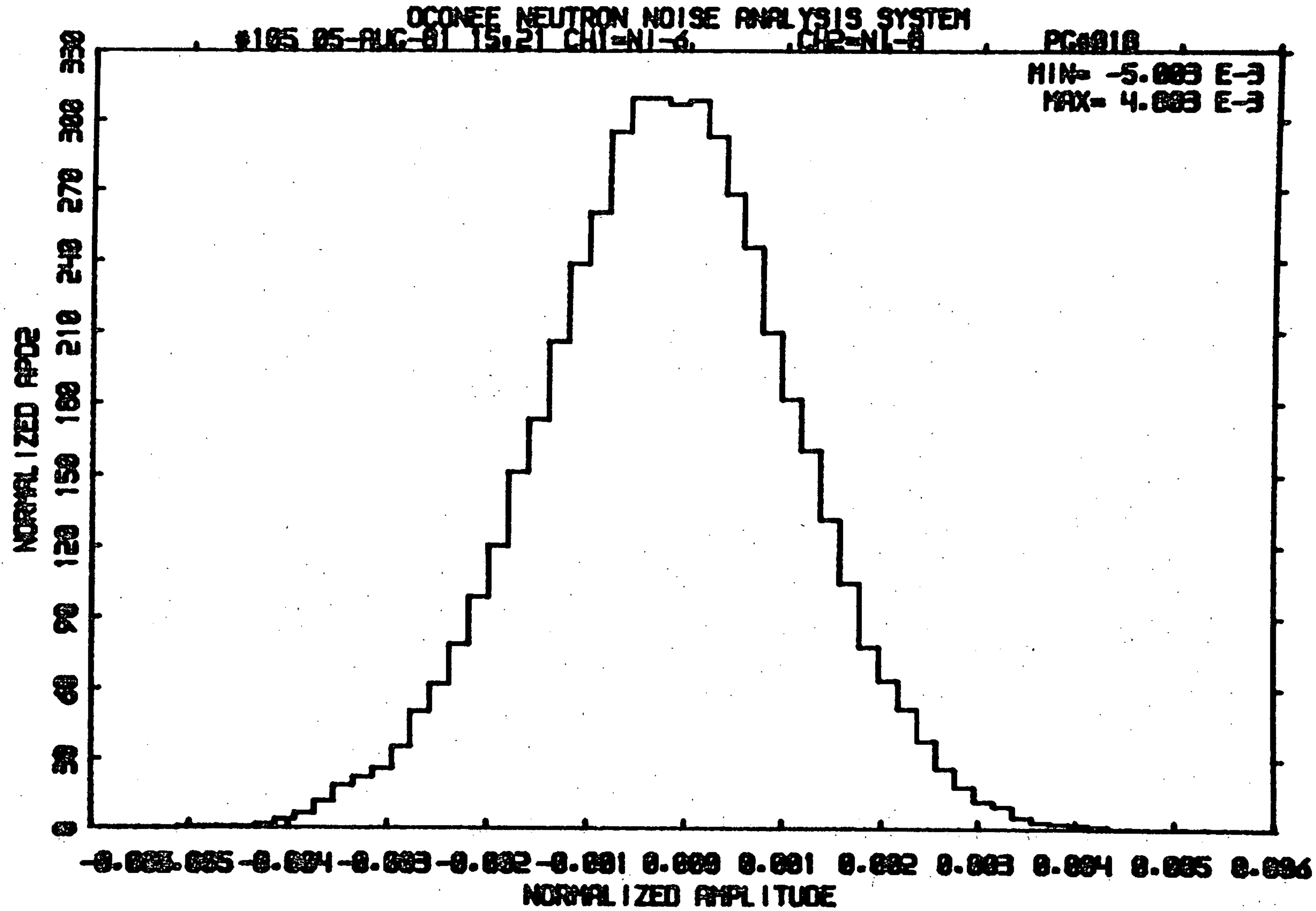
OCONEE NEUTRON NOISE ANALYSIS SYSTEM
#105 05-AUG-81, 15:21 CH1=NI-6, CH2=NI-8, PG#018
RMS= 1.146 E-3
NORMALIZED PSD1
10^-10
10^-9
10^-8
10^-7
10^-6
10^-5
0
2
4
6
8
10
12
14
16
18
20
FREQUENCY IN HERTZ

SPMOC2

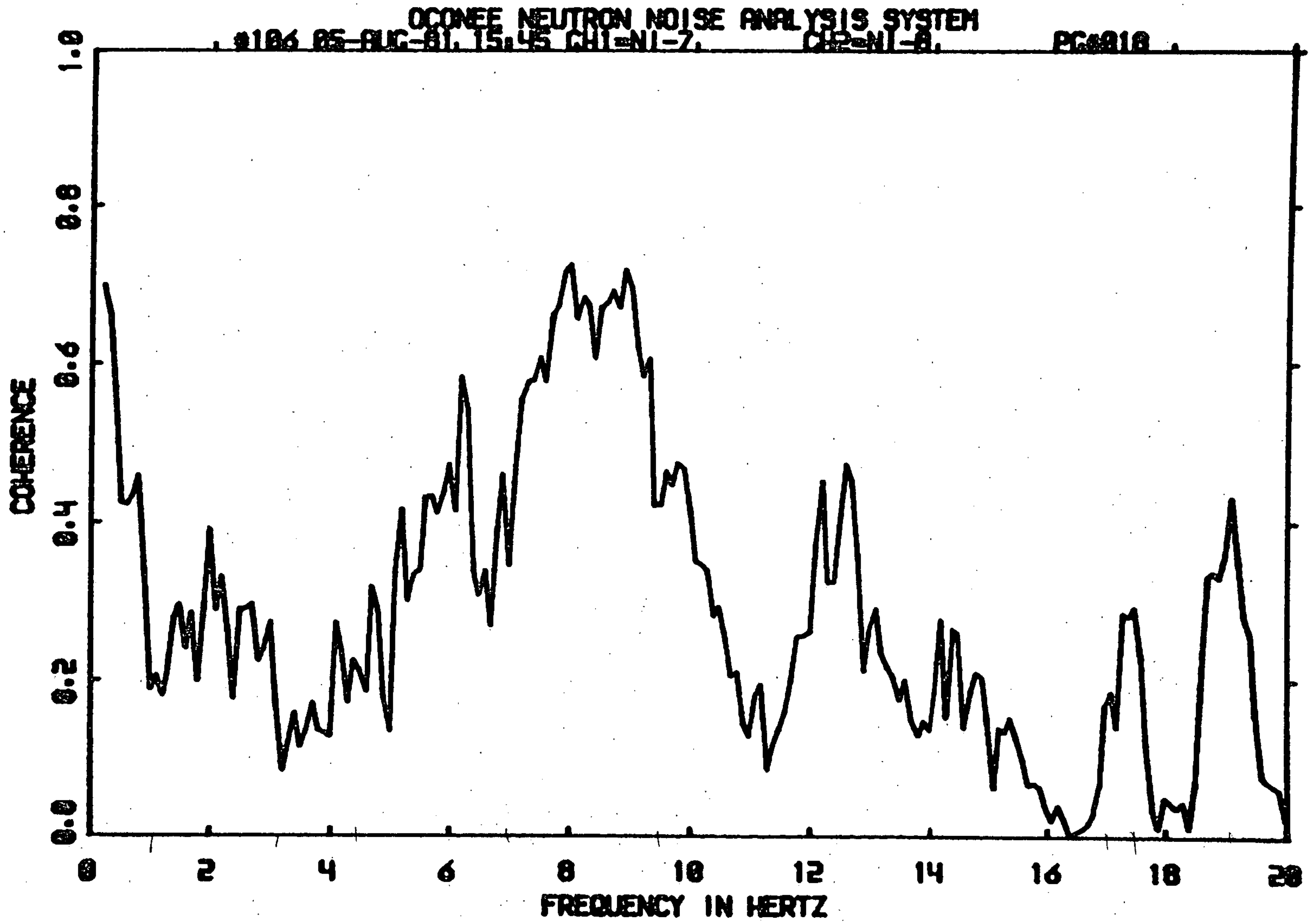


OCONEE NEUTRON NOISE ANALYSIS SYSTEM
#105 05-AUG-81 15:21 CH1=NI-6, CH2=NI-8 , PC#010
MIN= -4.997 E-3
MAX= 4.797 E-3
NORMALIZED APD1
0
30
60
90
120
150
180
210
240
270
300
330
-6*10^-3
-3*10^-3
0
3*10^-3
6*10^-3
NORMALIZED AMPLITUDE

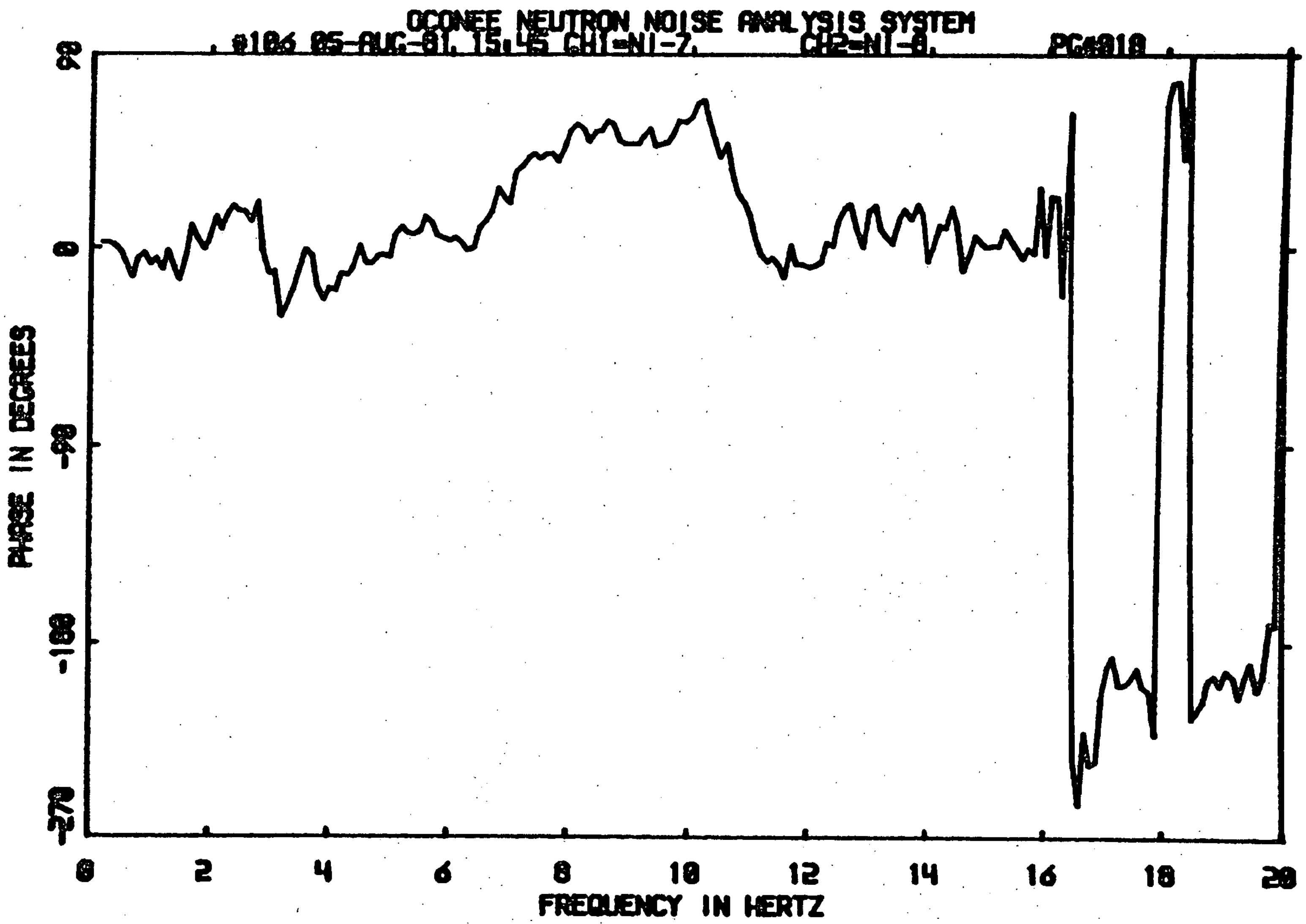
SPMOC2


OCONEE NEUTRON NOISE ANALYSIS SYSTEM
#105 05-AUG-81 15:21 CH1=NI-6, CH2=NI-8
PG#018
MIN= -5.003 E-3
MAX= 4.003 E-3
NORMALIZED APD2
0 30 60 90 120 150 180 210 240 270 300 330
-0.006 -0.005 -0.004 -0.003 -0.002 -0.001 0.000 0.001 0.002 0.003 0.004 0.005 0.006
NORMALIZED AMPLITUDE

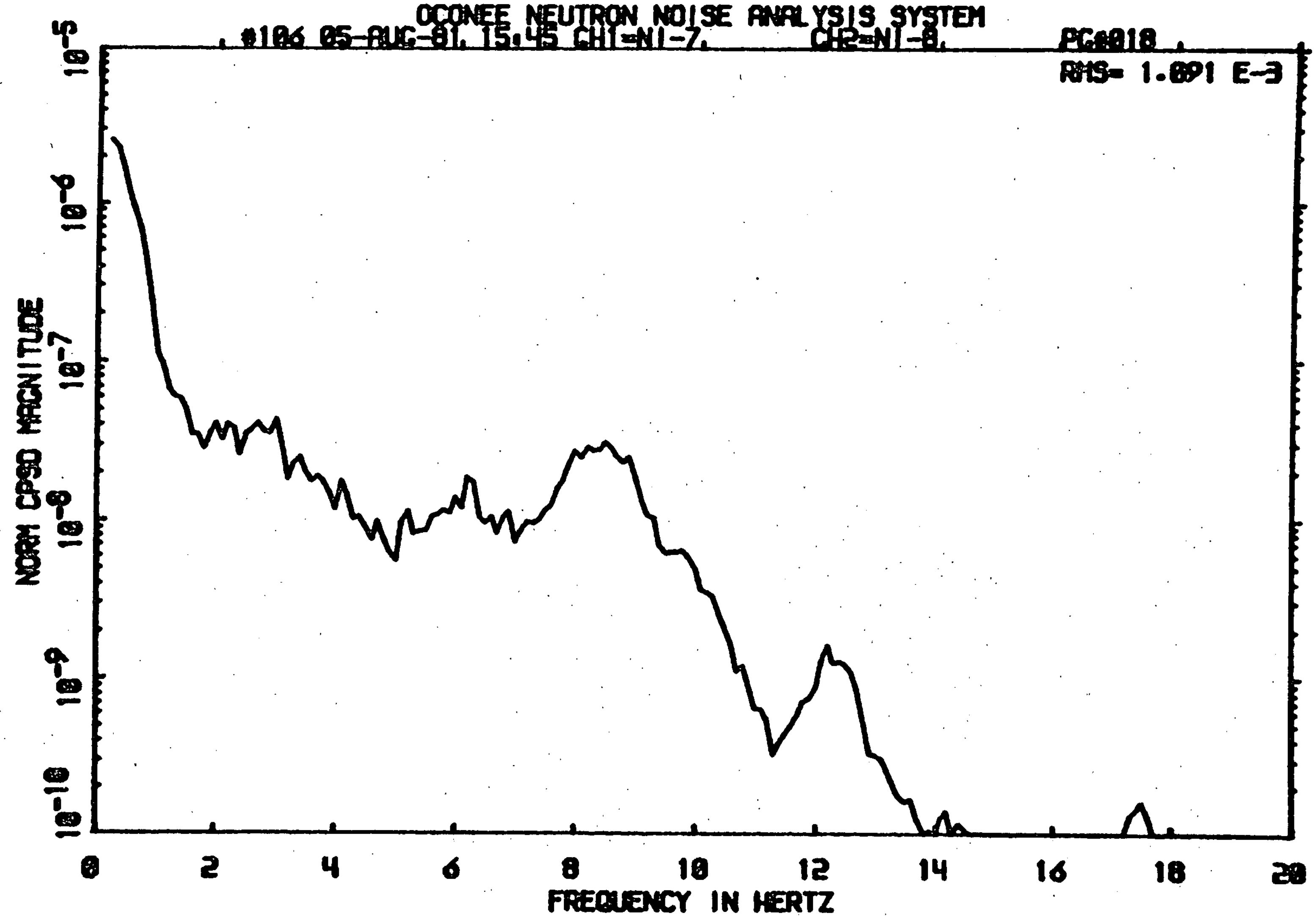
SPMOC-2


OCONEE NEUTRON NOISE ANALYSIS SYSTEM
#106 05-AUG-81, 15:45 CH1=NI-7, CH2=NI-8, PG#010
COHERENCE
0.0
0.2
0.4
0.6
0.8
1.0
0
2
4
6
8
10
12
14
16
18
20
FREQUENCY IN HERTZ

SPMOC-2

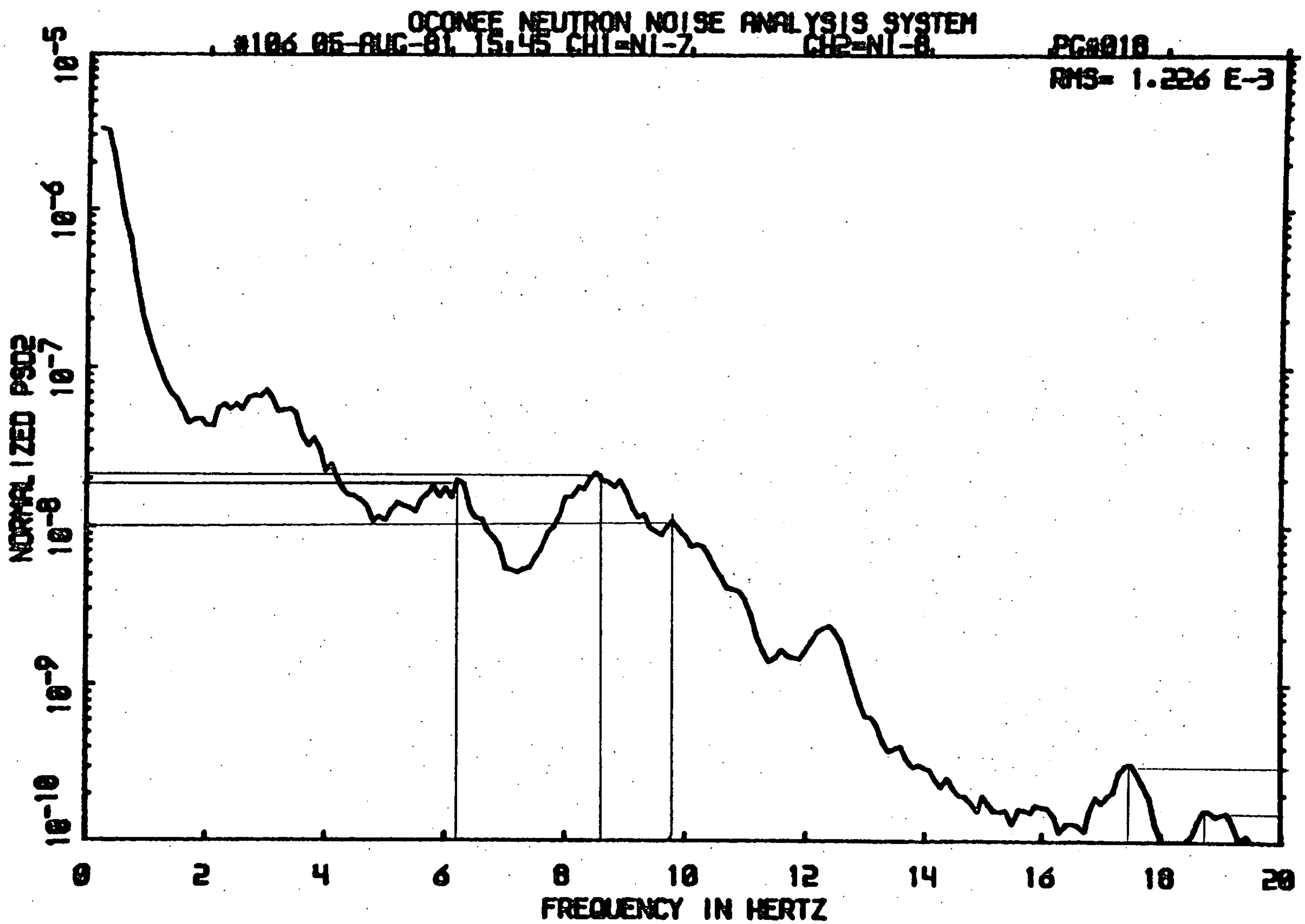

OCONEE NEUTRON NOISE ANALYSIS SYSTEM
#106 05-AUG-81, 15:45 CH1=NI-7, CH2=NI-8, PG#010
PHASE IN DEGREES
90
0
-90
-180
-270
0
2
4
6
8
10
12
14
16
18
20
FREQUENCY IN HERTZ

SPMOC-2

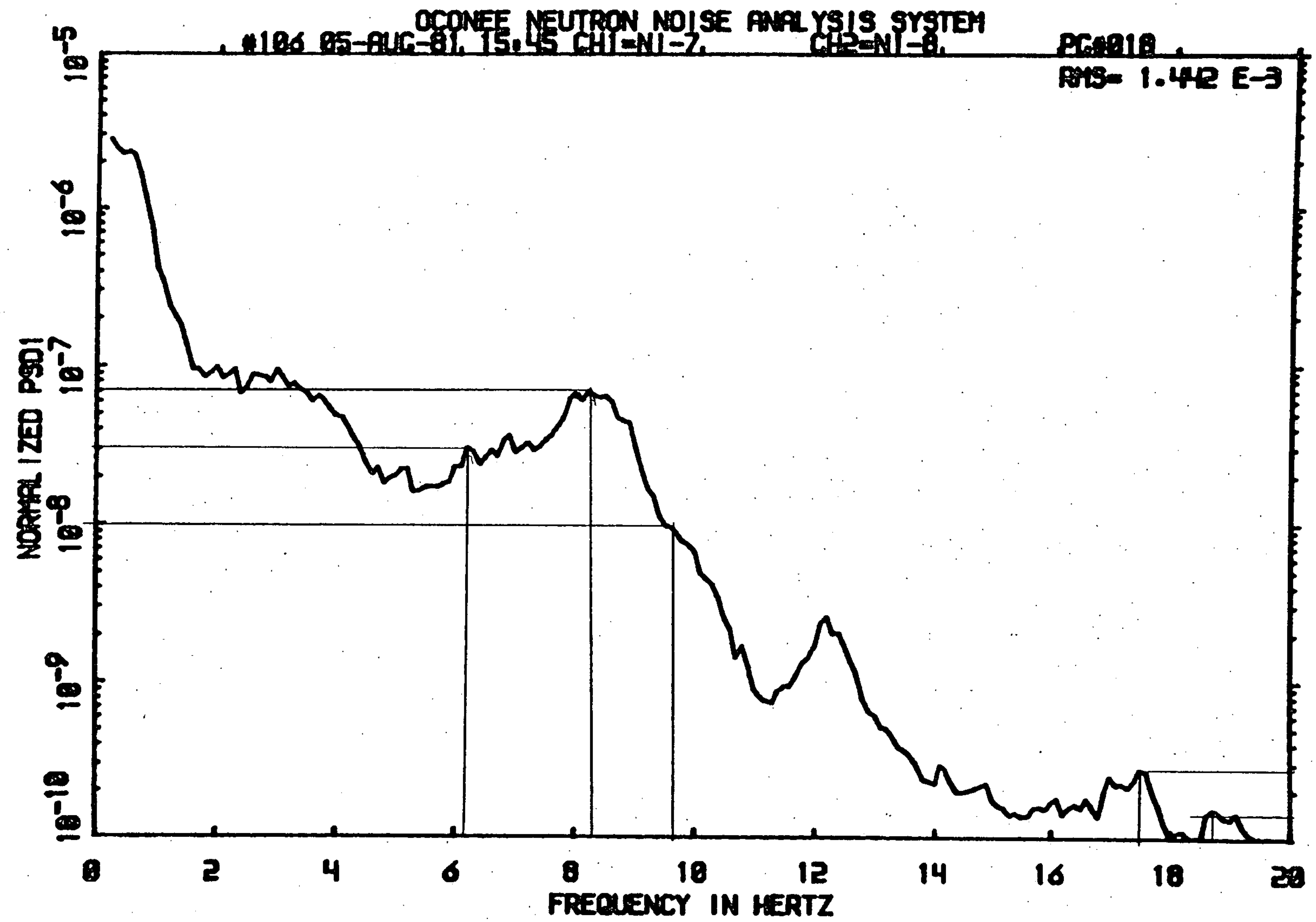


OCONEE NEUTRON NOISE ANALYSIS SYSTEM
#106 05-AUG-81, 15:45 CH1=NI-7, CH2=NI-8, PG#018
RMS= 1.091 E-3
NORM CPSD MAGNITUDE
10^-5
10^-6
10^-7
10^-8
10^-9
10^-10
0
2
4
6
8
10
12
14
16
18
20
FREQUENCY IN HERTZ

SP MCC-2

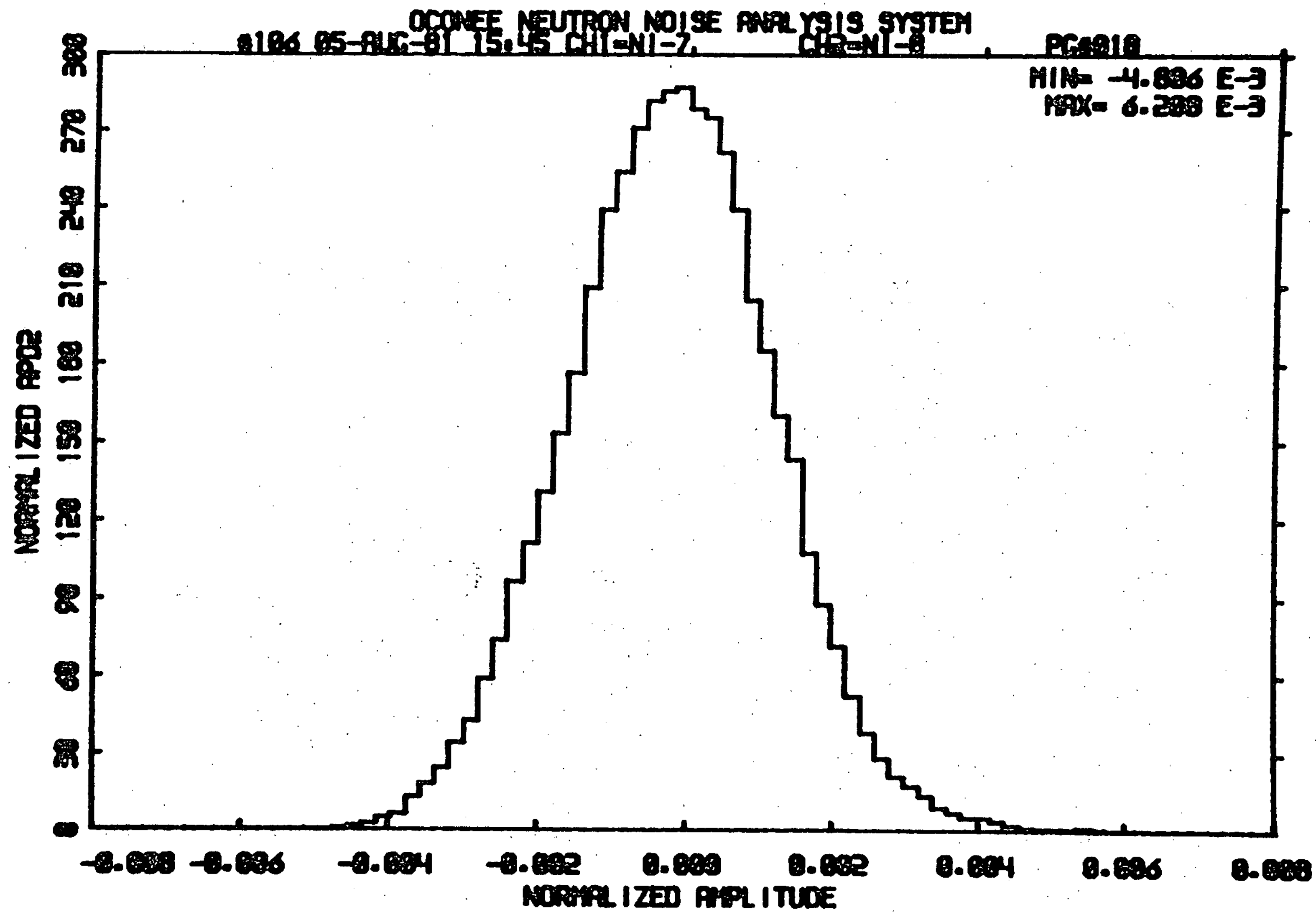

OCONEE NEUTRON NOISE ANALYSIS SYSTEM
#106 05-AUG-81 15:45 CH1=NI-7, CH2=NI-8,
PG#018
RMS= 1.226 E-3
NORMALIZED PSD2
10^-5
10^-6
10^-7
10^-8
10^-9
10^-10
0
2
4
6
8
10
12
14
16
18
20
FREQUENCY IN HERTZ

SP MOC-2



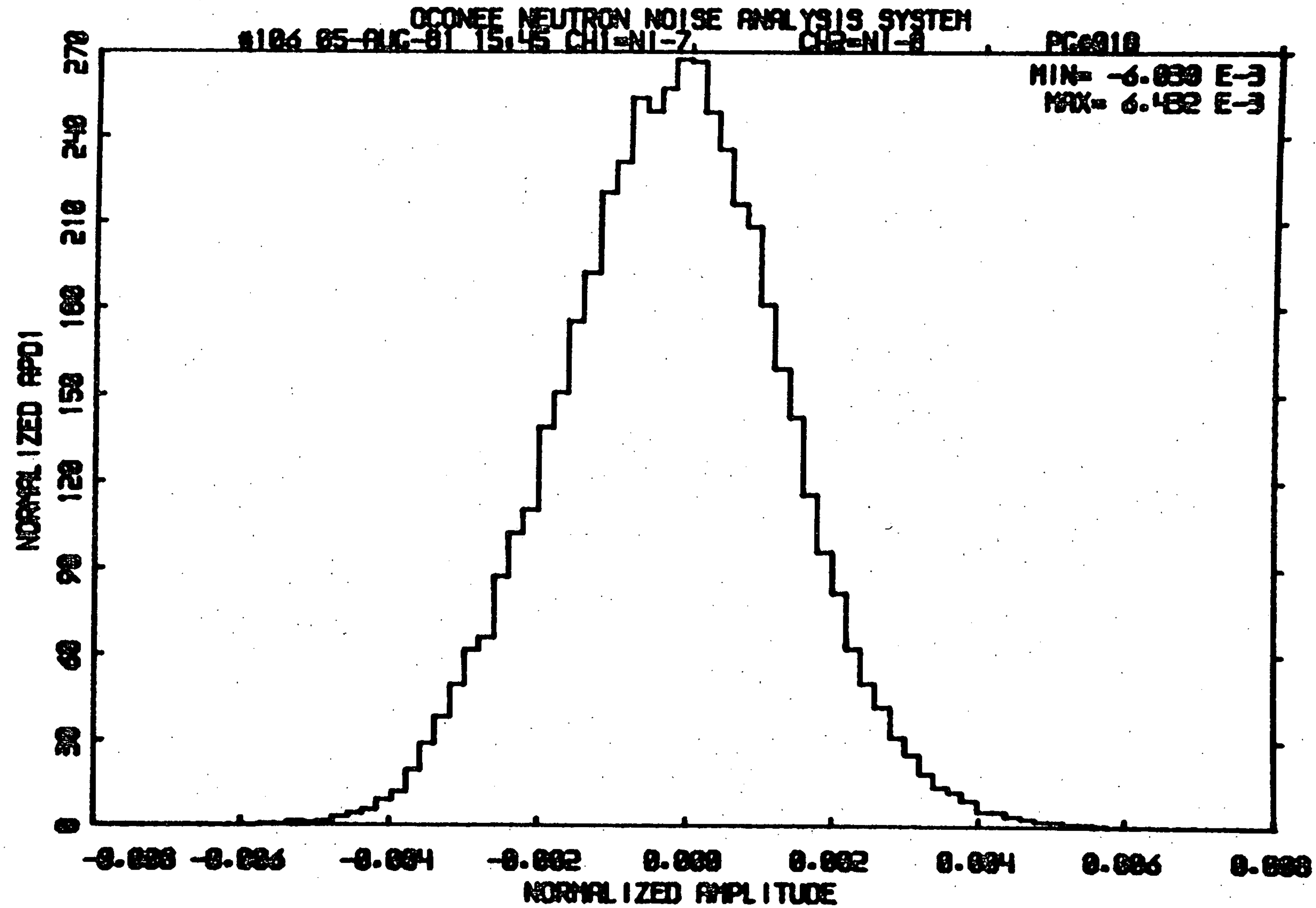
OCONEE NEUTRON NOISE ANALYSIS SYSTEM
#106 05-AUG-81, 15:45 CH1=NI-7, CH2=NI-8, PC#018
RMS= 1.442 E-3
NORMALIZED PSD1
10^-5
10^-6
10^-7
10^-8
10^-9
10^-10
0
2
4
6
8
10
12
14
16
18
20
FREQUENCY IN HERTZ

SR MOC-2



OCONEE NEUTRON NOISE ANALYSIS SYSTEM
#106 05-AUG-81 15:45 CH1=NI-7, CH2=NI-8
PG#010
MIN= -4.806 E-3
MAX= 6.200 E-3
NORMALIZED APD2
0
30
60
90
120
150
180
210
240
270
300
-0.008
-0.006
-0.004
-0.002
0.000
0.002
0.004
0.006
0.008
NORMALIZED AMPLITUDE

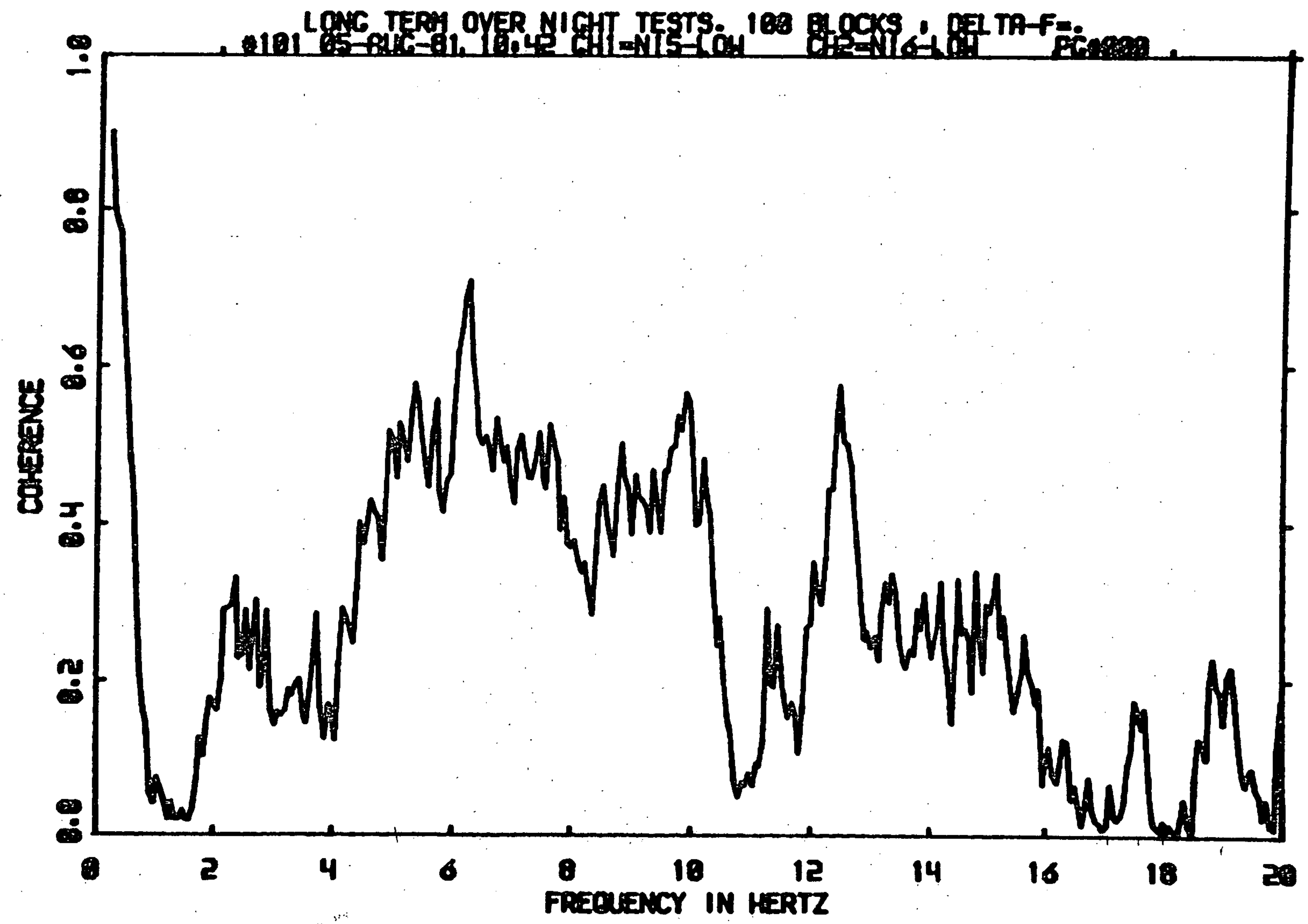
SP Moc -2

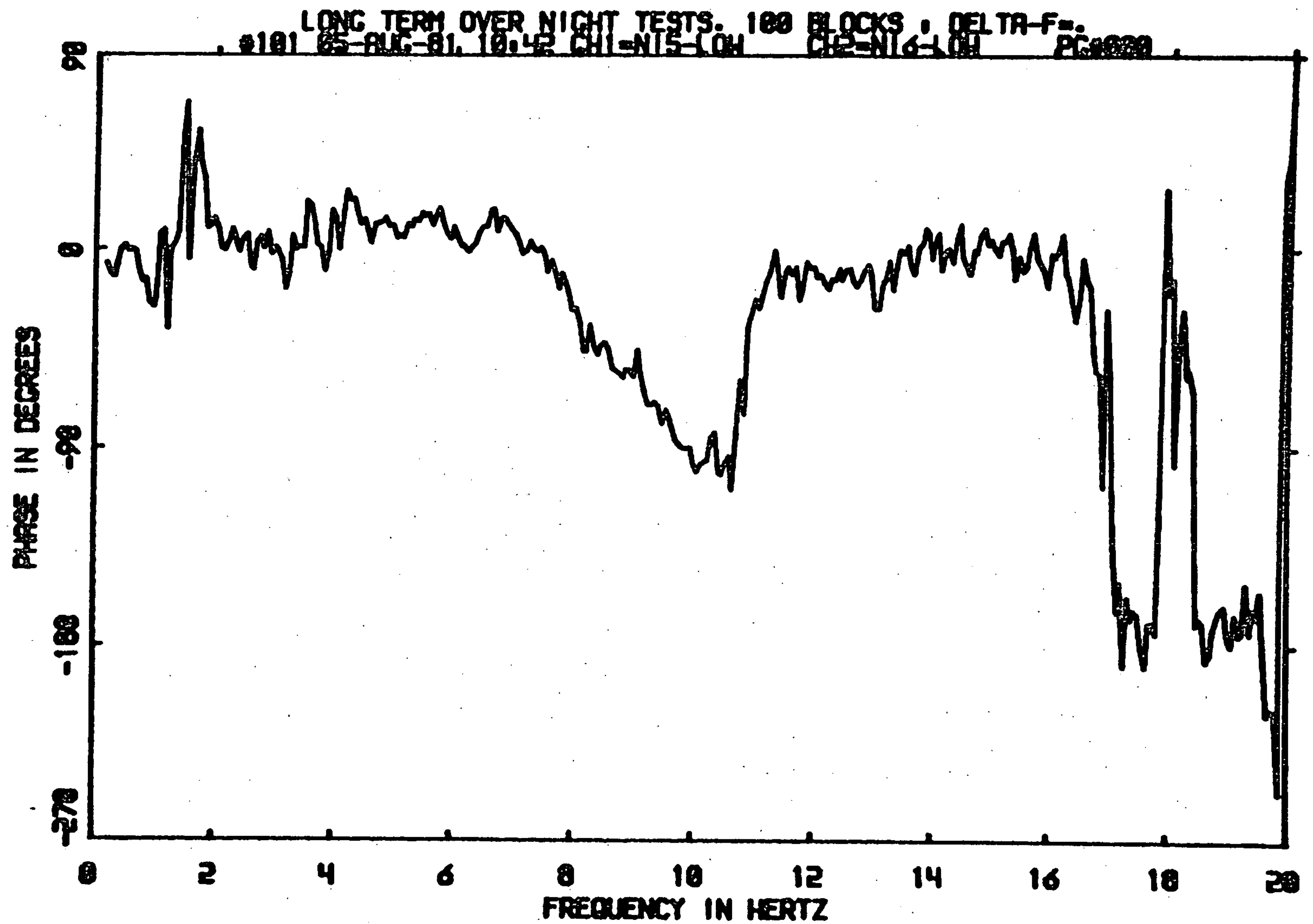

OCONEE NEUTRON NOISE ANALYSIS SYSTEM
#106 05-AUG-81 15:45 CH1=NI-7, CH2=NI-8
PG#010
MIN= -6.030 E-3
MAX= 6.482 E-3
NORMALIZED APD1
0
30
60
90
120
150
180
210
240
270
-0.008
-0.006
-0.004
-0.002
0.000
0.002
0.004
0.006
0.008
NORMALIZED AMPLITUDE

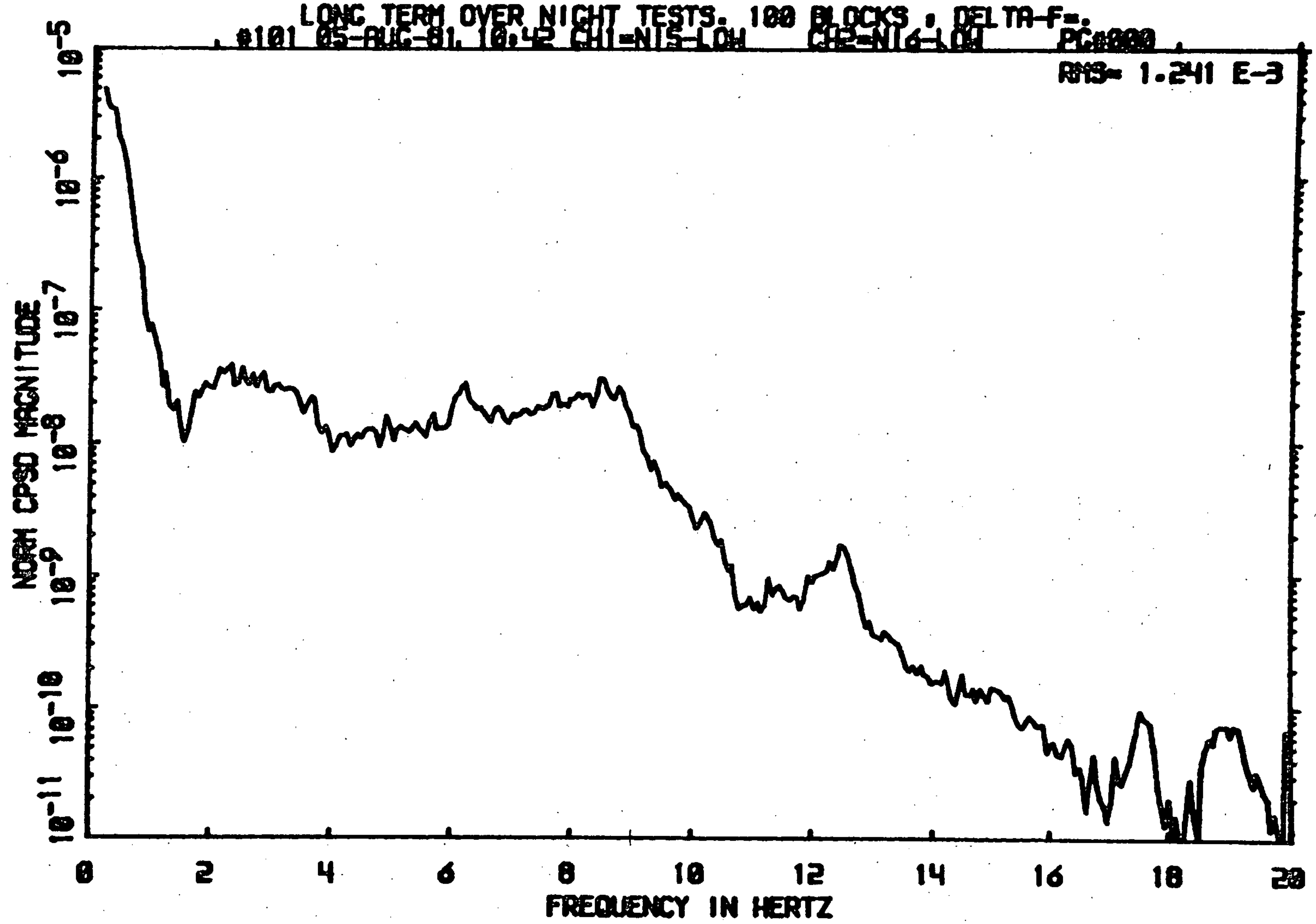
CONTENTS

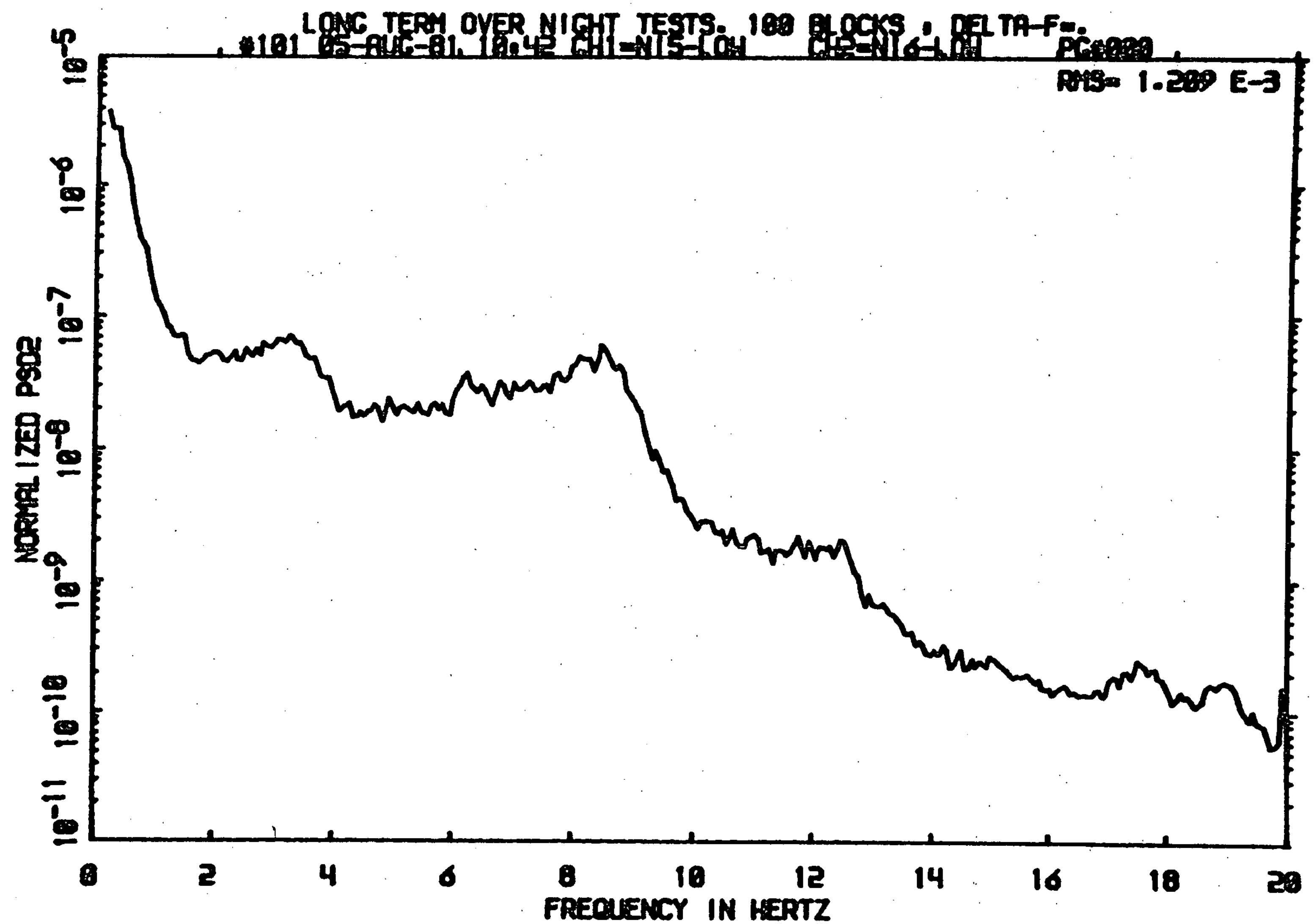
Neutron noise data for MOC 5 Unit 2; taken August 5-6, 1981 in plant by TEC

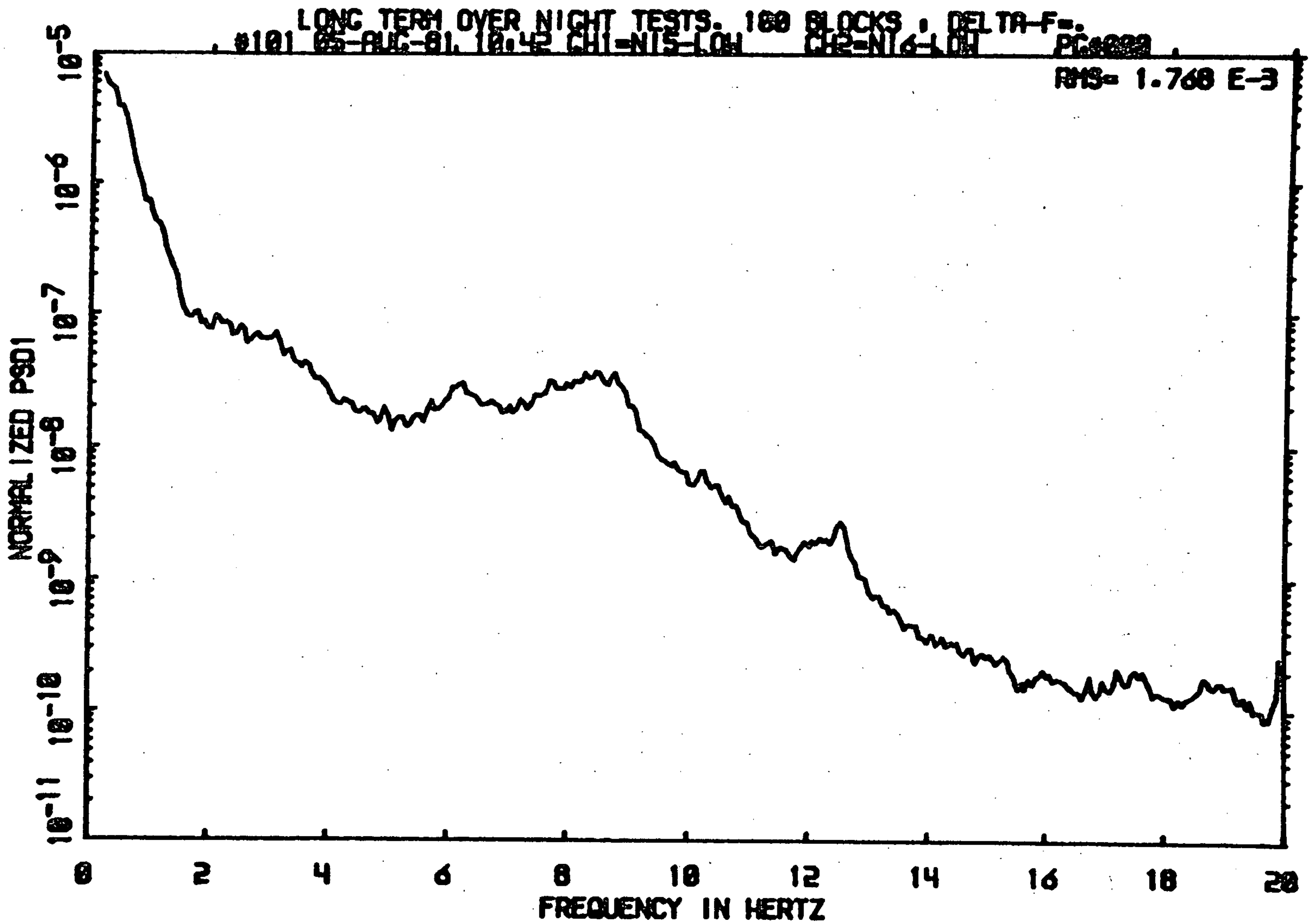
TEST#	DETECTOR PAIRS
101	NI-5 lower x NI-6 lower
102	NI-5 lower x NI-7 lower
103	NI-5 lower x NI-8 lower
104	NI-6 lower x NI-7 lower
105	NI-6 lower x NI-8 lower
106	NI-7 lower x NI-8 lower
107	NI-5 upper x NI-7 upper
108	NI-6 upper x NI-8 upper
109	NI-6 upper x NI-7 upper


LONG TERM OVER NIGHT TESTS. 100 BLOCKS , DELTA-F=.
#101 05-AUG-81, 10:42 CH1=N15-LOW CH2=N16-LOW PG#000
COHERENCE
0.0
0.2
0.4
0.6
0.8
1.0
0
2
4
6
8
10
12
14
16
18
20
FREQUENCY IN HERTZ

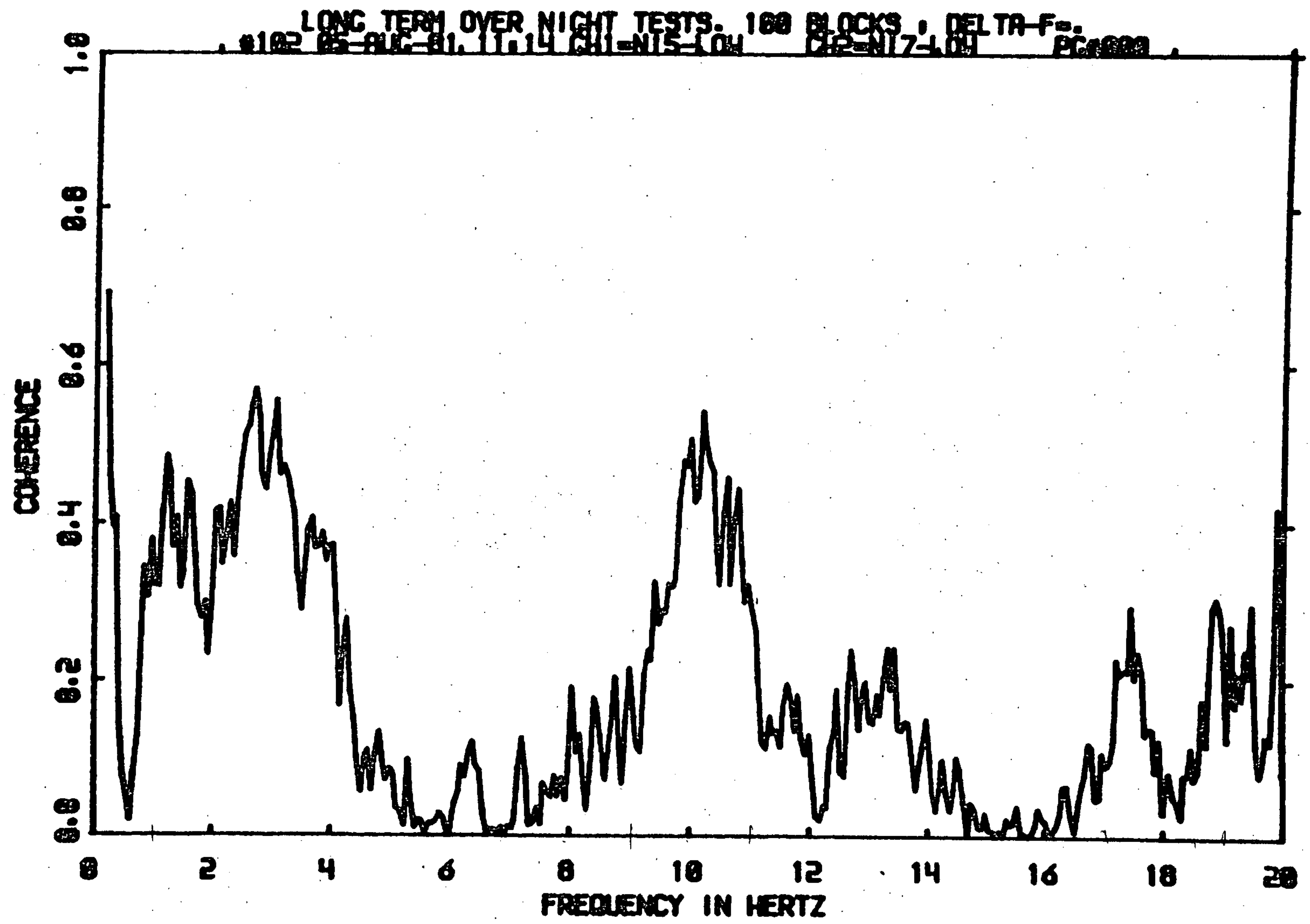

LONG TERM OVER NIGHT TESTS. 100 BLOCKS , DELTA-F=.
#101 05-AUG-81, 10.42 CH1=N15-LOW CH2=N16-LOW PC#000
PHASE IN DEGREES
90
0
-90
-180
-270
0
2
4
6
8
10
12
14
16
18
20
FREQUENCY IN HERTZ


LONG TERM OVER NIGHT TESTS. 100 BLOCKS , DELTA-F=.
#101 05-AUG-81, 10:42 CH1=N15-LOW CH2=N16-LOW PC#000
RMS= 1.241 E-3
NORM CPSD MAGNITUDE
10^-5
10^-6
10^-7
10^-8
10^-9
10^-10
10^-11
0
2
4
6
8
10
12
14
16
18
20
FREQUENCY IN HERTZ

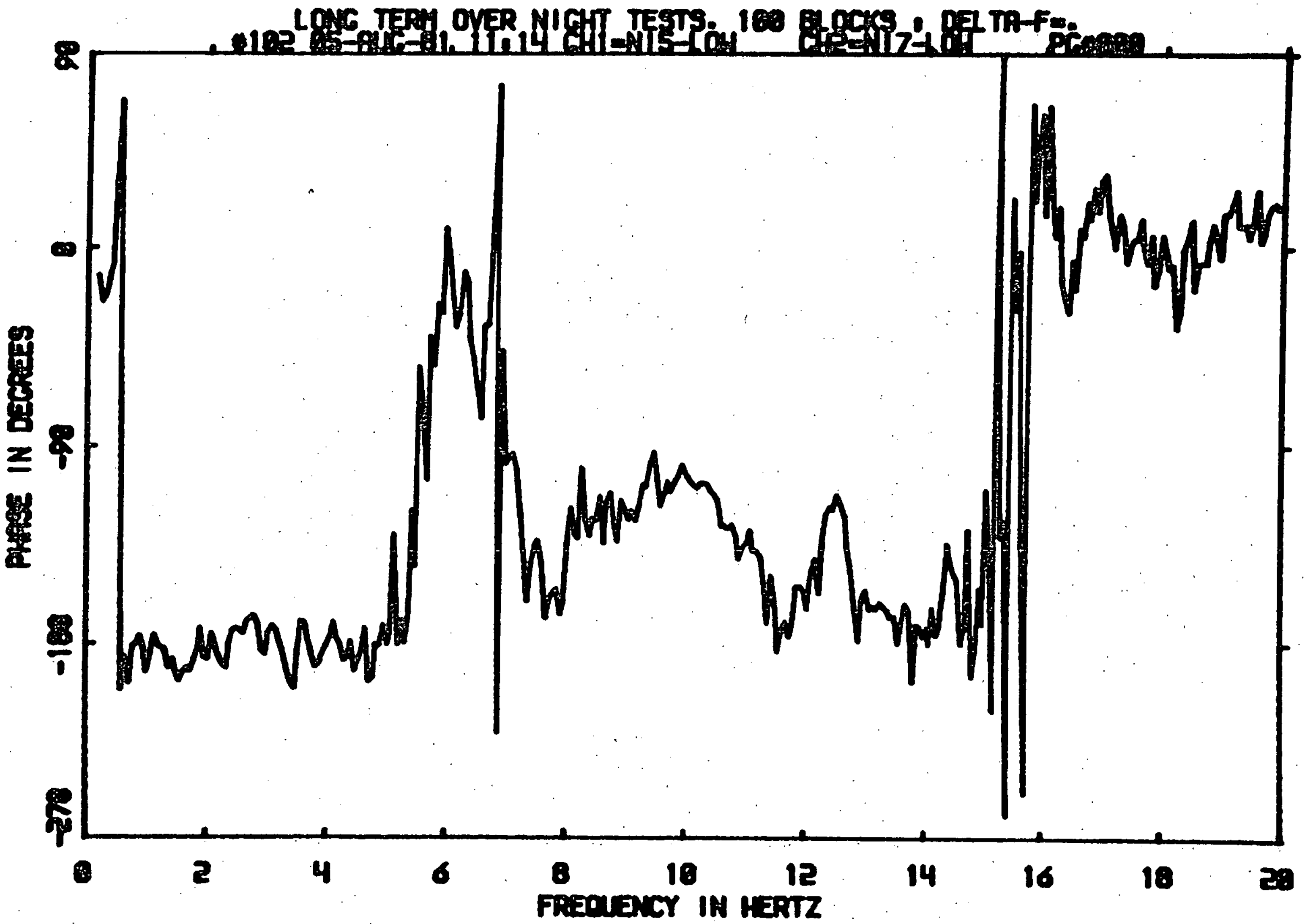

LONG TERM OVER NIGHT TESTS. 100 BLOCKS ; DELTA-F=.
#101 05-AUG-81. 10:42 CH1=N15-LOW CH2=N16-LOW PC=000
RMS= 1.209 E-3
NORMALIZED PSD2
10^-5
10^-6
10^-7
10^-8
10^-9
10^-10
10^-11
0
2
4
6
8
10
12
14
16
18
20
FREQUENCY IN HERTZ

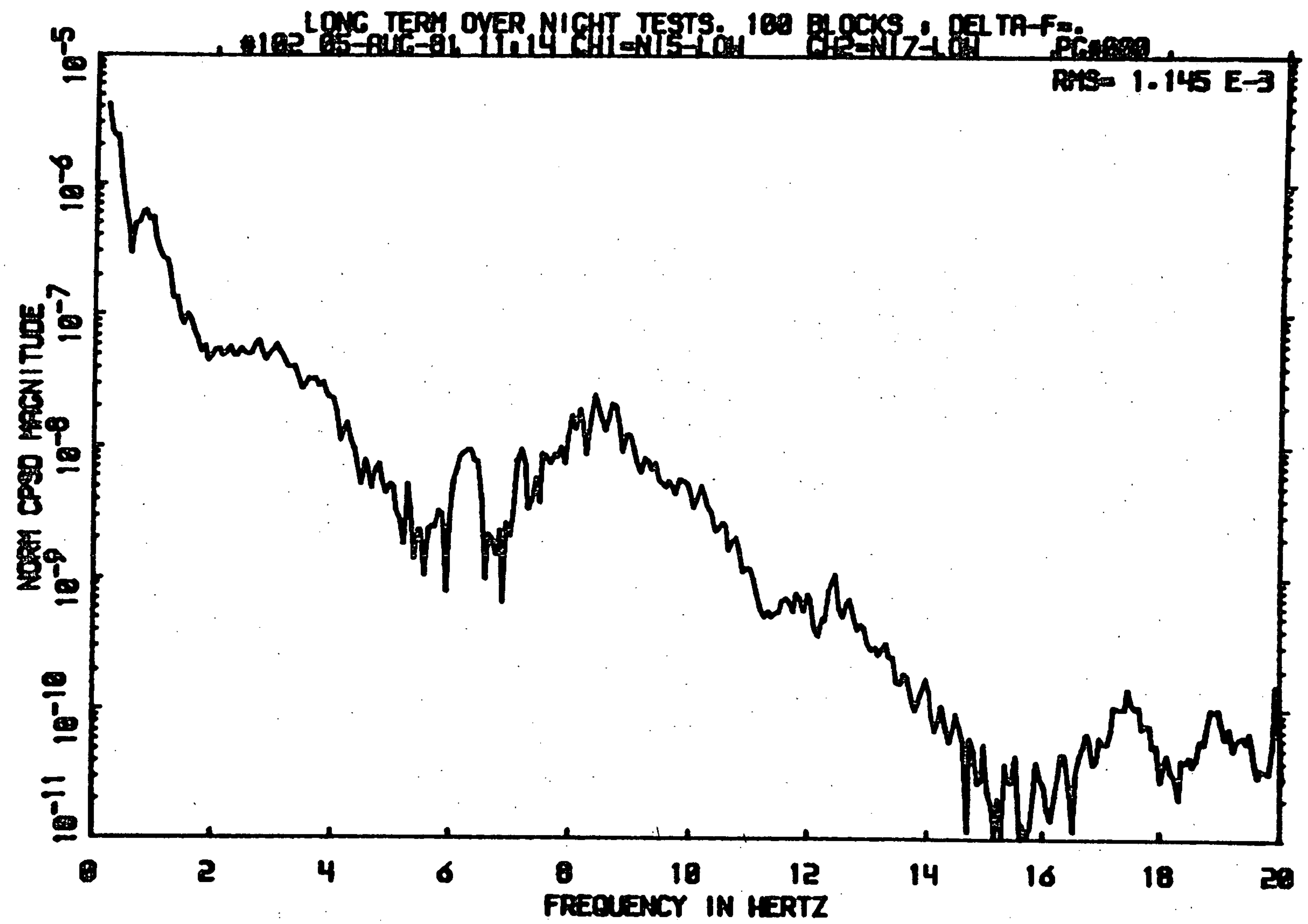


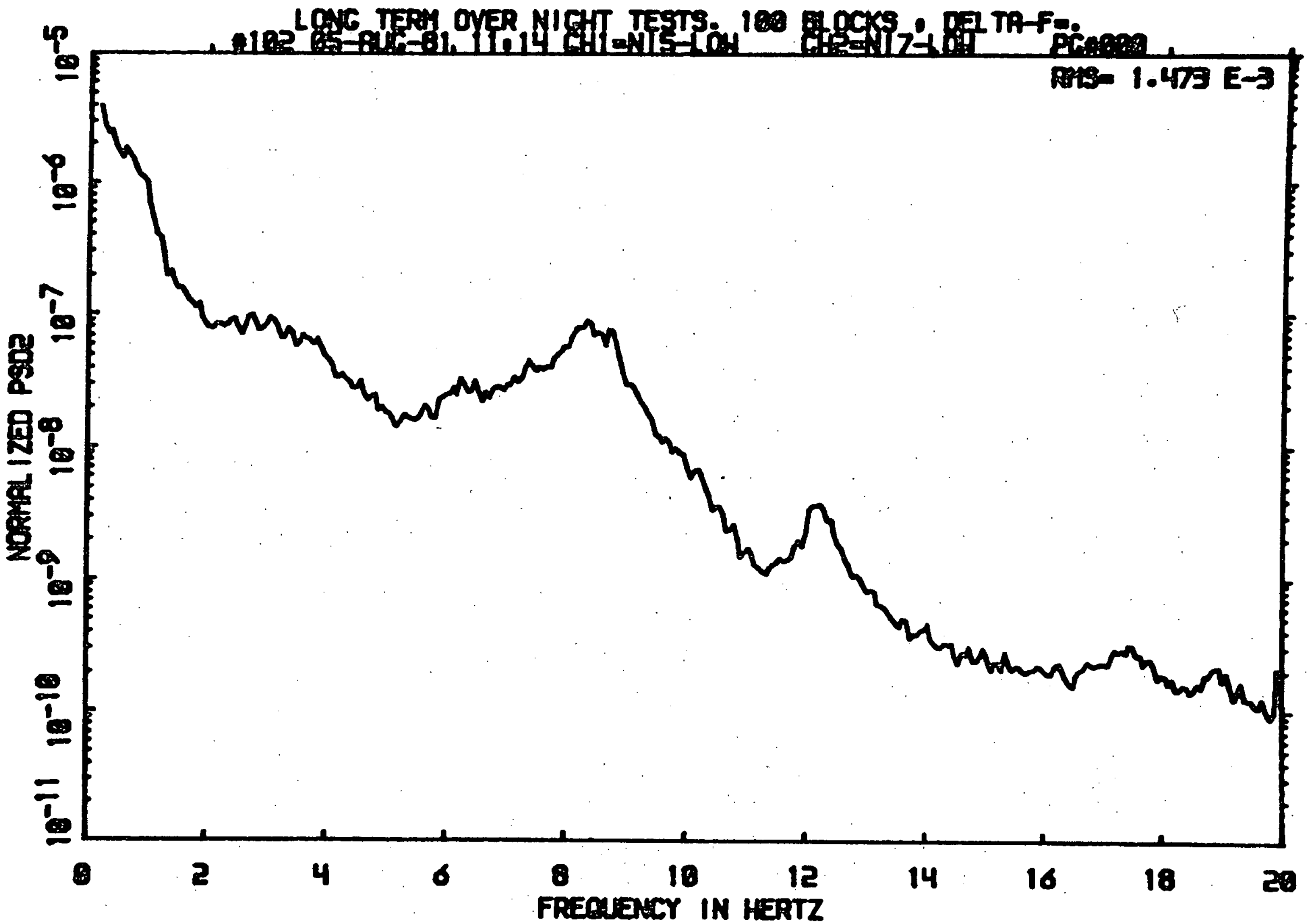
LONG TERM OVER NIGHT TESTS. 100 BLOCKS , DELTA-F=.
#101 05-AUG-81, 10:42 CH1=N15-LOW CH2=N16-LOW
RMS= 1.768 E-3
NORMALIZED PSD1
10^-5
10^-6
10^-7
10^-8
10^-9
10^-10
10^-11
0
2
4
6
8
10
12
14
16
18
20
FREQUENCY IN HERTZ



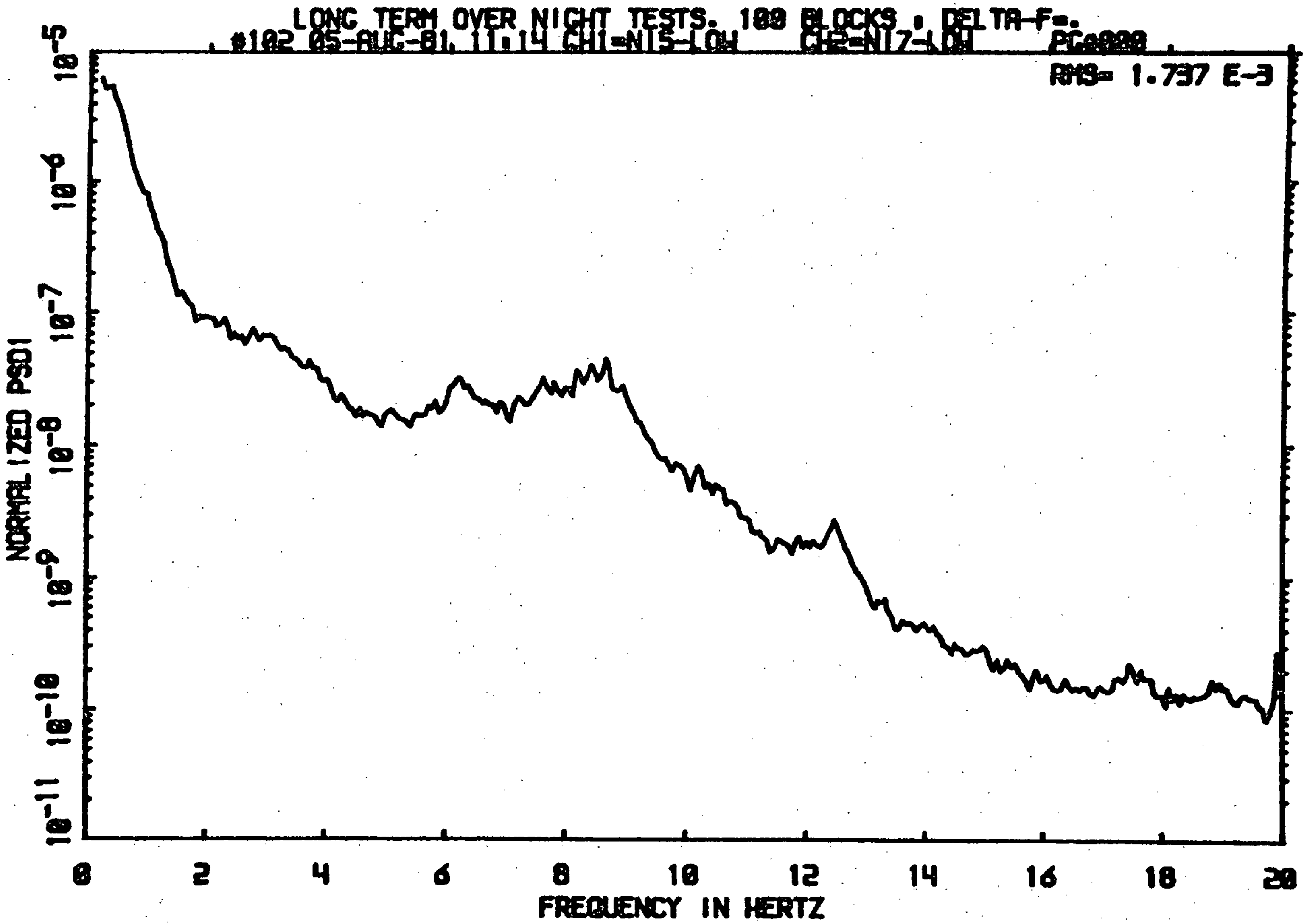
LONG TERM OVER NIGHT TESTS. 100 BLOCKS , DELTA-F=.
#102 05-AUG-81, 11:14 CH1=N15-LOW CH2=N17-LOW
COHERENCE
0.0
0.2
0.4
0.6
0.8
1.0
0
2
4
6
8
10
12
14
16
18
20
FREQUENCY IN HERTZ

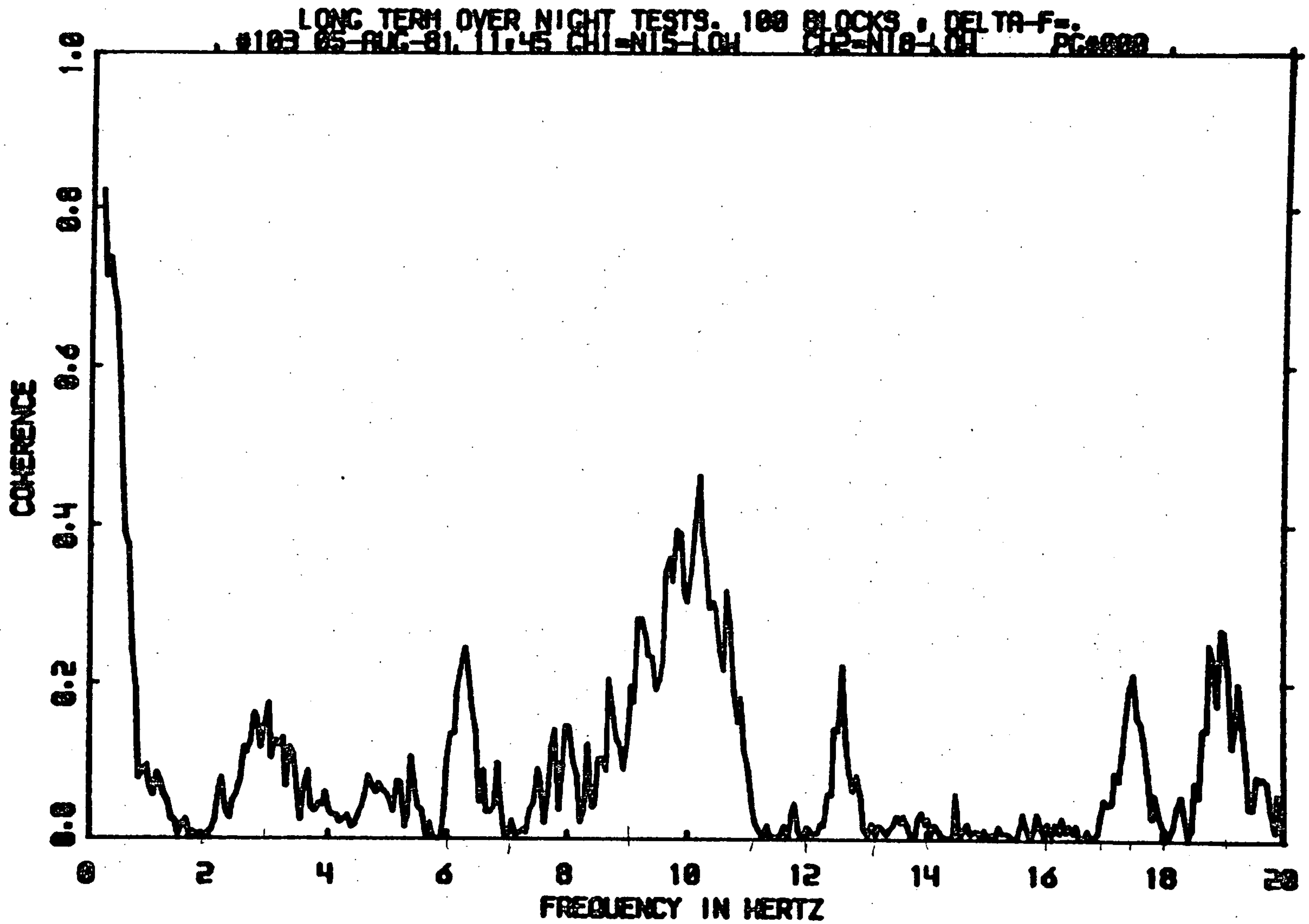

LONG TERM OVER NIGHT TESTS. 100 BLOCKS ; DELTA-F=.
, #102 05-AUG-81, 11:14 CH1=N15-LOW CH2=N17-LOW PC=000
PHASE IN DEGREES
90
0
-90
-180
-270
0
2
4
6
8
10
12
14
16
18
20
FREQUENCY IN HERTZ

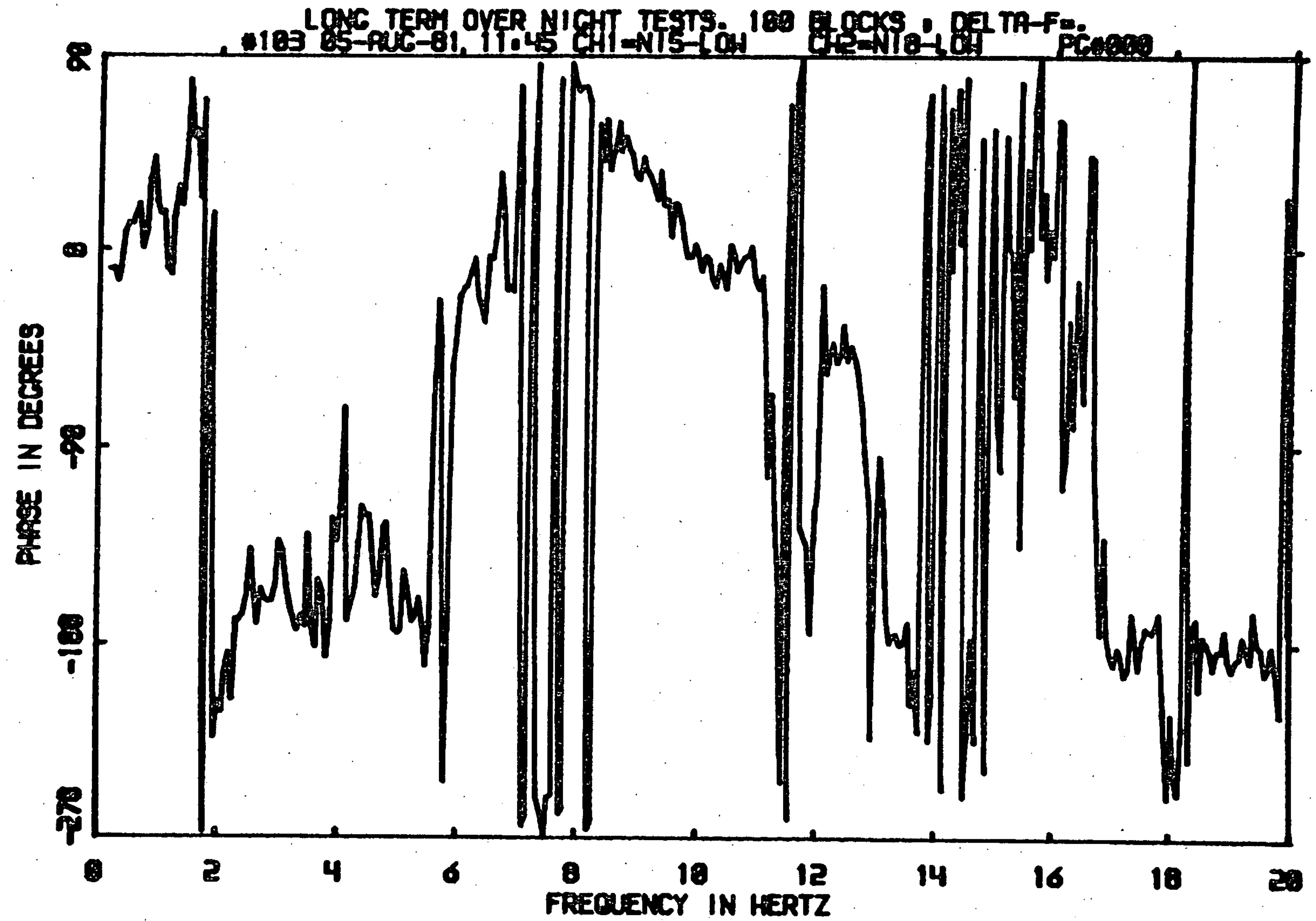

LONG TERM OVER NIGHT TESTS. 100 BLOCKS ; DELTA-F=.
#102 05-AUG-81 11:14 CH1=N15-LOW CH2=N17-LOW PG#000
RMS= 1.145 E-3
NORM CPSD MAGNITUDE
10-5
10-6
10-7
10-8
10-9
10-10
10-11
0
2
4
6
8
10
12
14
16
18
20
FREQUENCY IN HERTZ

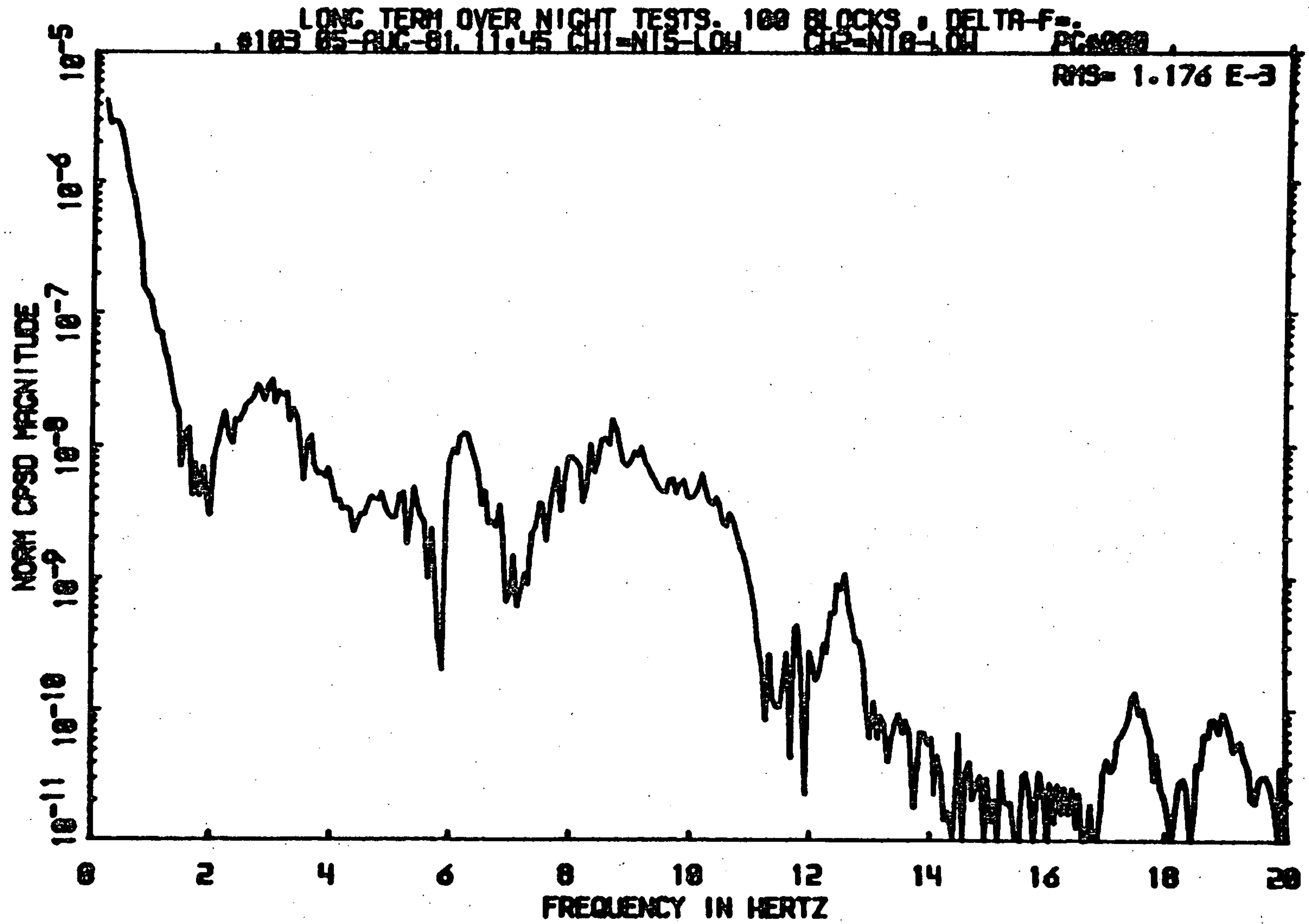


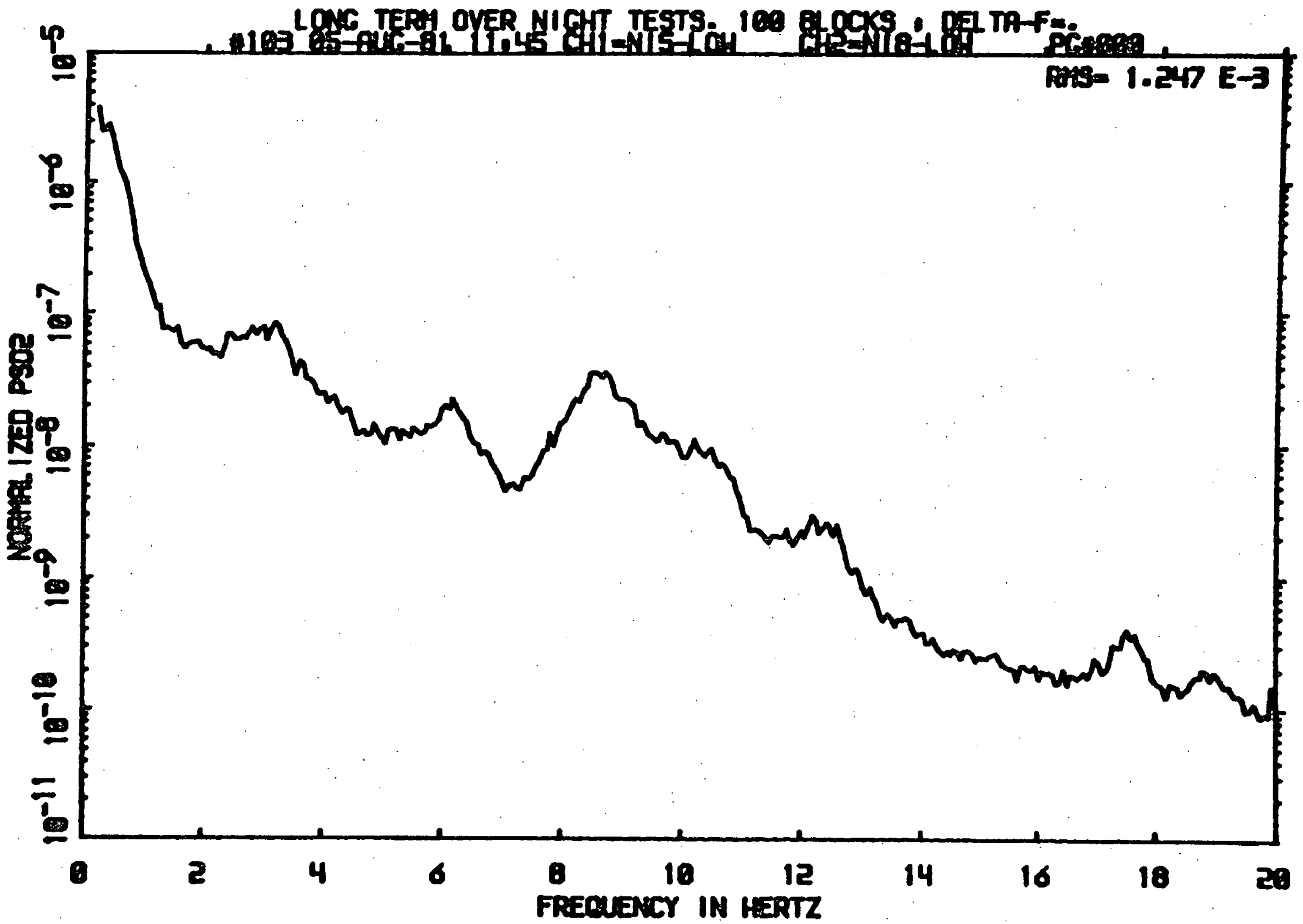
LONG TERM OVER NIGHT TESTS. 100 BLOCKS , DELTA-F=.
#102 05-AUG-81, 11:14 CH1=N15-LOW CH2=N17-LOW PC#000
RMS= 1.473 E-3
NORMALIZED PSD2
10^-11 10^-10 10^-9 10^-8 10^-7 10^-6 10^-5
0 2 4 6 8 10 12 14 16 18 20
FREQUENCY IN HERTZ


LONG TERM OVER NIGHT TESTS. 100 BLOCKS ; DELTA-F=.
#102 05-AUG-81, 11:14 CH1=N15-LOW CH2=N17-LOW PG=020
RMS= 1.737 E-3
NORMALIZED PSD1
10^-11 10^-10 10^-9 10^-8 10^-7 10^-6 10^-5
0 2 4 6 8 10 12 14 16 18 20
FREQUENCY IN HERTZ

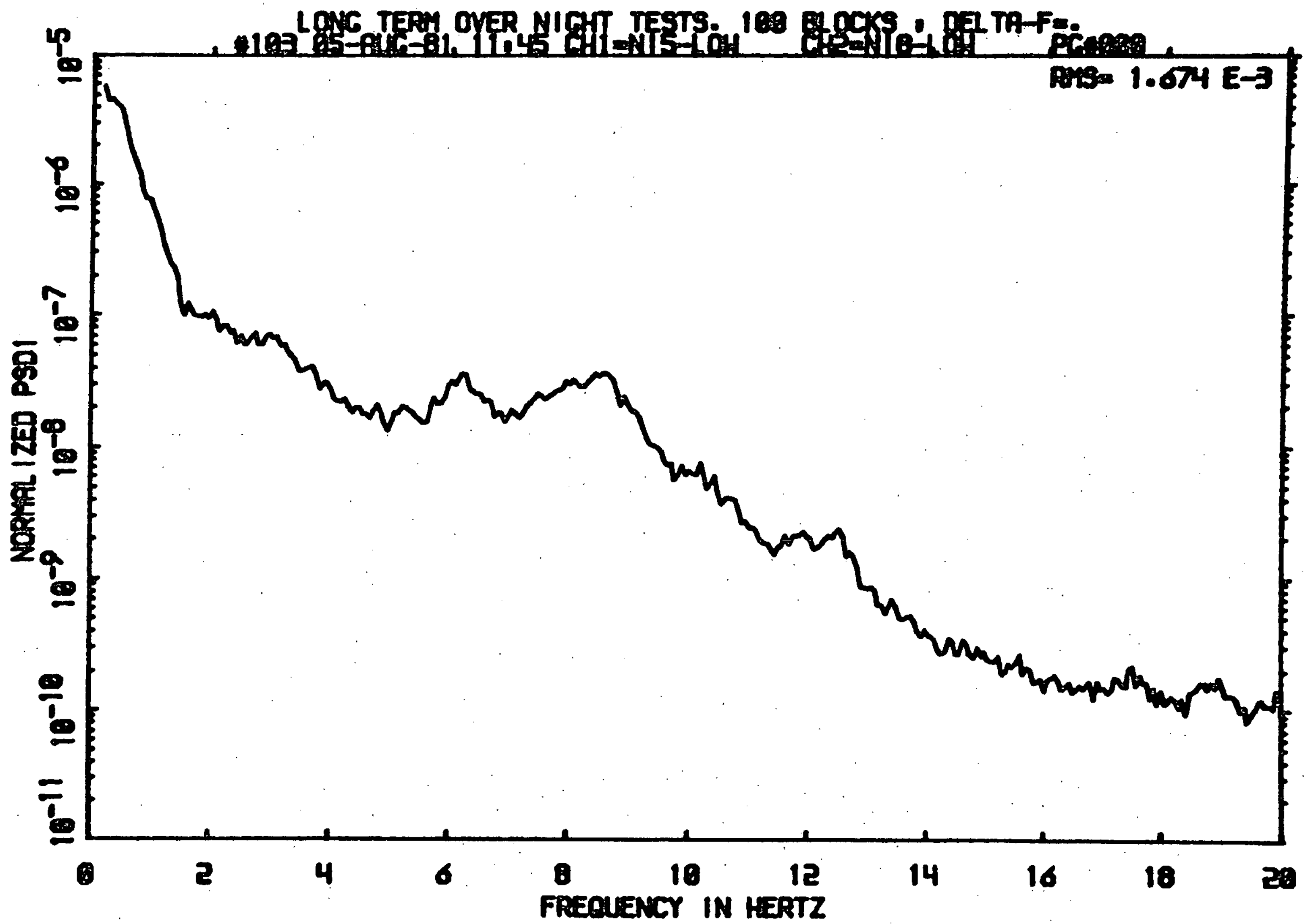

LONG TERM OVER NIGHT TESTS. 100 BLOCKS , DELTA-F=.
#103 05-AUG-81, 11:45 CH1=N15-LOW CH2=N18-LOW PC#000
COHERENCE
0.0
0.2
0.4
0.6
0.8
1.0
0
2
4
6
8
10
12
14
16
18
20
FREQUENCY IN HERTZ


LONG TERM OVER NIGHT TESTS. 100 BLOCKS , DELTA-F=.
#103 05-AUG-81, 11:45 CH1=N15-LOW CH2=N18-LOW PC#000
PHASE IN DEGREES
90
0
-90
-180
-270
0
2
4
6
8
10
12
14
16
18
20
FREQUENCY IN HERTZ

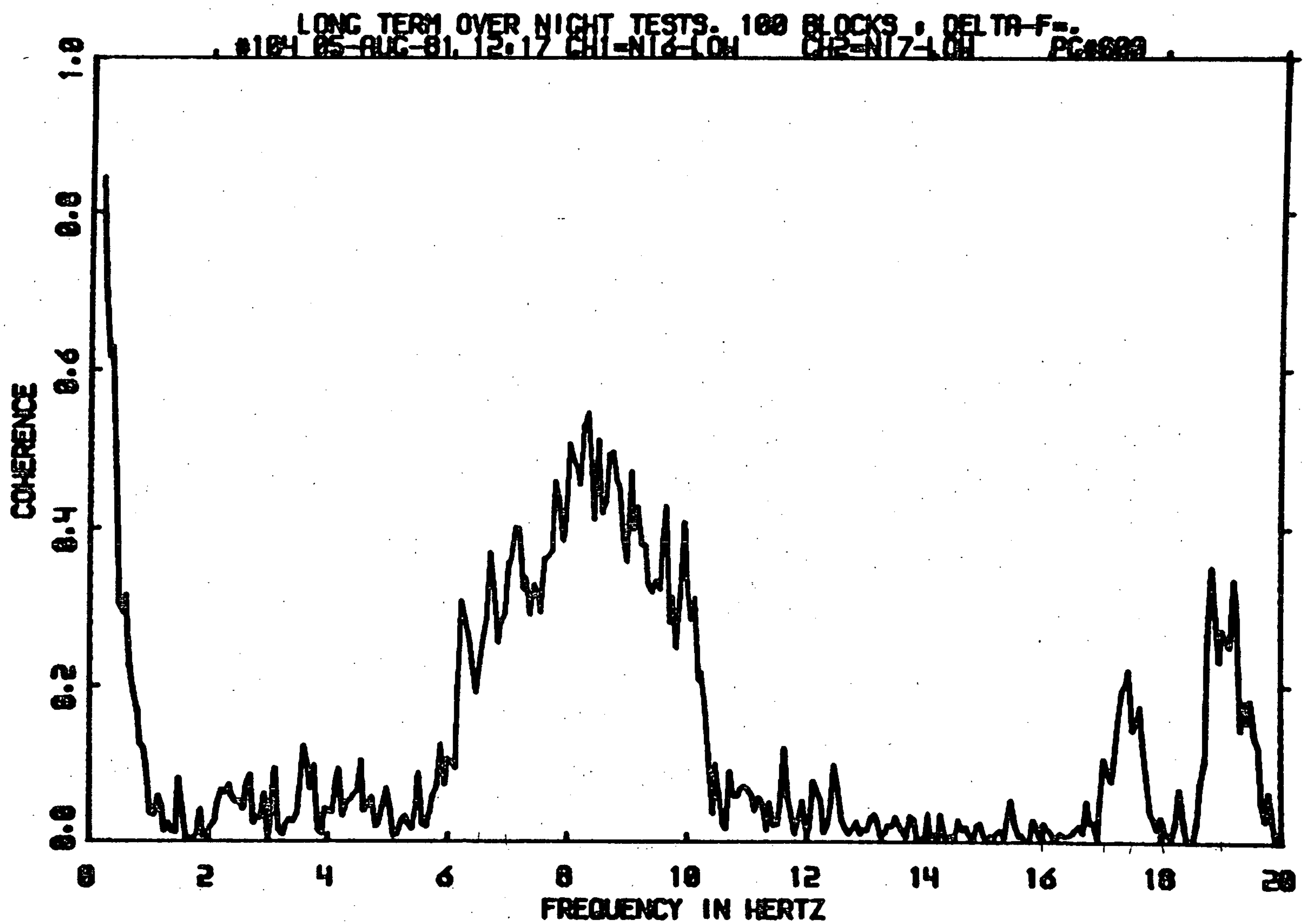

LONG TERM OVER NIGHT TESTS. 100 BLOCKS , DELTA-F=.
#103 05-AUG-81, 11:45 CH1=N15-LOW CH2=N10-LOW
RMS= 1.176 E-3
NORM CPSD MAGNITUDE
10^-5
10^-6
10^-7
10^-8
10^-9
10^-10
10^-11
0
2
4
6
8
10
12
14
16
18
20
FREQUENCY IN HERTZ



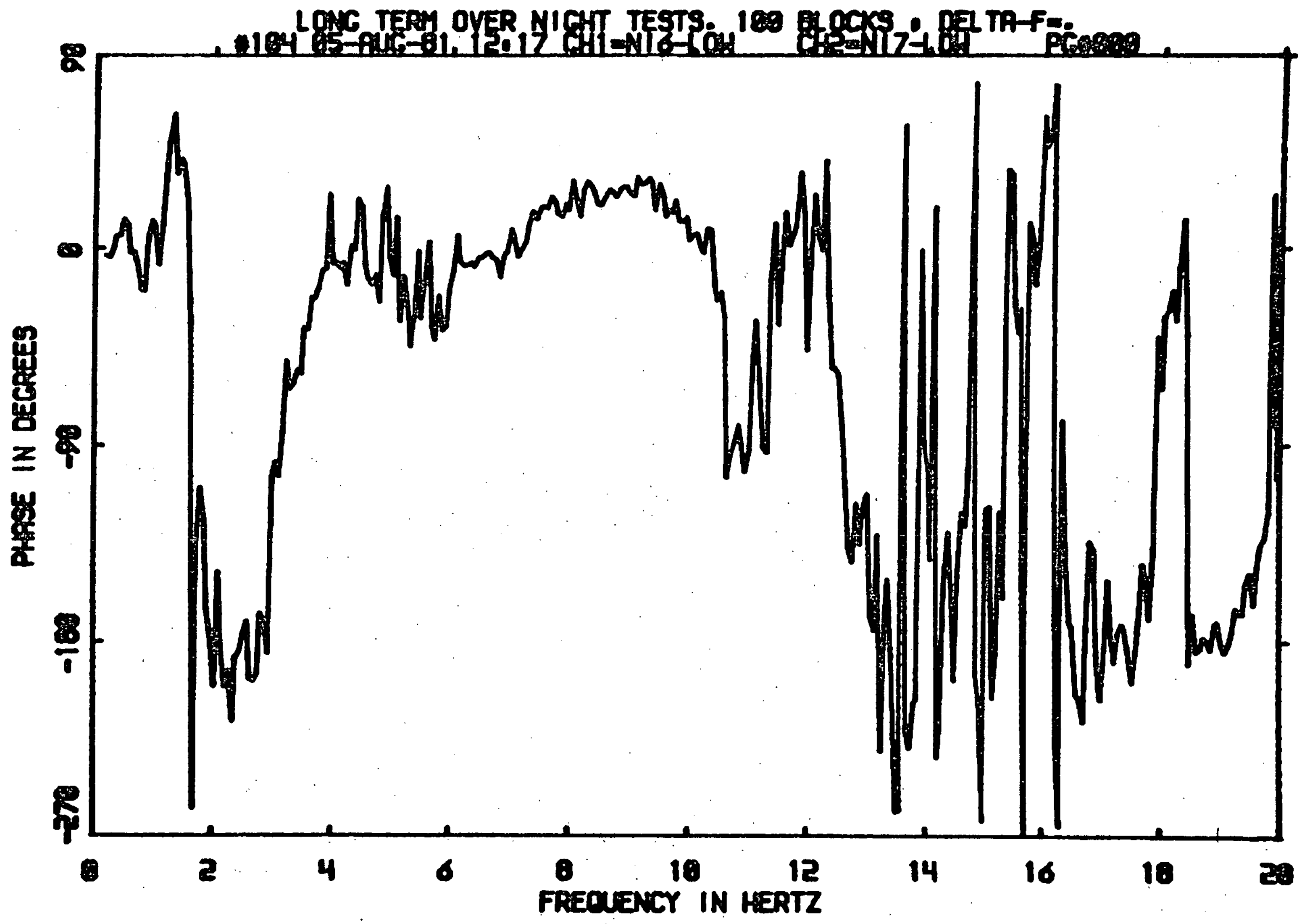
LONG TERM OVER NIGHT TESTS. 100 BLOCKS ; DELTA-F=.
#103 05-AUG-81 11:45 CH1=N15-LOW CH2=N18-LOW PC=000
RMS= 1.247 E-3
NORMALIZED PSD2
10^-5
10^-6
10^-7
10^-8
10^-9
10^-10
10^-11
0
2
4
6
8
10
12
14
16
18
20
FREQUENCY IN HERTZ

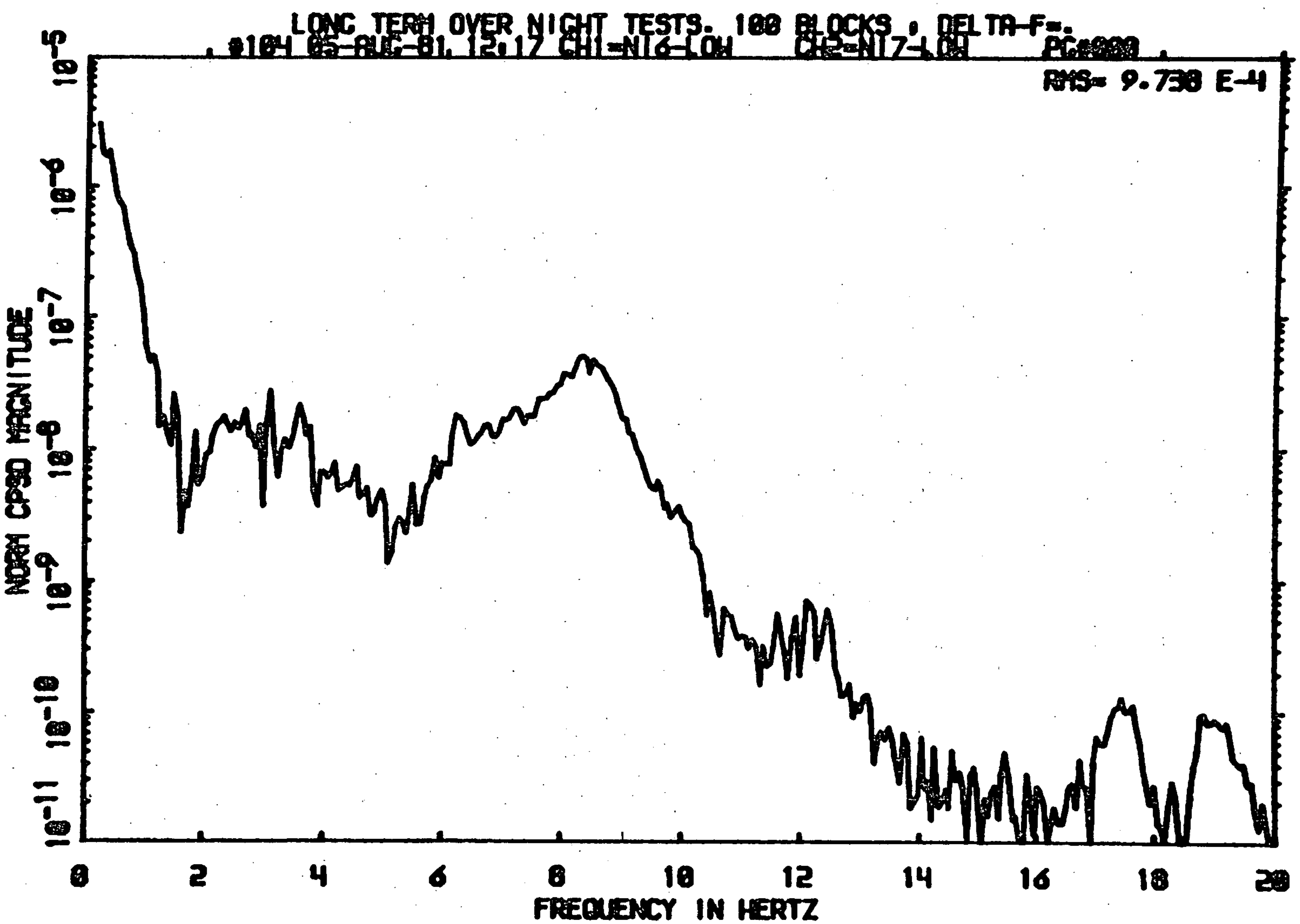


LONG TERM OVER NIGHT TESTS. 100 BLOCKS ; DELTA-F=.
#103 05-AUG-81, 11:45 CH1=N15-LOW CH2=N10-LOW PG#020
RMS= 1.674 E-3
NORMALIZED PSD1
10^-5
10^-6
10^-7
10^-8
10^-9
10^-10
10^-11
0
2
4
6
8
10
12
14
16
18
20
FREQUENCY IN HERTZ

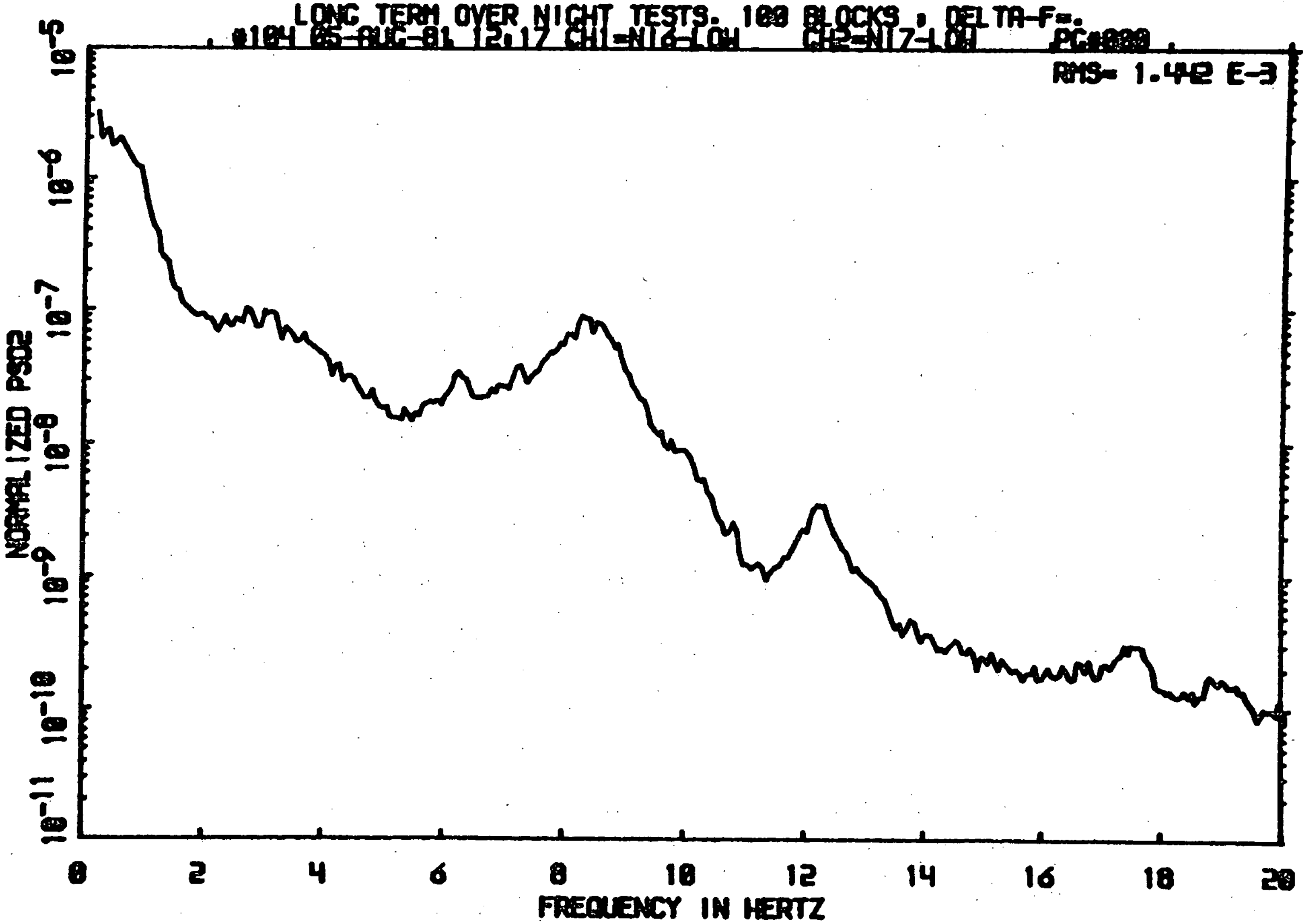


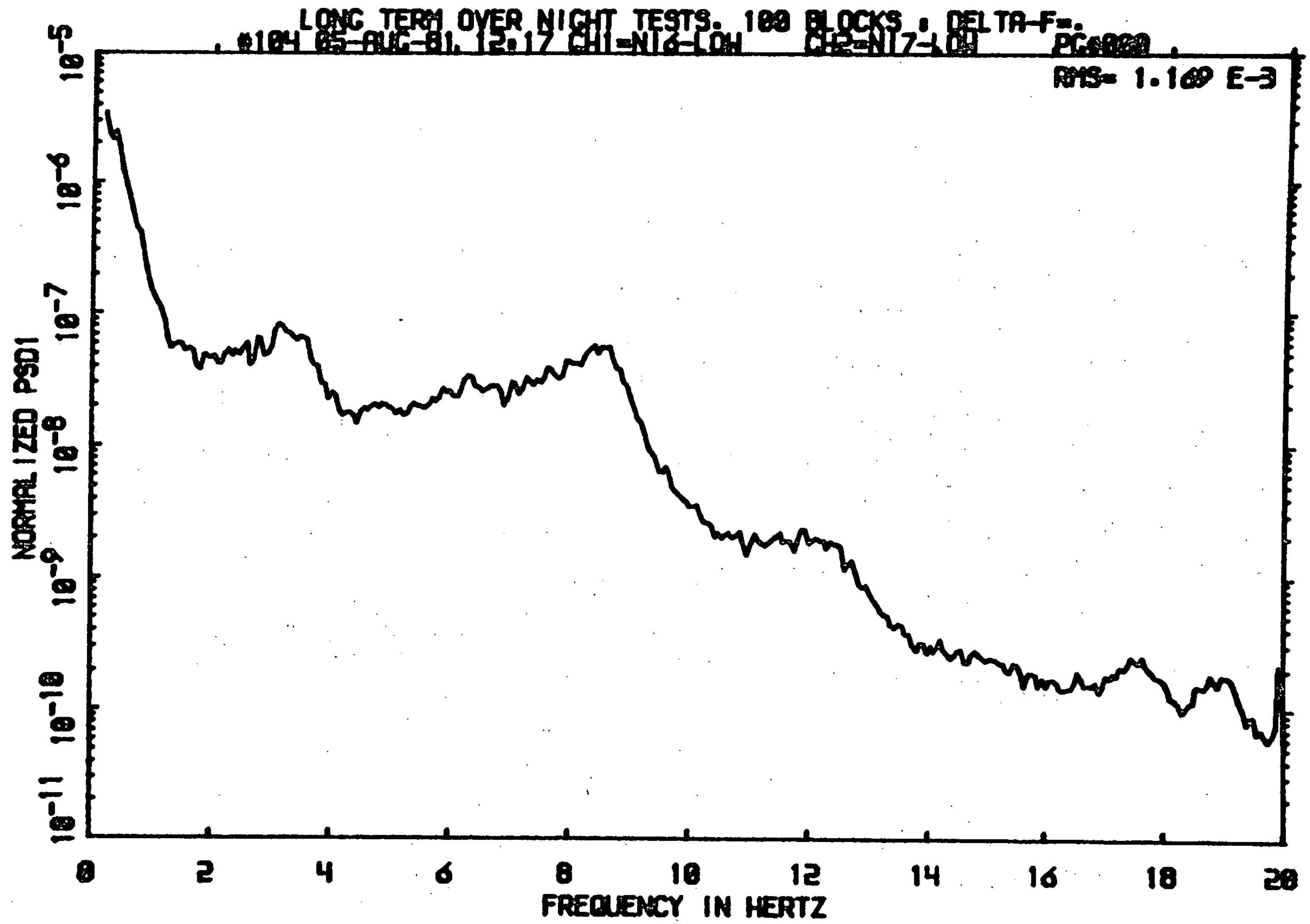
LONG TERM OVER NIGHT TESTS. 100 BLOCKS , DELTA-F=.
#104 05-AUG-81, 12:17 CH1=N16-LOW CH2=N17-LOW PC#000
COHERENCE
0.0
0.2
0.4
0.6
0.8
1.0
0
2
4
6
8
10
12
14
16
18
20
FREQUENCY IN HERTZ

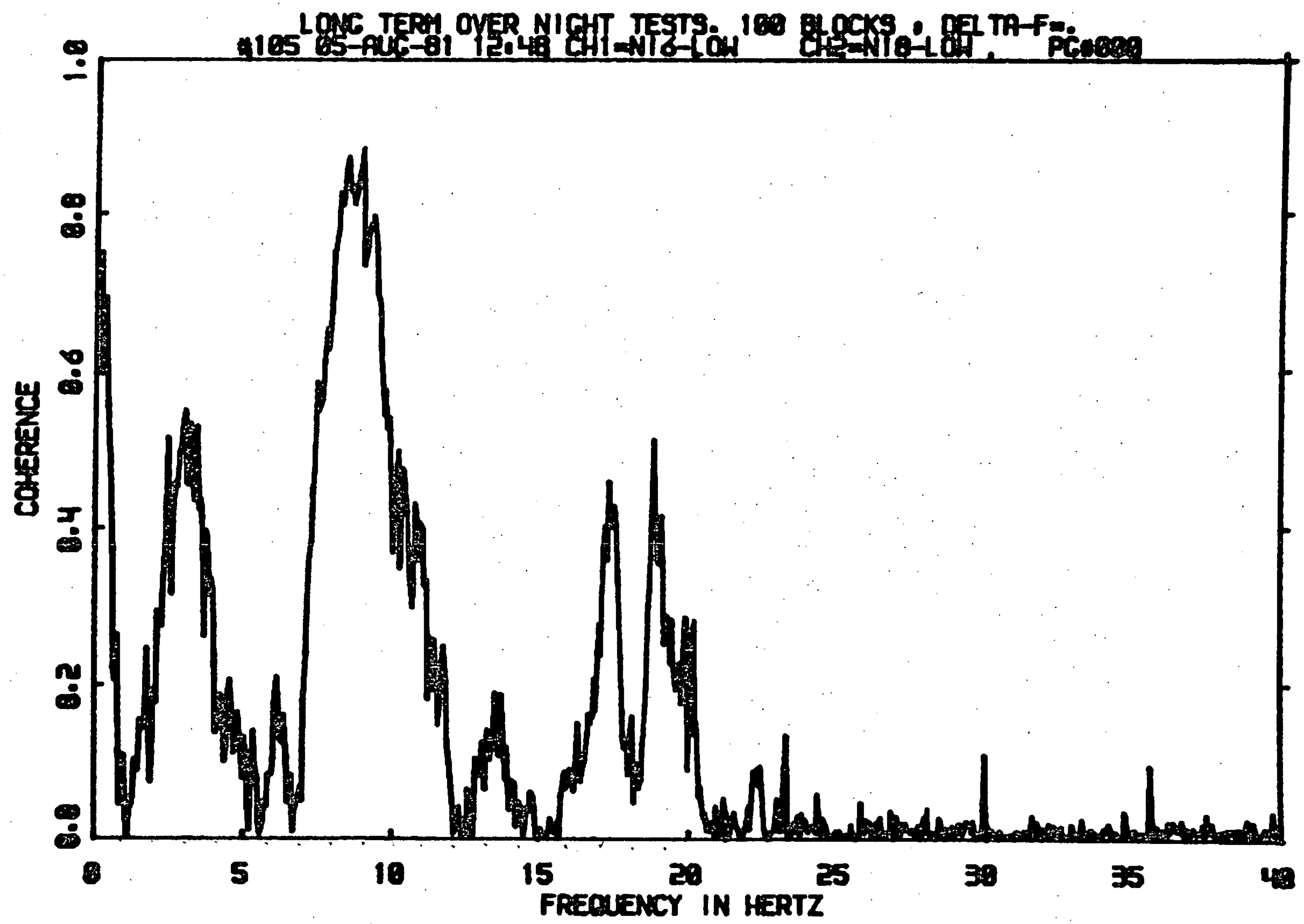

LONG TERM OVER NIGHT TESTS. 100 BLOCKS , DELTA-F=.
#104 05-AUG-81, 12:17 CH1=N16-LOW CH2=N17-LOW
PHASE IN DEGREES
90
0
-90
-180
-270
0
2
4
6
8
10
12
14
16
18
20
FREQUENCY IN HERTZ



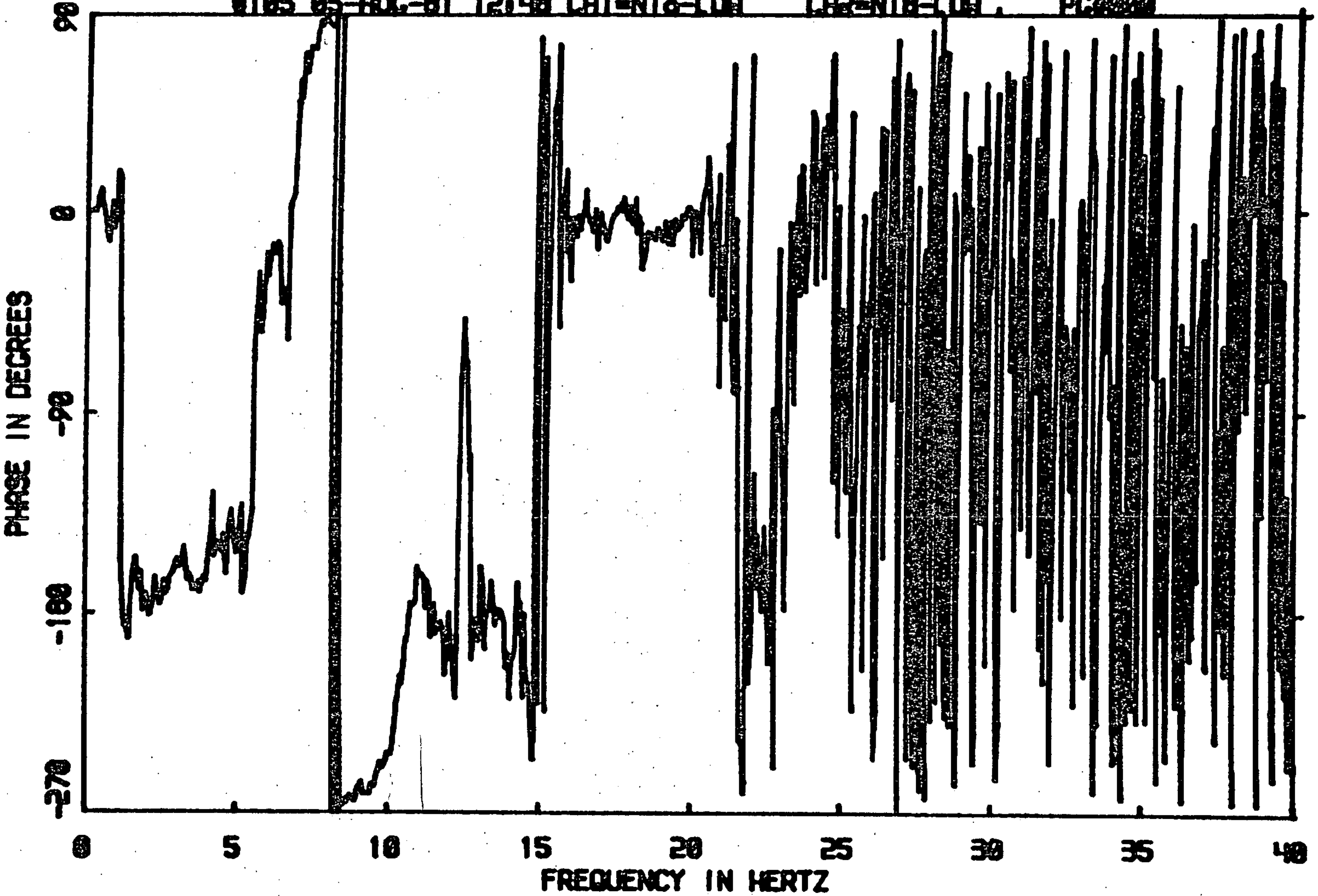
LONG TERM OVER NIGHT TESTS. 100 BLOCKS , DELTA-F=.
#104 05-AUG-81, 12:17 CH1=N16-LOW CH2=N17-LOW PC#000
RMS= 9.730 E-4
NORM CPSD MAGNITUDE
10-5
10-6
10-7
10-8
10-9
10-10
10-11
0
2
4
6
8
10
12
14
16
18
20
FREQUENCY IN HERTZ

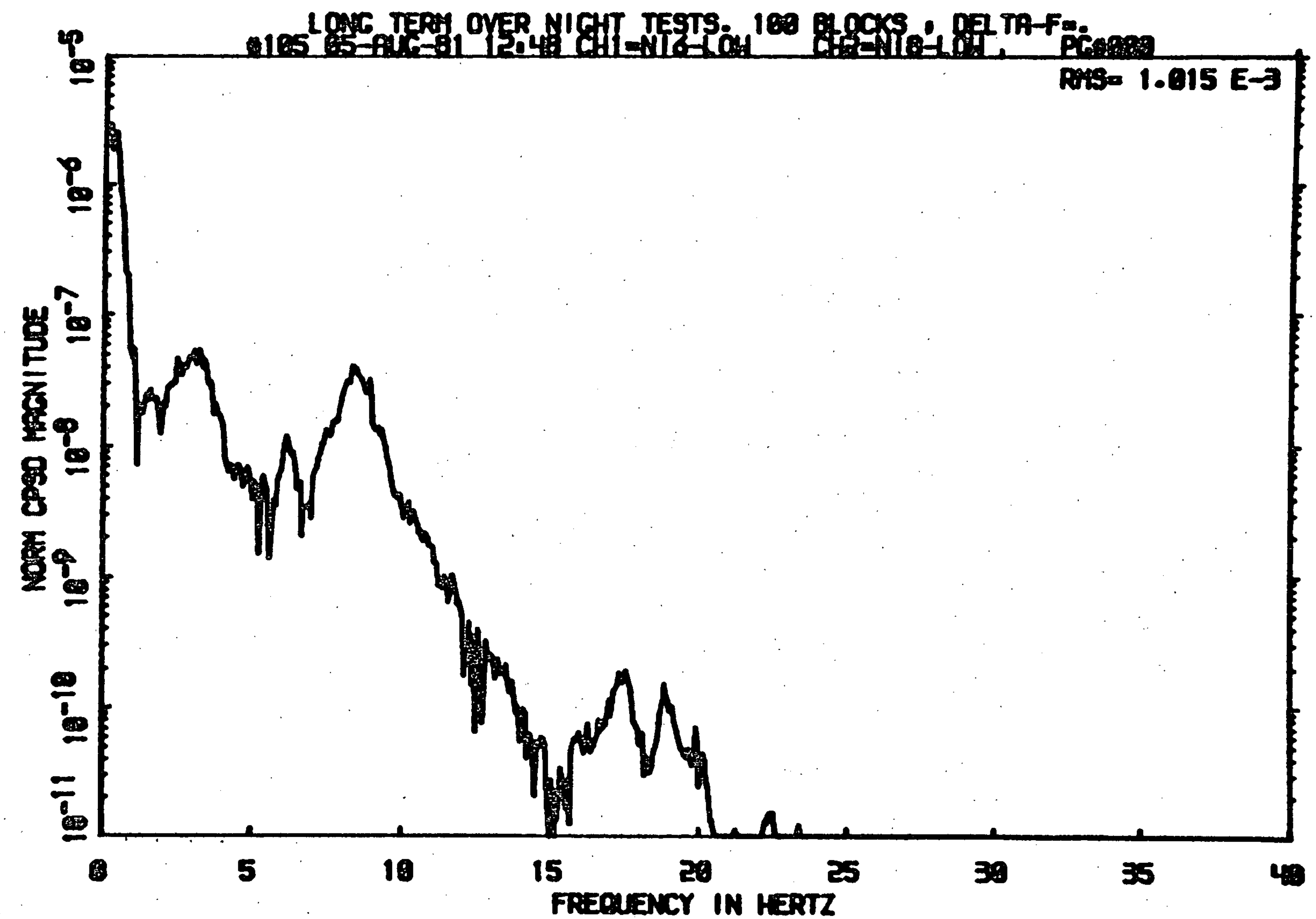

LONG TERM OVER NIGHT TESTS. 100 BLOCKS , DELTA-F=.
#104 05-AUG-81 12:17 CH1=N16-LOW CH2=N17-LOW PC#000
RMS= 1.442 E-3
NORMALIZED PSD2
10^-11
10^-10
10^-9
10^-8
10^-7
10^-6
10^-5
0
2
4
6
8
10
12
14
16
18
20
FREQUENCY IN HERTZ


LONG TERM OVER NIGHT TESTS. 100 BLOCKS , DELTA-F=.
#104 05-AUG-81, 12:17 CH1=N16-LOW CH2=N17-LOW PC#000
RMS= 1.169 E-3
NORMALIZED PSD1
10^-11
10^-10
10^-9
10^-8
10^-7
10^-6
10^-5
0
2
4
6
8
10
12
14
16
18
20
FREQUENCY IN HERTZ

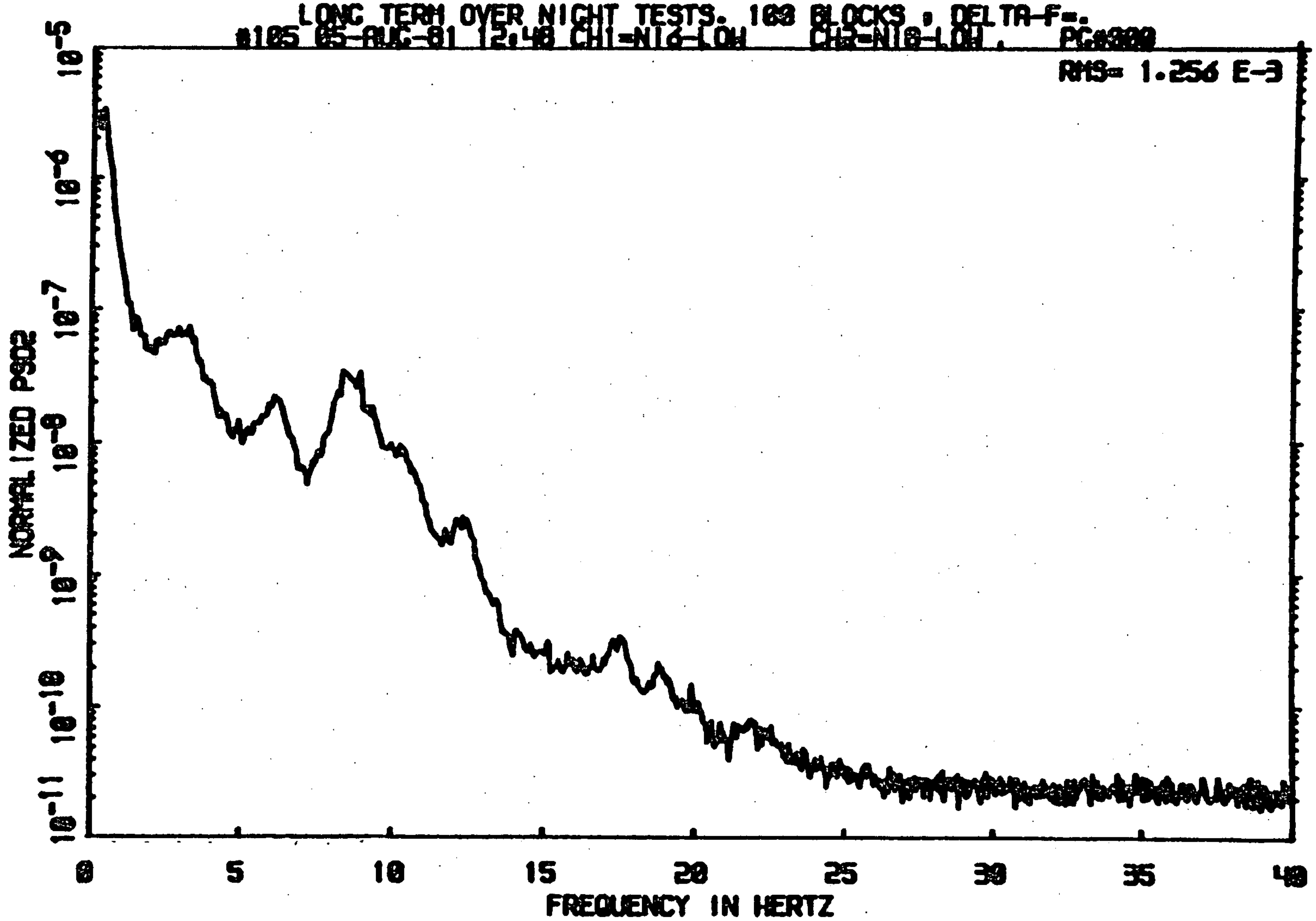

LONG TERM OVER NIGHT TESTS. 100 BLOCKS , DELTA-F=.
#105 05-AUG-81 12:48 CH1=N16-LOW CH2=N18-LOW , PC#000
COHERENCE
0.0
0.2
0.4
0.6
0.8
1.0
0
5
10
15
20
25
30
35
40
FREQUENCY IN HERTZ

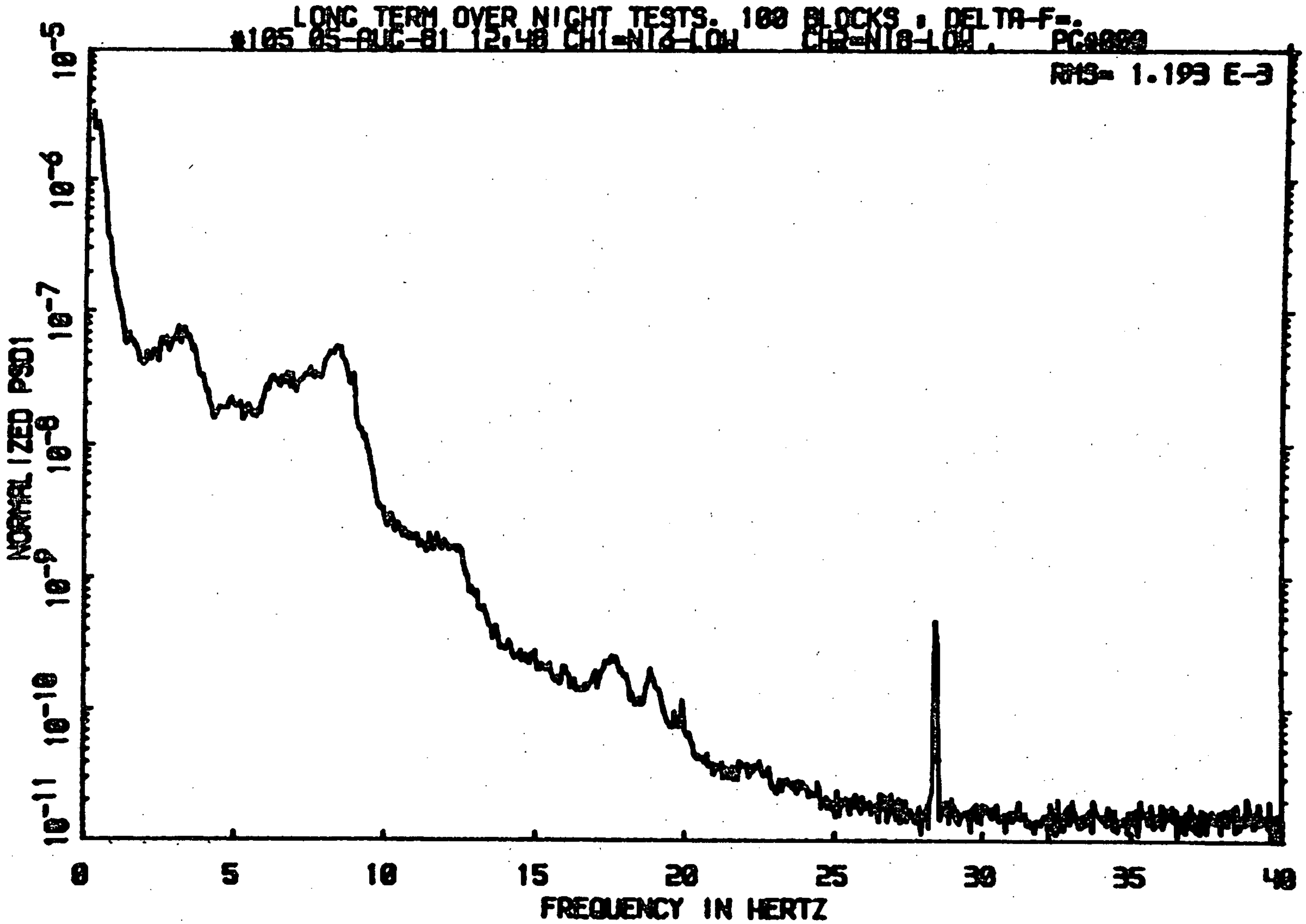
LONG TERM OVER NIGHT TESTS. 100 BLOCKS , DELTA-F=.
#105 05-AUG-81 12.40 CH1=N16-LOW CH2=N18-LOW , PC=000



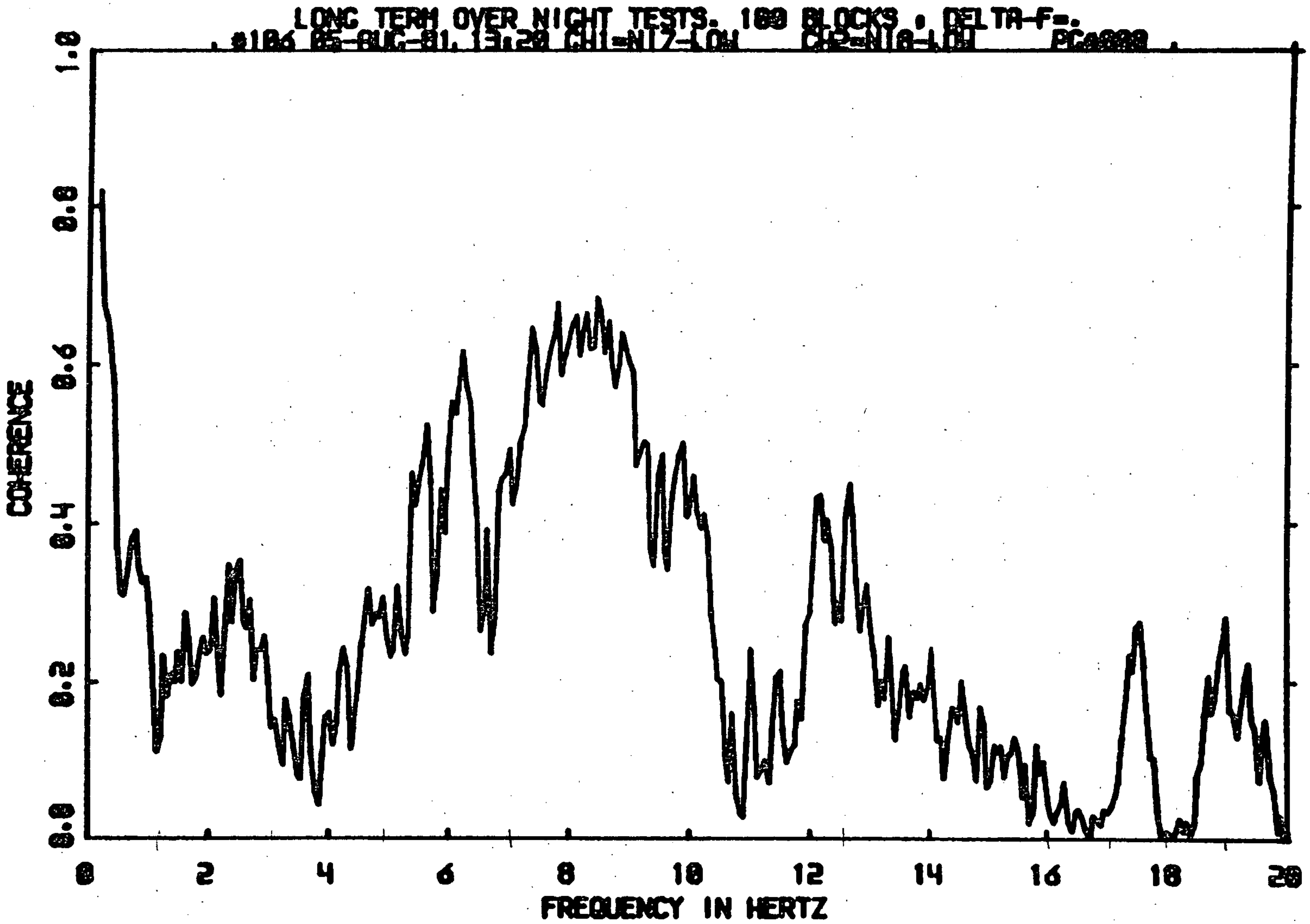


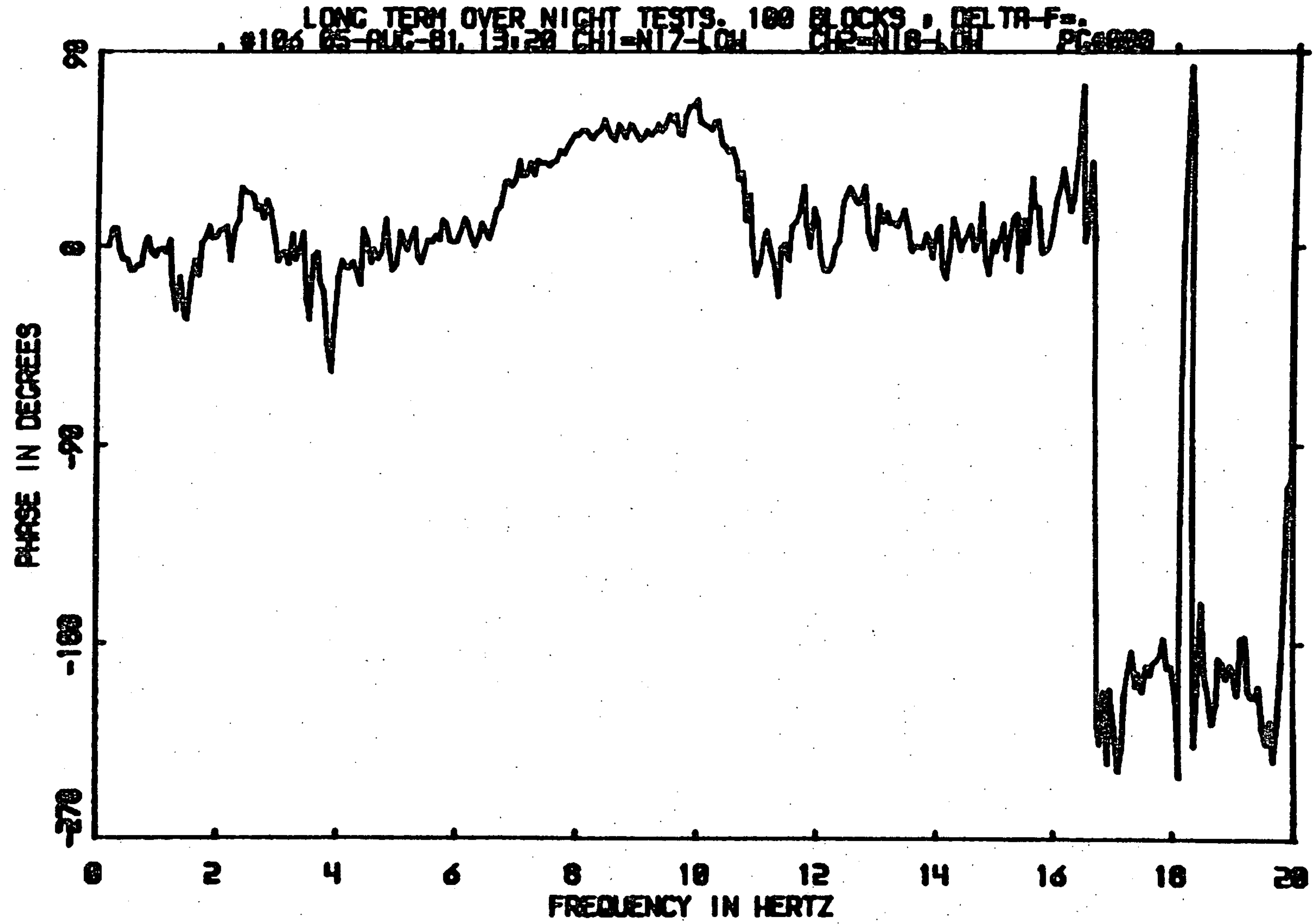
LONG TERM OVER NIGHT TESTS. 100 BLOCKS , DELTA-F=.
0105 05-AUG-81 12:48 CH1=N16-LOW CH2=N18-LOW , PG=000
RMS= 1.015 E-3
NORM CPSD MAGNITUDE
10^-5
10^-6
10^-7
10^-8
10^-9
10^-10
10^-11
0
5
10
15
20
25
30
35
40
FREQUENCY IN HERTZ

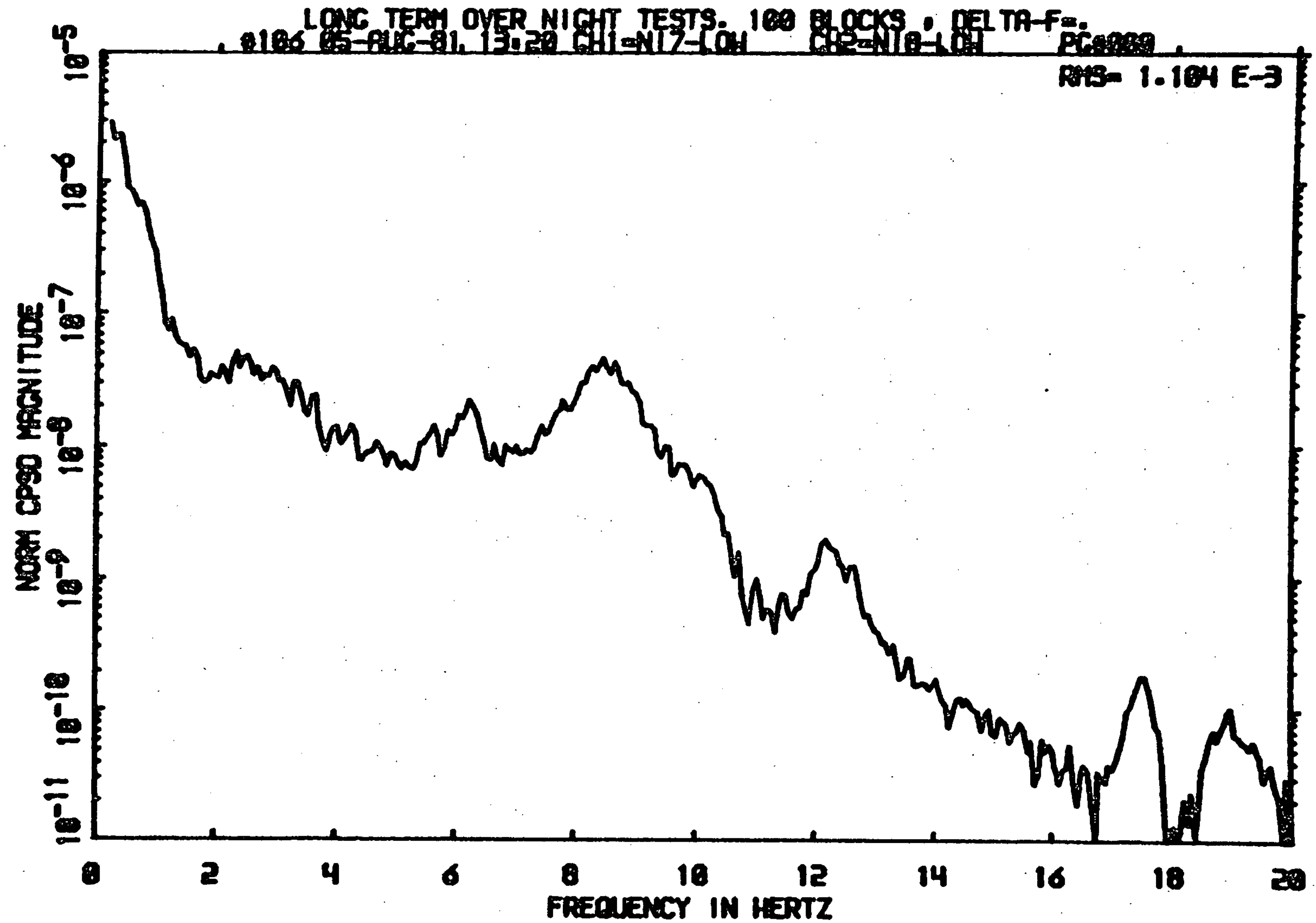

LONG TERM OVER NIGHT TESTS. 100 BLOCKS , DELTA-F=.
#105 05-AUG-81 12:40 CH1=N16-LOW CH2=N18-LOW. PG#300
RMS= 1.256 E-3
NORMALIZED PSD2
10-5
10-6
10-7
10-8
10-9
10-10
10-11
0
5
10
15
20
25
30
35
40
FREQUENCY IN HERTZ

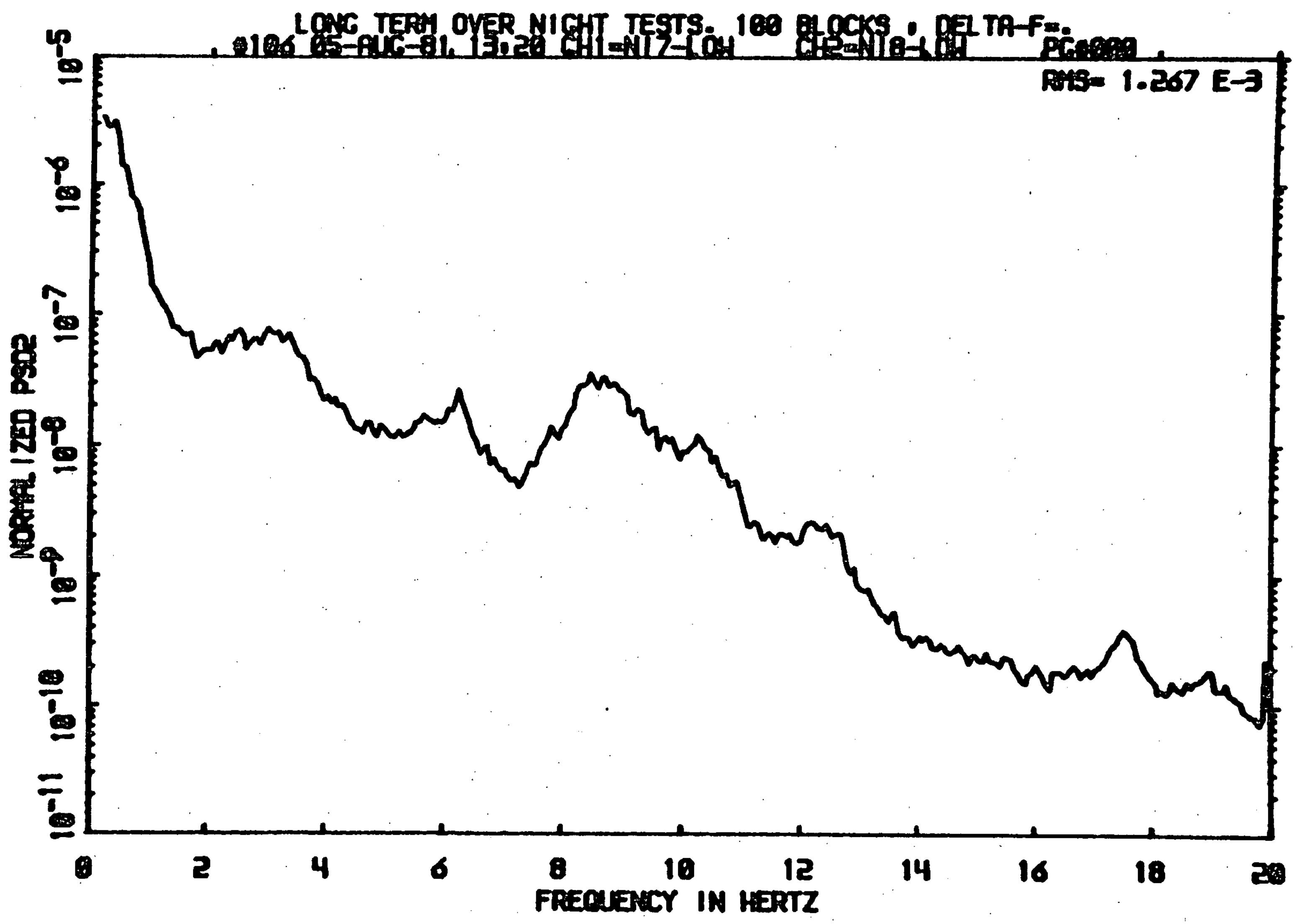


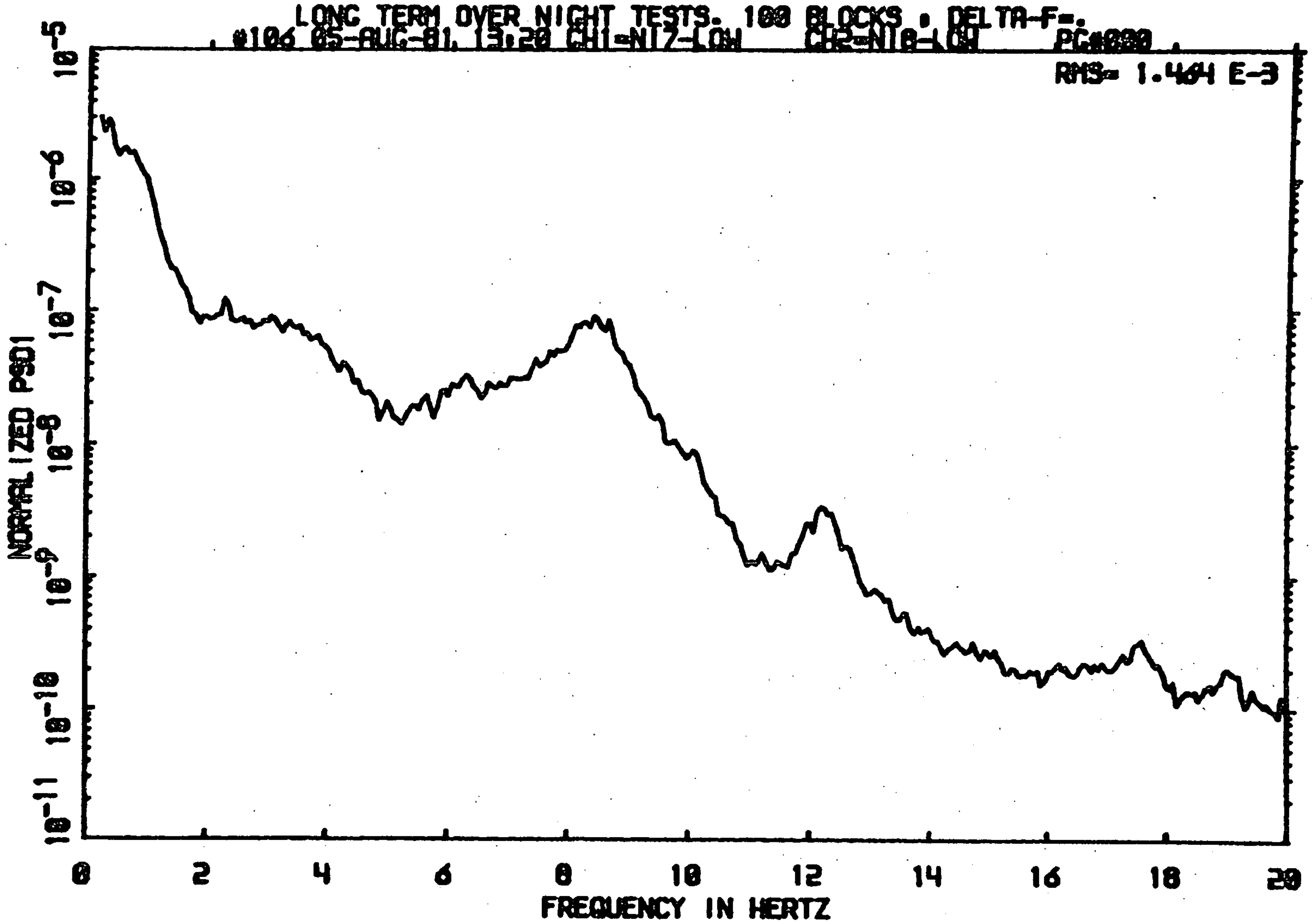
LONG TERM OVER NIGHT TESTS. 100 BLOCKS ; DELTA-F=.
#105 05-AUG-81 12:48 CH1=N16-LOW CH2=N18-LOW . PC#009
RMS= 1.193 E-3
NORMALIZED PSD1
FREQUENCY IN HERTZ

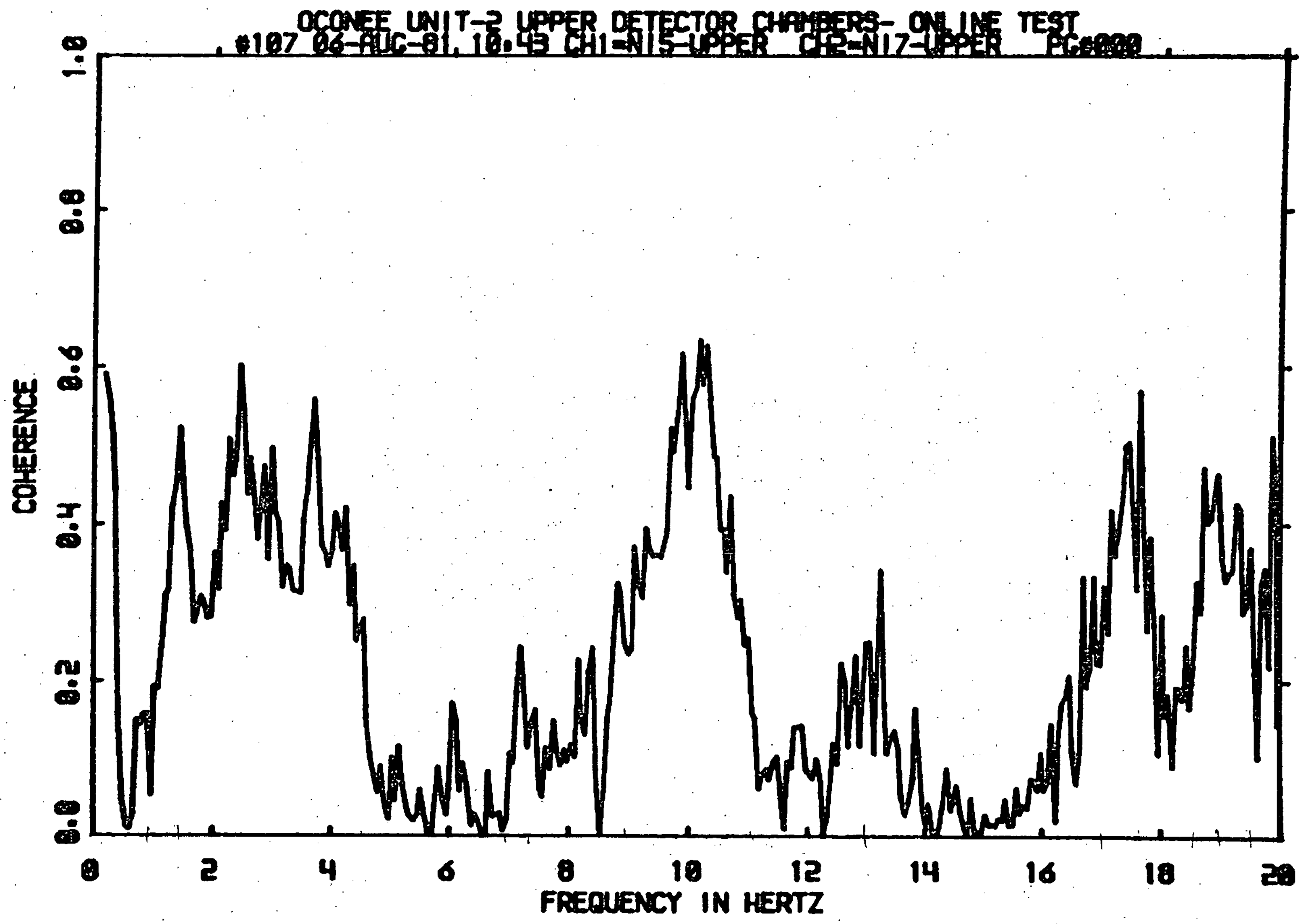

LONG TERM OVER NIGHT TESTS. 100 BLOCKS , DELTA-F=.
, #106 05-AUG-81, 13:20 CH1=N17-LOW CH2=N18-LOW PC=000 ,
COHERENCE
0.0
0.2
0.4
0.6
0.8
1.0
0
2
4
6
8
10
12
14
16
18
20
FREQUENCY IN HERTZ

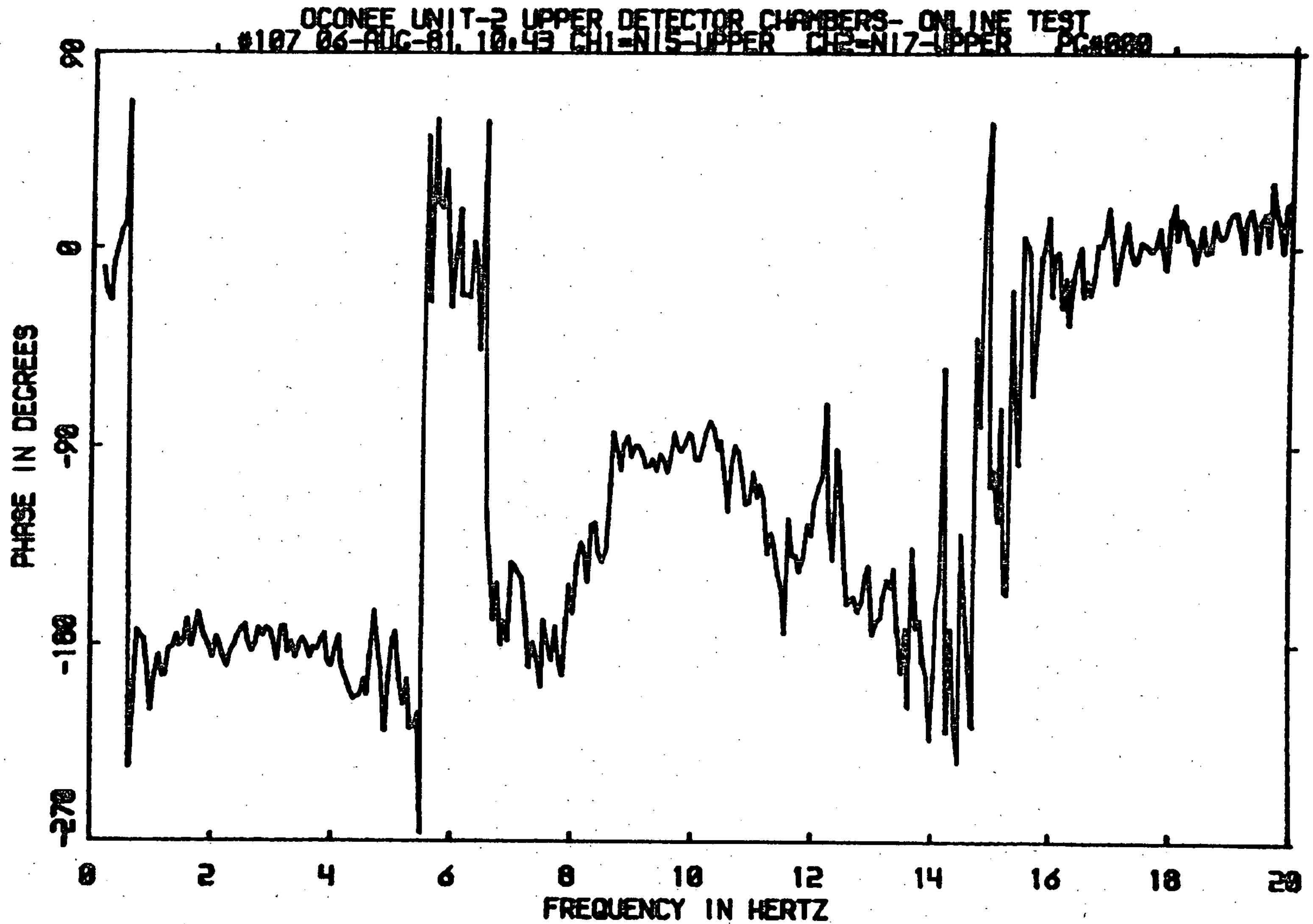

LONG TERM OVER NIGHT TESTS. 100 BLOCKS , DELTA-F=.
#106 05-AUG-81, 13:20 CH1=N17-LOW CH2=N18-LOW PC=000
PHASE IN DEGREES
90
0
-90
-180
-270
0
2
4
6
8
10
12
14
16
18
20
FREQUENCY IN HERTZ

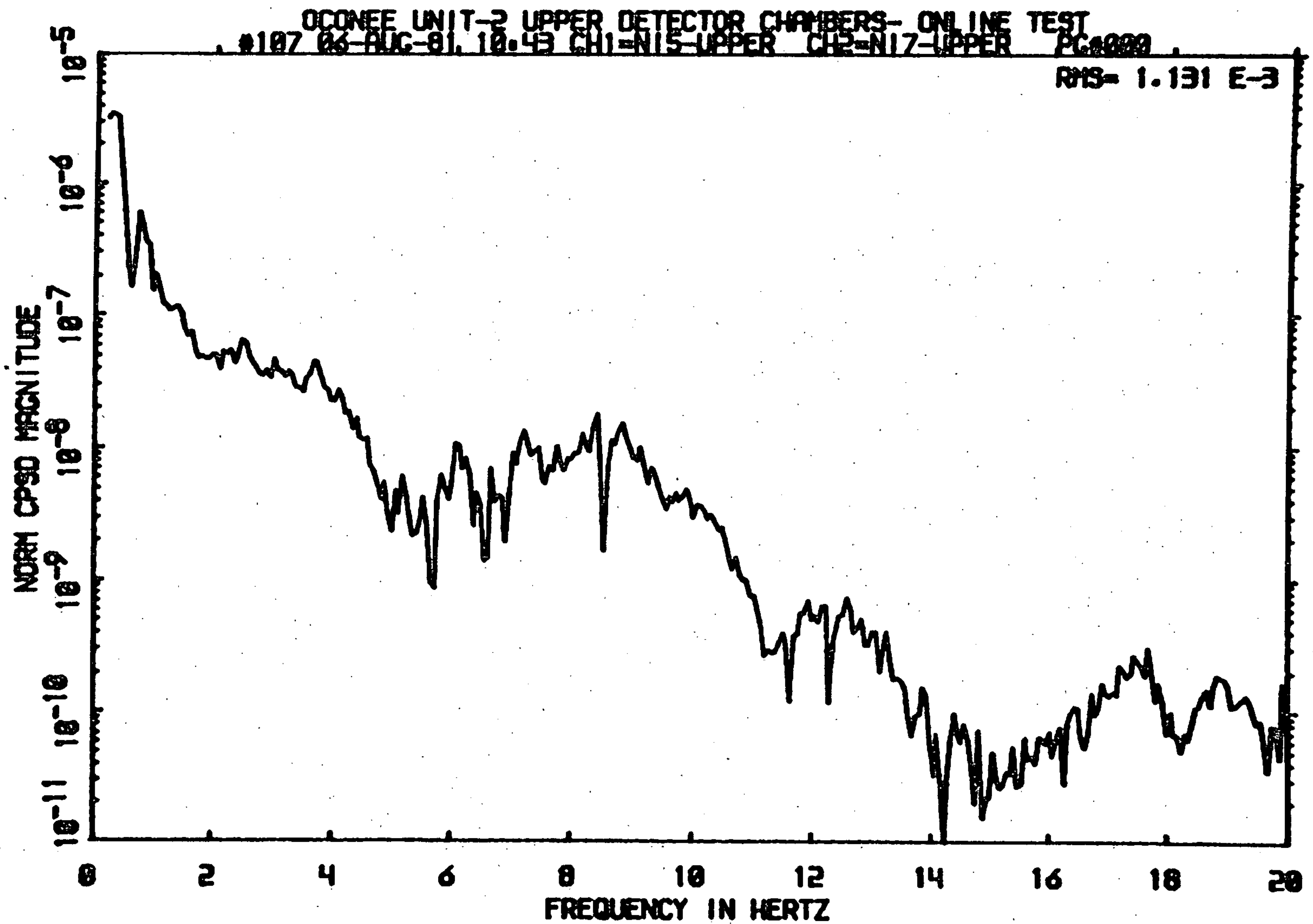

LONG TERM OVER NIGHT TESTS. 100 BLOCKS , DELTA-F=.
#106 05-AUG-81, 13:20 CH1=N17-LOW CH2=N18-LOW PC=000
RMS= 1.104 E-3
NORM CPSD MAGNITUDE
10^-11 10^-10 10^-9 10^-8 10^-7 10^-6 10^-5
0 2 4 6 8 10 12 14 16 18 20
FREQUENCY IN HERTZ


LONG TERM OVER NIGHT TESTS. 100 BLOCKS , DELTA-F=.
#106 05-AUG-81, 13:20 CH1=N17-LOW CH2=N18-LOW PG#000
RMS= 1.267 E-3
NORMALIZED PSD2
10^-5
10^-6
10^-7
10^-8
10^-9
10^-10
10^-11
0
2
4
6
8
10
12
14
16
18
20
FREQUENCY IN HERTZ

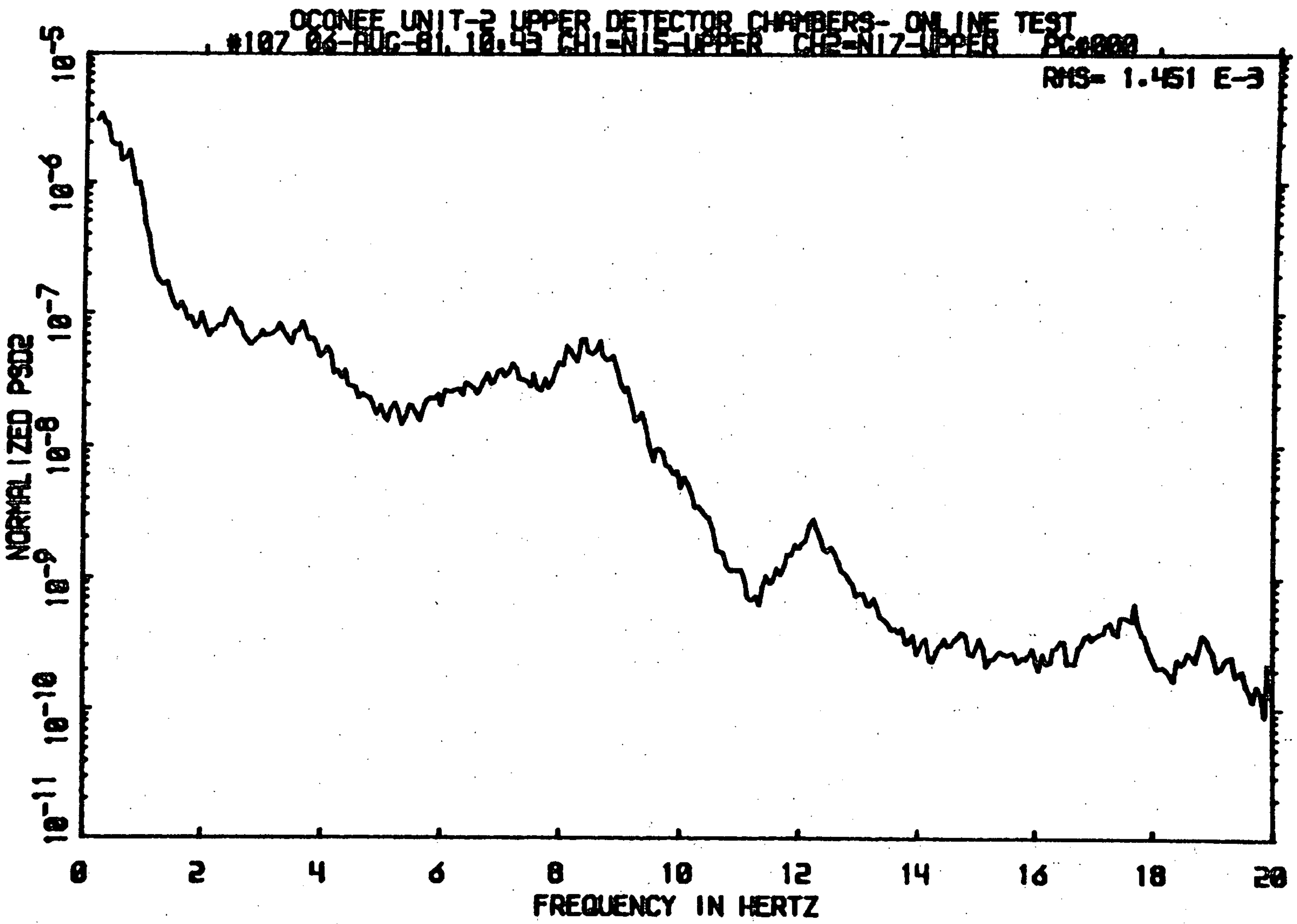

LONG TERM OVER NIGHT TESTS. 100 BLOCKS , DELTA-F=.
#106 05-AUG-81, 13:20 CH1=N17-LOW CH2=N18-LOW PG#000
RMS= 1.464 E-3
NORMALIZED PSD1
10^-11 10^-10 10^-9 10^-8 10^-7 10^-6 10^-5
0 2 4 6 8 10 12 14 16 18 20
FREQUENCY IN HERTZ


OCONEE UNIT-2 UPPER DETECTOR CHAMBERS- ONLINE TEST
#107 06-AUG-81, 10:43 CH1=N15-UPPER CH2=N17-UPPER PG#000
COHERENCE
0.0
0.2
0.4
0.6
0.8
1.0
0
2
4
6
8
10
12
14
16
18
20
FREQUENCY IN HERTZ

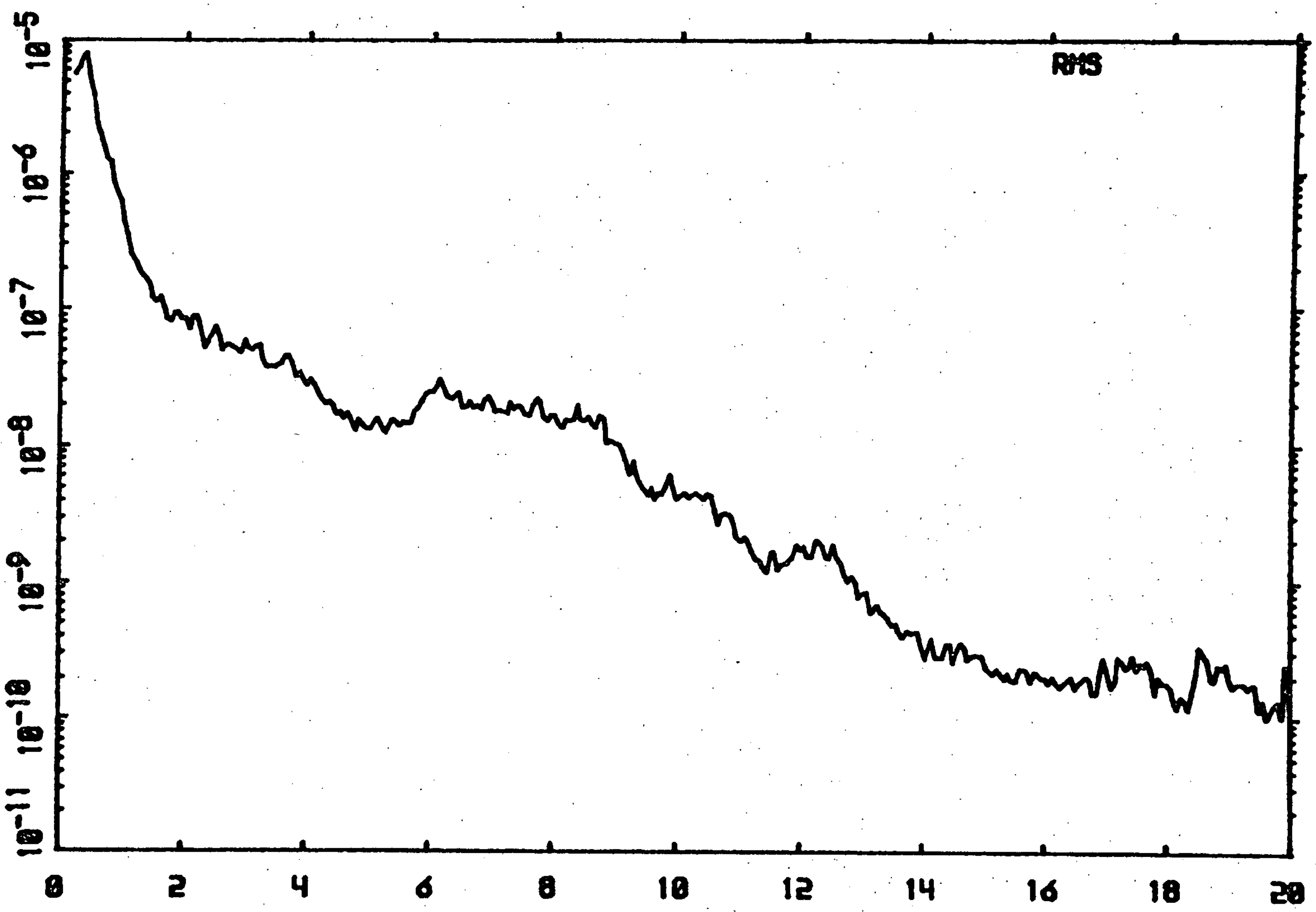

OCONEE UNIT-2 UPPER DETECTOR CHAMBERS- ONLINE TEST
#107 06-AUG-81, 10:43 CH1=N15-UPPER CH2=N17-UPPER PC#000
PHASE IN DEGREES
90
0
-90
-180
-270
0
2
4
6
8
10
12
14
16
18
20
FREQUENCY IN HERTZ

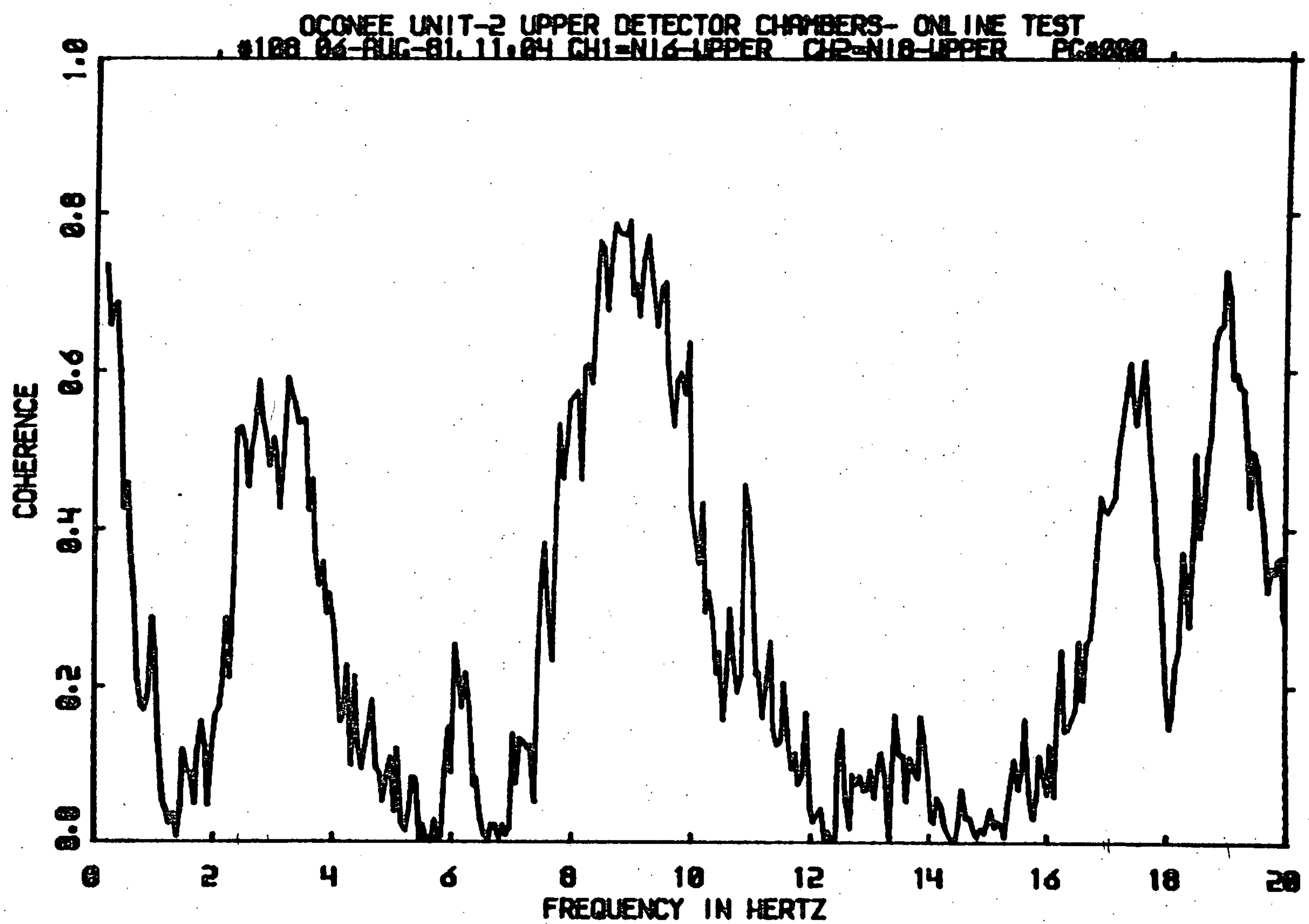


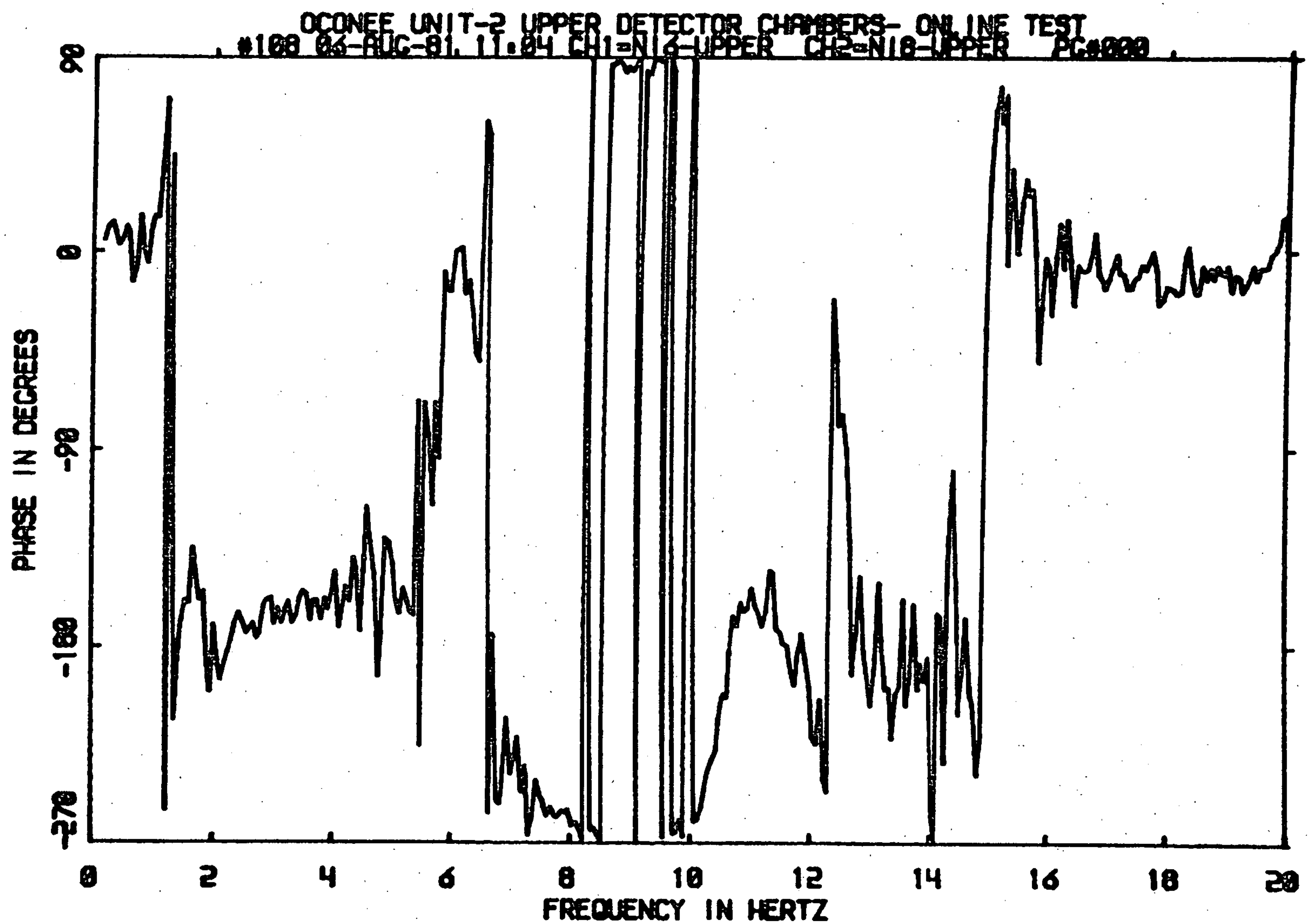
OCONEE UNIT-2 UPPER DETECTOR CHAMBERS- ONLINE TEST
#107 06-AUG-81 10.43 CH1=NI5-UPPER CH2=NI7-UPPER PC=000
RMS= 1.131 E-3
NORM CPSD MAGNITUDE
10^-5
10^-6
10^-7
10^-8
10^-9
10^-10
10^-11
0
2
4
6
8
10
12
14
16
18
20
FREQUENCY IN HERTZ

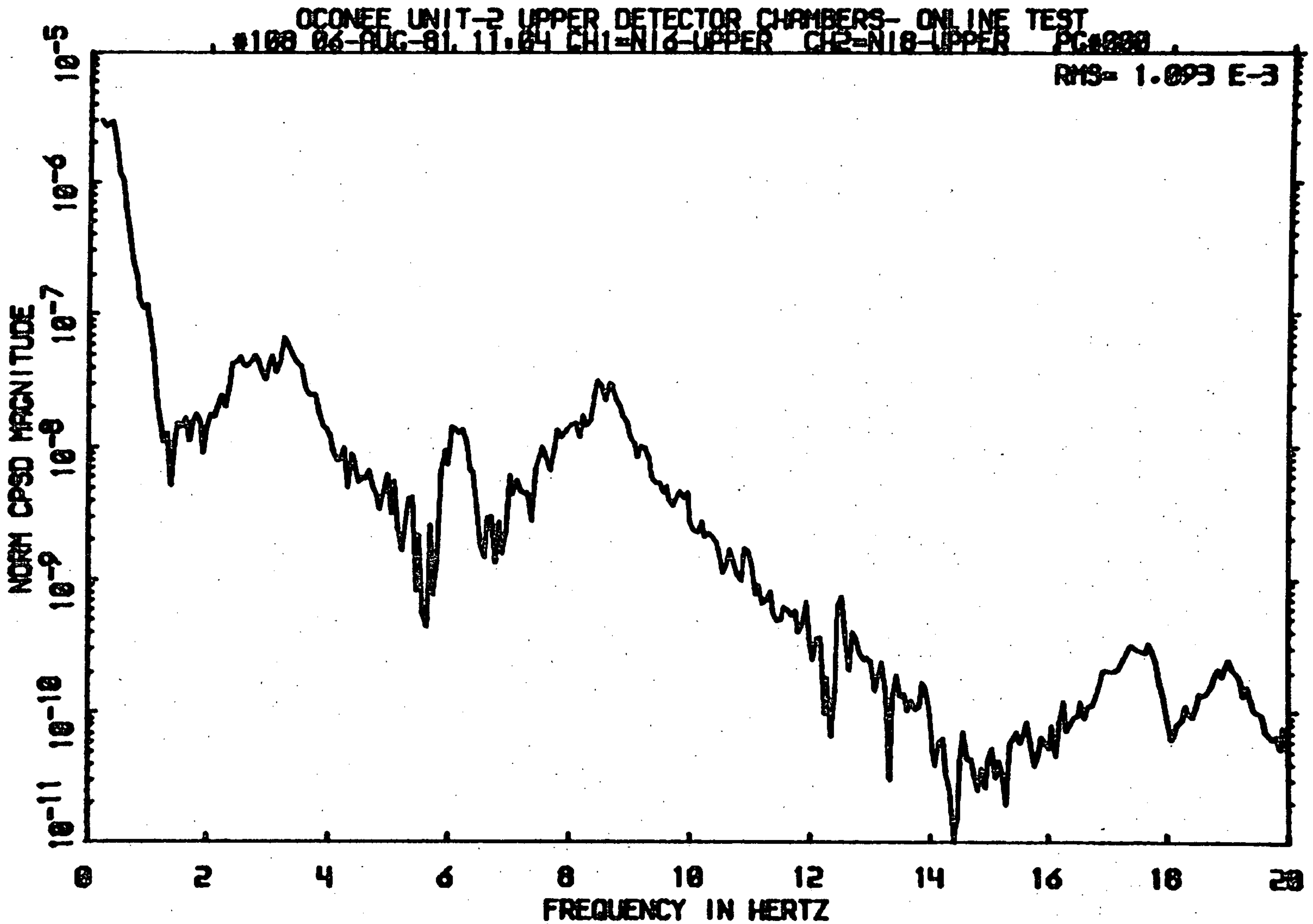

OCONEE UNIT-2 UPPER DETECTOR CHAMBERS- ONLINE TEST
#107 06-AUG-81, 10.43 CH1=N15-UPPER CH2=N17-UPPER PC#000
RMS= 1.451 E-3
NORMALIZED PSD2
FREQUENCY IN HERTZ
10^-5
10^-6
10^-7
10^-8
10^-9
10^-10
10^-11
0
2
4
6
8
10
12
14
16
18
20

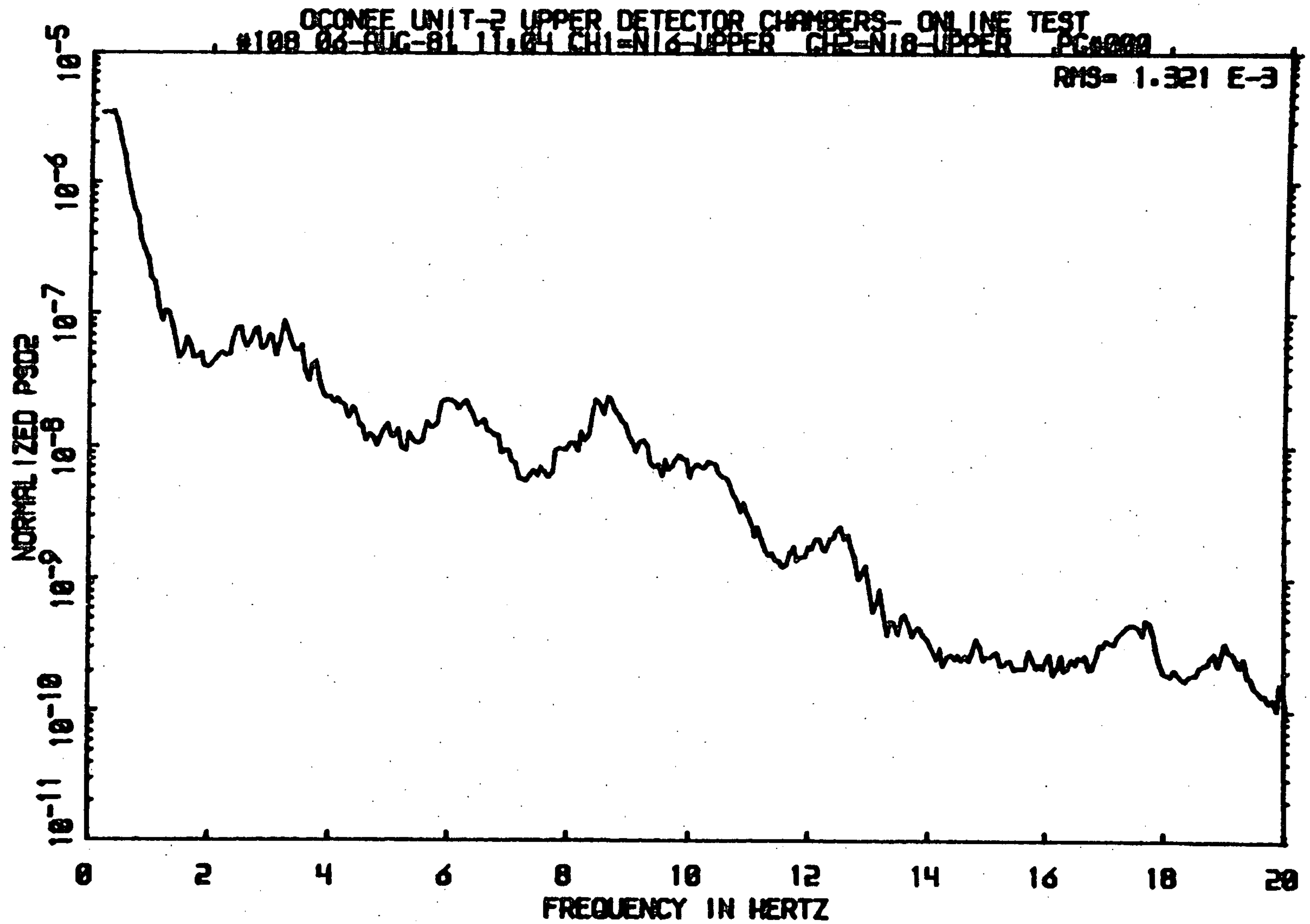
Test 167 ?



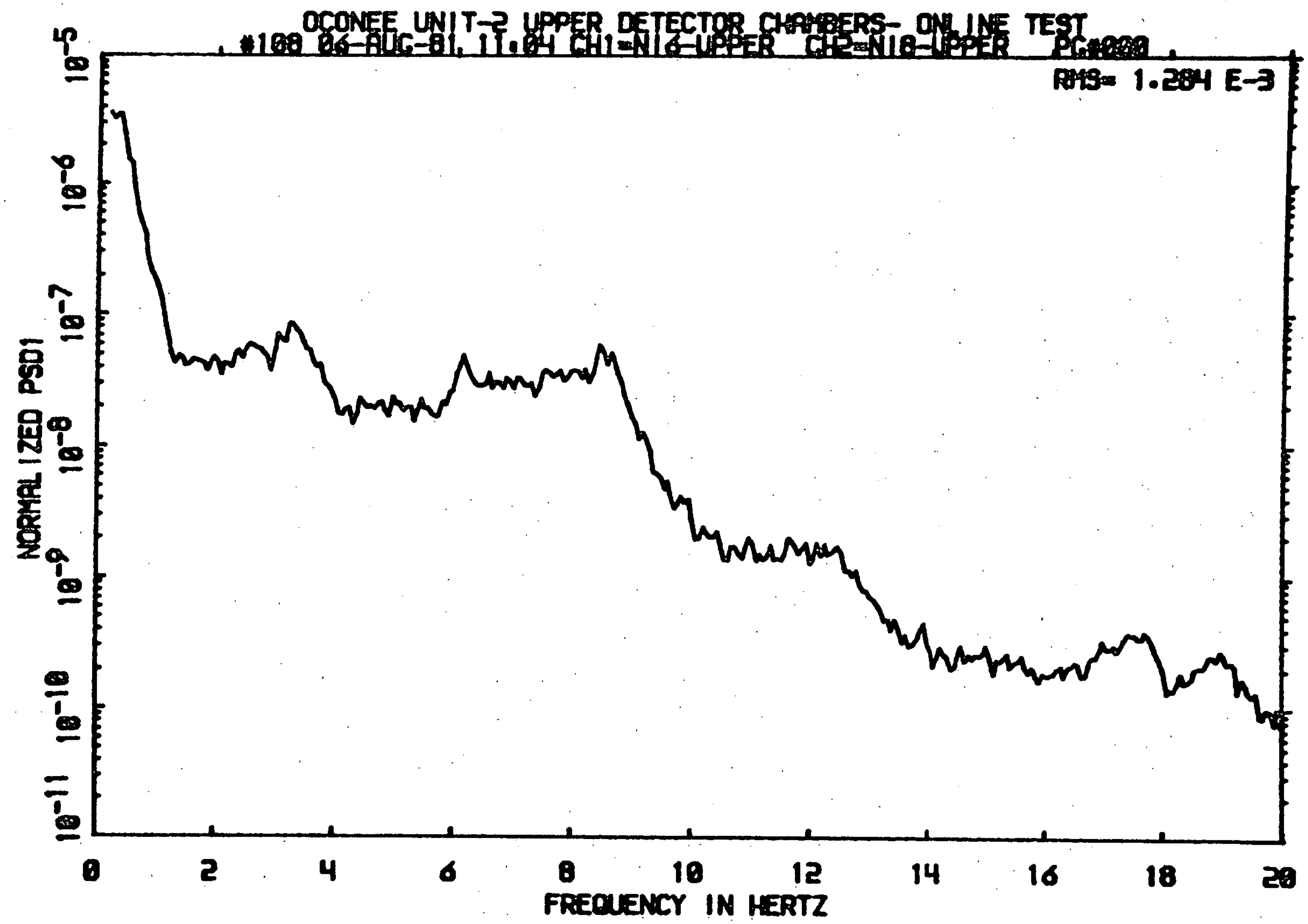

OCONEE UNIT-2 UPPER DETECTOR CHAMBERS- ONLINE TEST
#108 06-AUG-81, 11.04 CH1=N16-UPPER CH2=N18-UPPER PC#000
COHERENCE
0.0
0.2
0.4
0.6
0.8
1.0
0
2
4
6
8
10
12
14
16
18
20
FREQUENCY IN HERTZ


OCONEE UNIT-2 UPPER DETECTOR CHAMBERS- ONLINE TEST
#108 06-AUG-81 11:04 CH1=N16-UPPER CH2=N18-UPPER PC#000
PHASE IN DEGREES
90
0
-90
-180
-270
FREQUENCY IN HERTZ
0
2
4
6
8
10
12
14
16
18
20

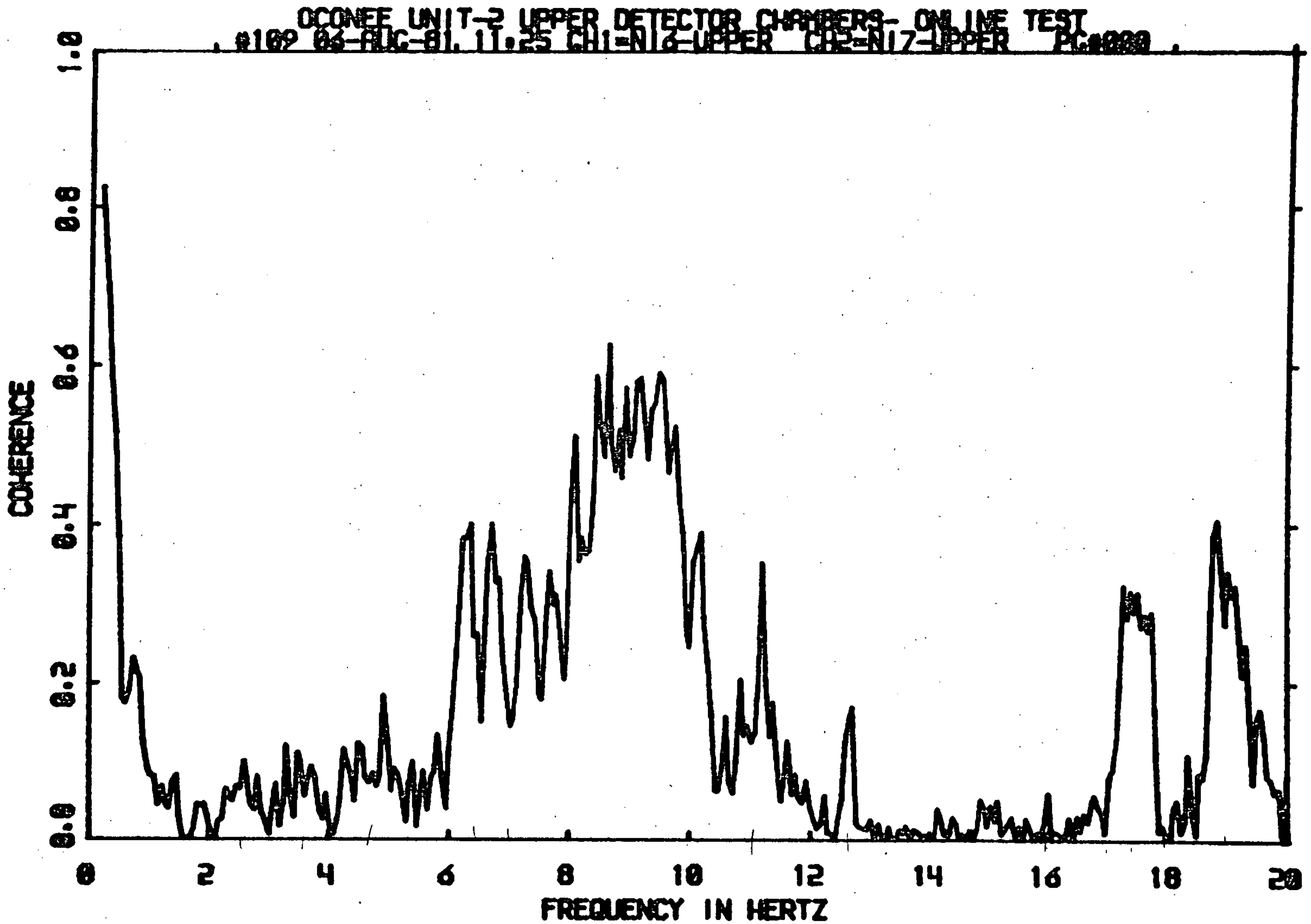

OCONEE UNIT-2 UPPER DETECTOR CHAMBERS- ONLINE TEST
#100 06-AUG-81, 11:04 CH1=N16-UPPER CH2=N18-UPPER PG#000
RMS= 1.093 E-3
NORM CPSD MAGNITUDE
10^-5
10^-6
10^-7
10^-8
10^-9
10^-10
10^-11
0
2
4
6
8
10
12
14
16
18
20
FREQUENCY IN HERTZ

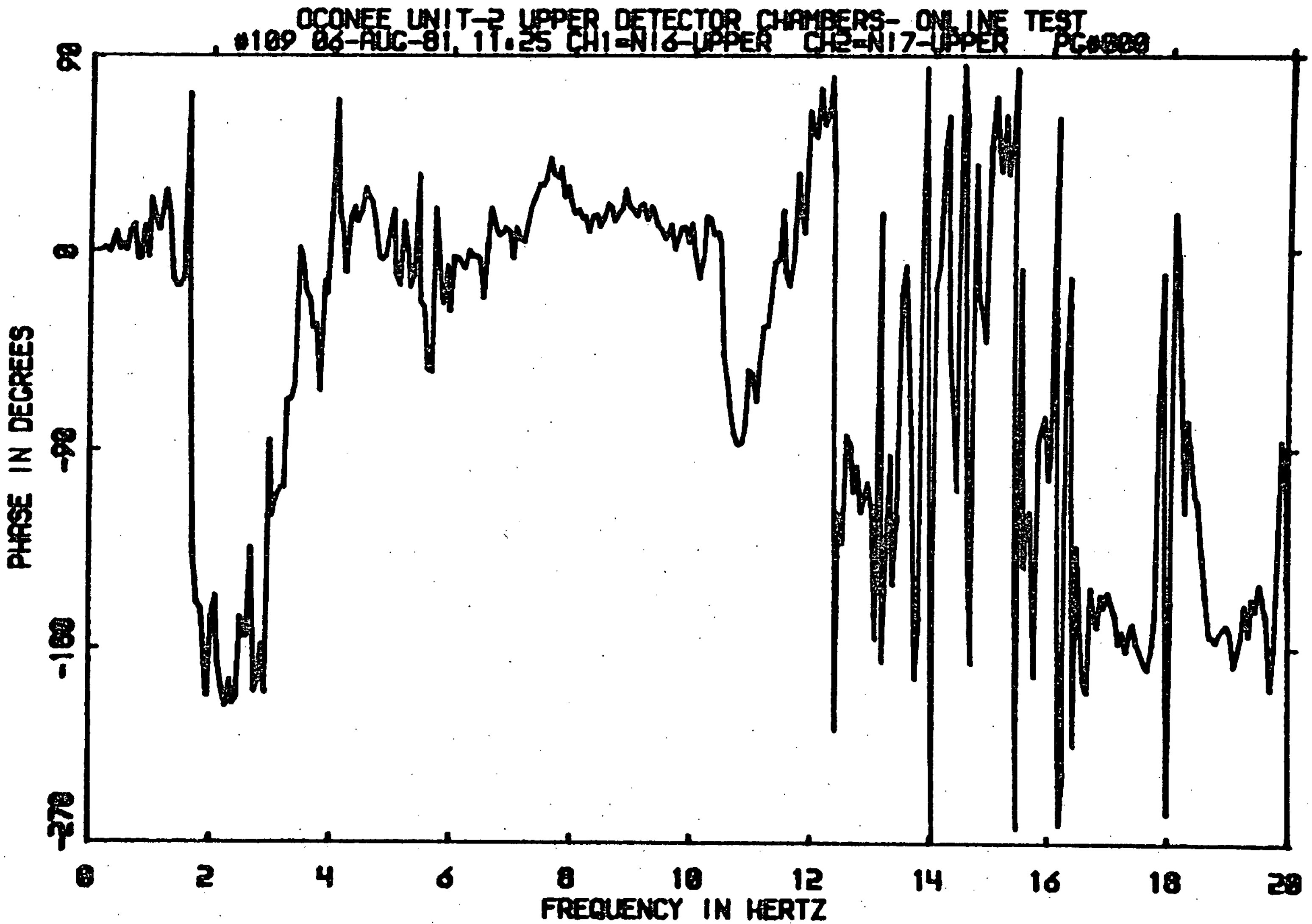


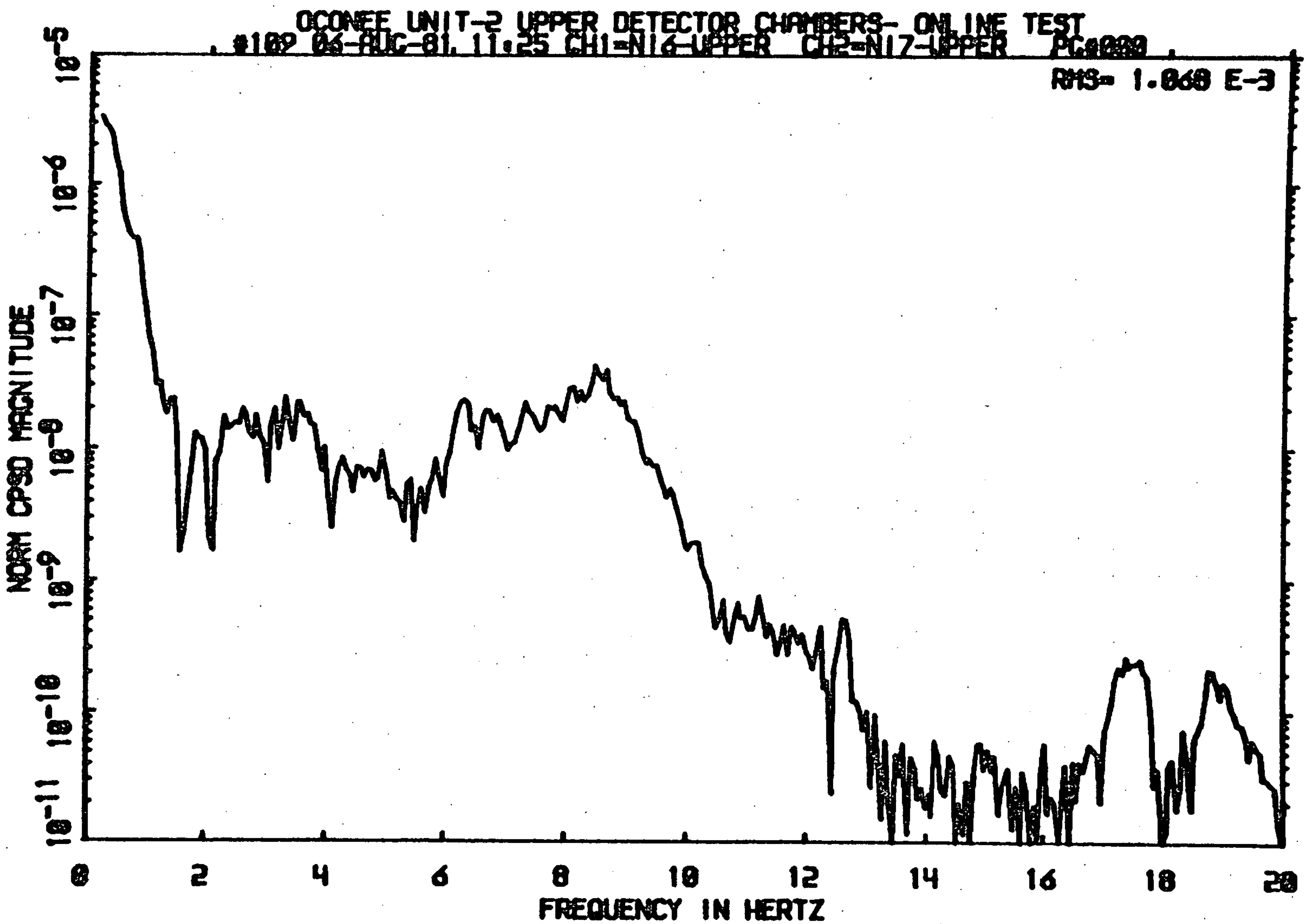
OCONEE UNIT-2 UPPER DETECTOR CHAMBERS- ONLINE TEST
#108 06-AUG-81 11.04 CH1=N16-UPPER CH2=N18-UPPER PC=000
RMS= 1.321 E-3
NORMALIZED PSD2
10-5
10-6
10-7
10-8
10-9
10-10
10-11
0
2
4
6
8
10
12
14
16
18
20
FREQUENCY IN HERTZ

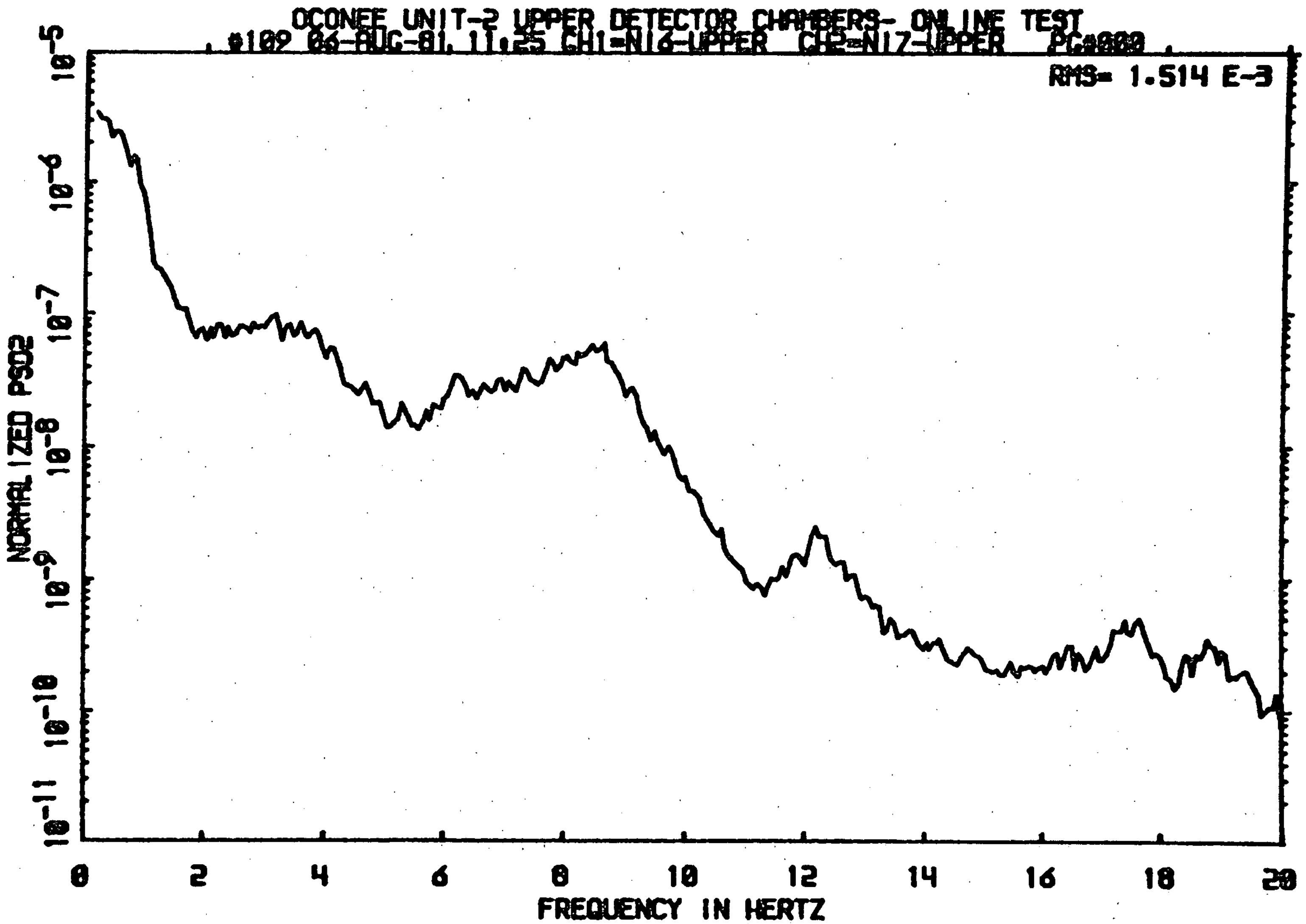


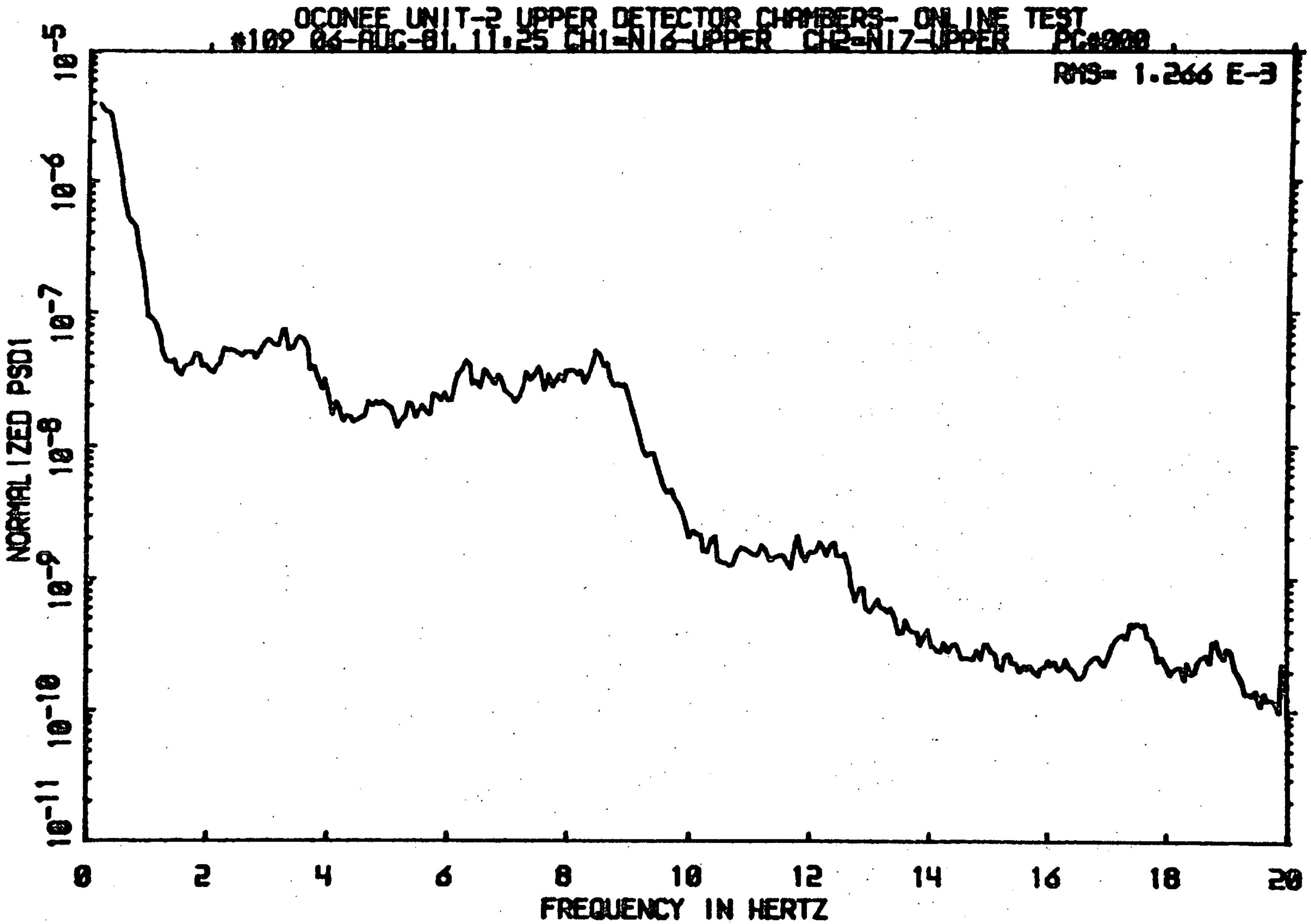
OCONEE UNIT-2 UPPER DETECTOR CHAMBERS- ONLINE TEST
#100 06-AUG-81, 11:04 CH1=N16-UPPER CH2=N18-UPPER PG#000
RMS= 1.284 E-3
NORMALIZED PSD1
FREQUENCY IN HERTZ


OCONEE UNIT-2 UPPER DETECTOR CHAMBERS- ONLINE TEST
#169 06-AUG-81, 11.25 CH1=N16-UPPER CH2=N17-UPPER PC#000
COHERENCE
0.0
0.2
0.4
0.6
0.8
1.0
0
2
4
6
8
10
12
14
16
18
20
FREQUENCY IN HERTZ


OCONEE UNIT-2 UPPER DETECTOR CHAMBERS- ONLINE TEST
#109 06-AUG-81, 11:25 CH1=N16-UPPER CH2=N17-UPPER PG#000
PHASE IN DEGREES
90
0
-90
-180
-270
0
2
4
6
8
10
12
14
16
18
20
FREQUENCY IN HERTZ


OCONEE UNIT-2 UPPER DETECTOR CHAMBERS- ONLINE TEST
#109 06-AUG-81, 11:25 CH1=N16-UPPER CH2=N17-UPPER PC#000
RMS= 1.068 E-3
NORM CPSD MAGNITUDE
10^-5
10^-6
10^-7
10^-8
10^-9
10^-10
10^-11
0
2
4
6
8
10
12
14
16
18
20
FREQUENCY IN HERTZ

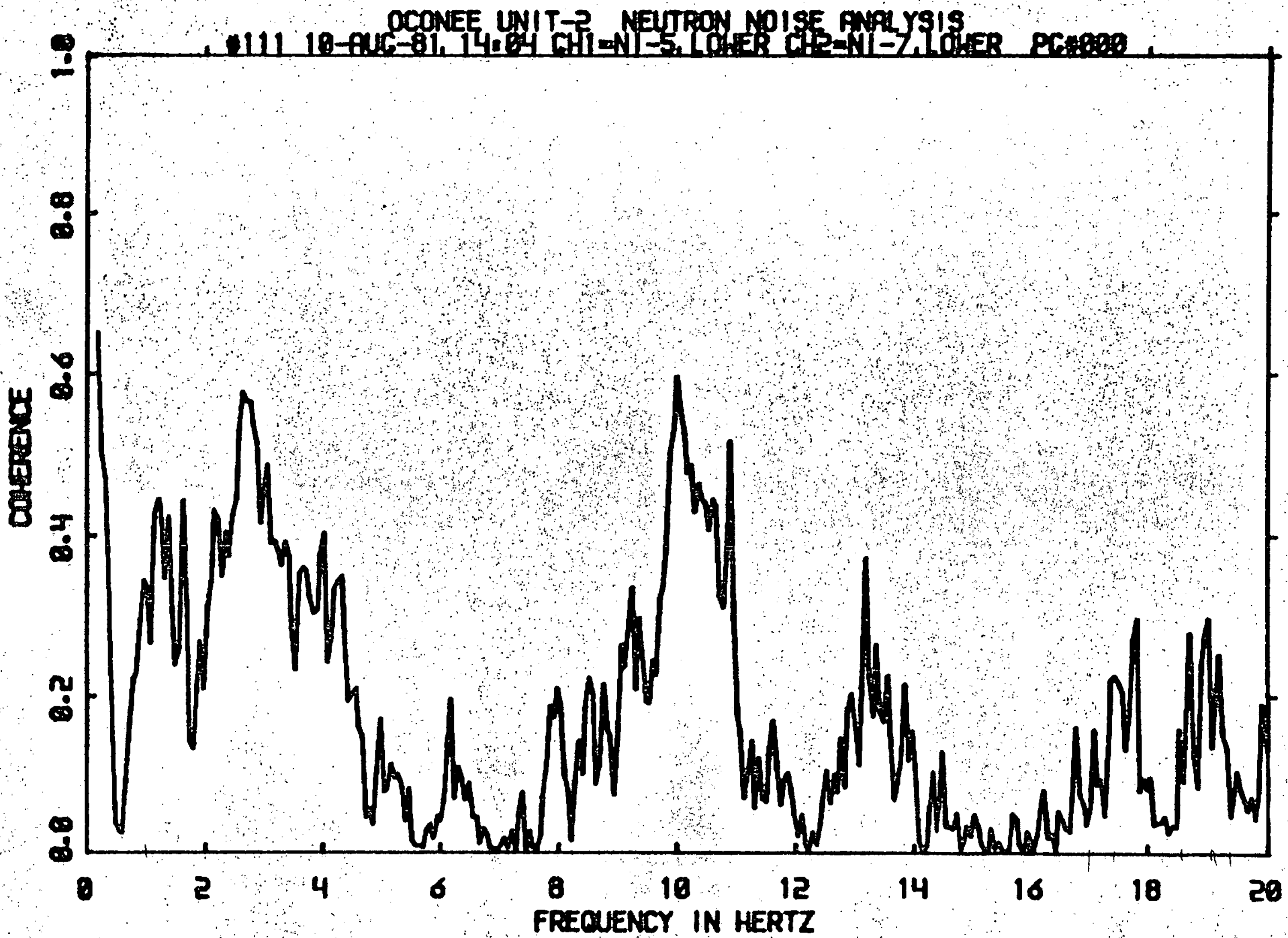

OCONEE UNIT-2 UPPER DETECTOR CHAMBERS- ONLINE TEST
#109 06-AUG-81, 11:25 CH1=N16-UPPER CH2=N17-UPPER PC#000
RMS= 1.514 E-3
NORMALIZED PSD2
10^{-5}
10^{-6}
10^{-7}
10^{-8}
10^{-9}
10^{-10}
10^{-11}
0
2
4
6
8
10
12
14
16
18
20
FREQUENCY IN HERTZ

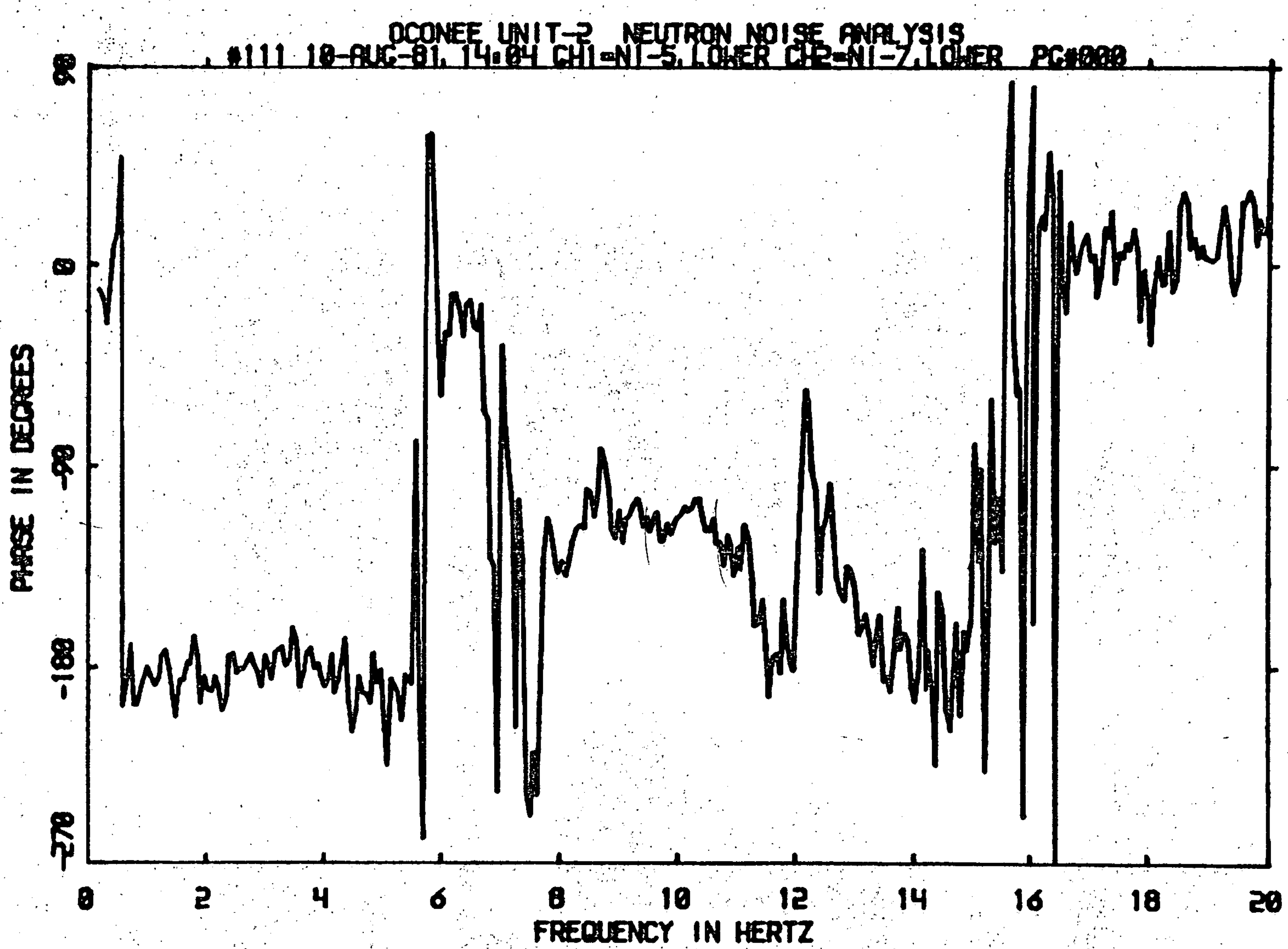

OCONEE UNIT-2 UPPER DETECTOR CHAMBERS- ONLINE TEST
#109 06-AUG-81 11:25 CH1=N16-UPPER CH2=N17-UPPER PC=000
RMS= 1.266 E-3
NORMALIZED PSD1
10-5
10-6
10-7
10-8
10-9
10-10
10-11
0
2
4
6
8
10
12
14
16
18
20
FREQUENCY IN HERTZ

CONTENTS

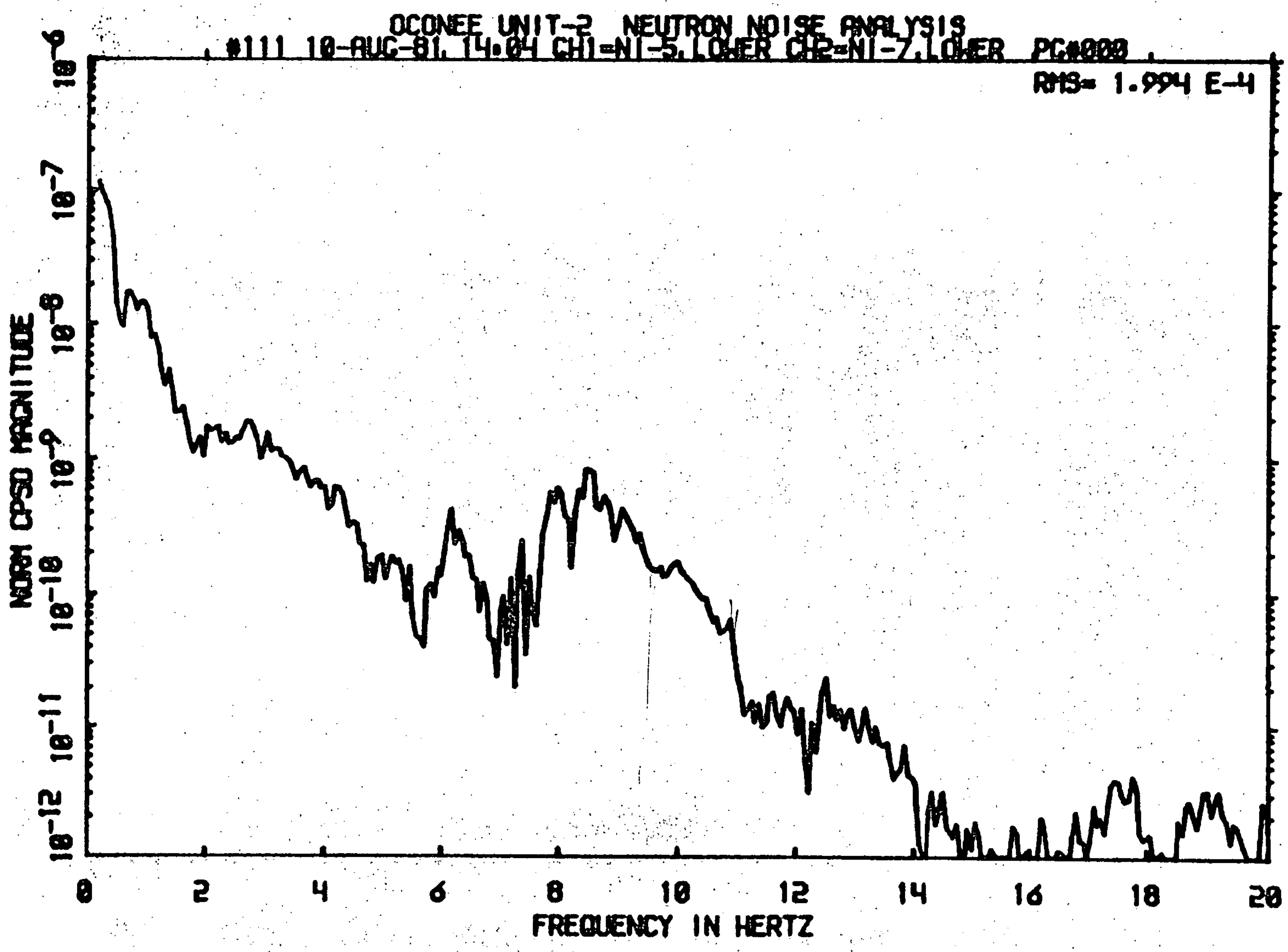
Neutron noise data for MOC 5 Unit 2, reduced August 10-11, 1981 at TEC

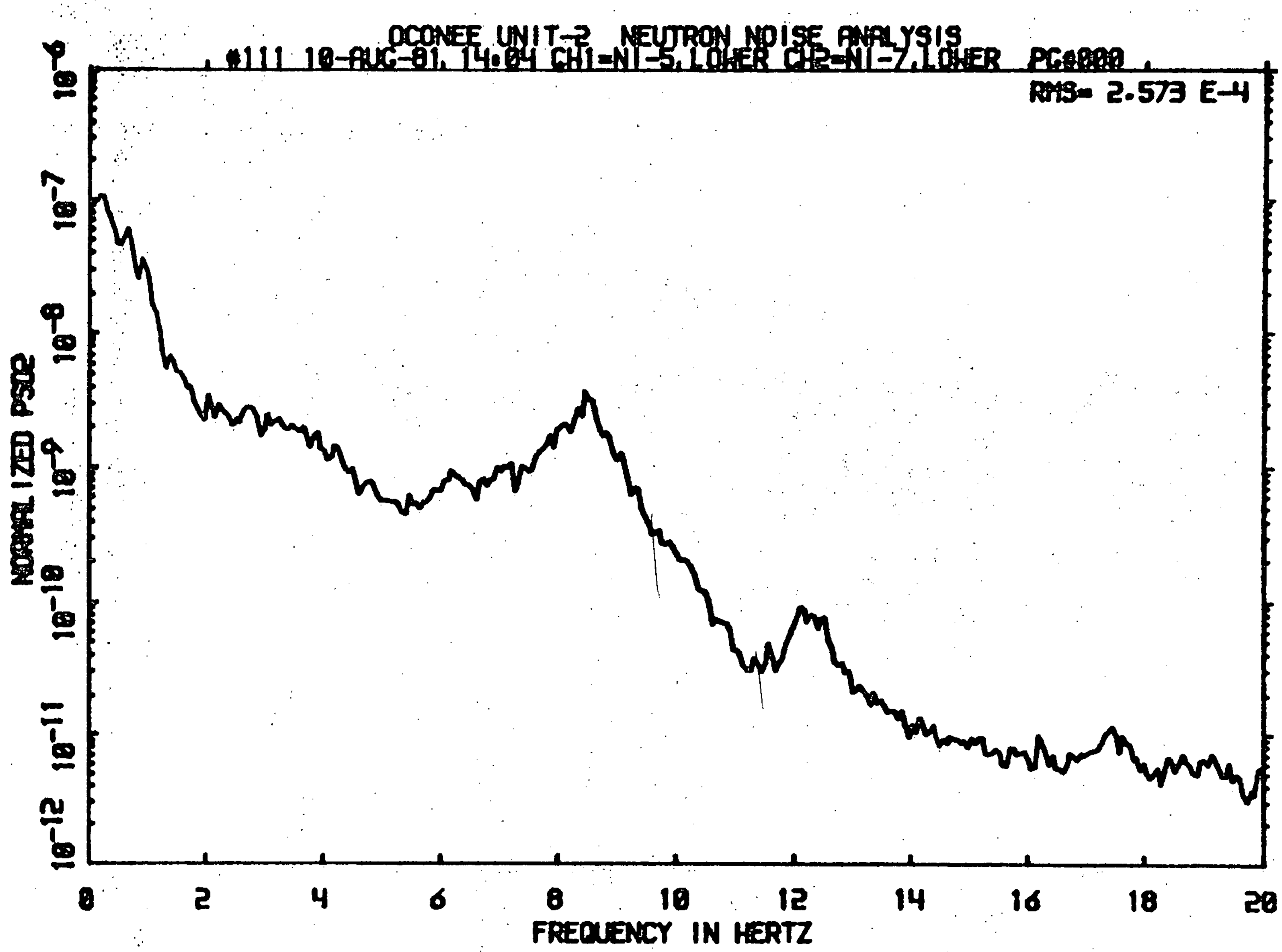
TEST #	DETECTOR PAIRS
111	NI-5 lower x NI-7 lower
112	NI-6 lower x NI-8 lower
113	NI-5 lower x NI-6 lower
114	NI-5 lower x NI-8 lower
115	NI-6 lower x NI-7 lower
116	NI-7 lower x NI-8 lower
117	NI-5 upper x NI-6 upper
118	NI-5 upper x NI-7 upper
119	NI-6 upper x NI-7 upper
120	NI-5 upper x B-Pressure
121	NI-6 upper x B-Pressure
122	NI-7 upper x B-Pressure
123	NI-5 lower x NI-5 upper
124	NI-6 lower x NI-6 upper
125	NI-7 lower x NI-7 upper
126	NI-6 upper x NI-6 upper


OCONEE UNIT-2 NEUTRON NOISE ANALYSIS
#111 10-AUG-81, 14:04 CH1=NI-5,LOWER CH2=NI-7,LOWER PC#000
COHERENCE
0.0
0.2
0.4
0.6
0.8
1.0
0
2
4
6
8
10
12
14
16
18
20
FREQUENCY IN HERTZ

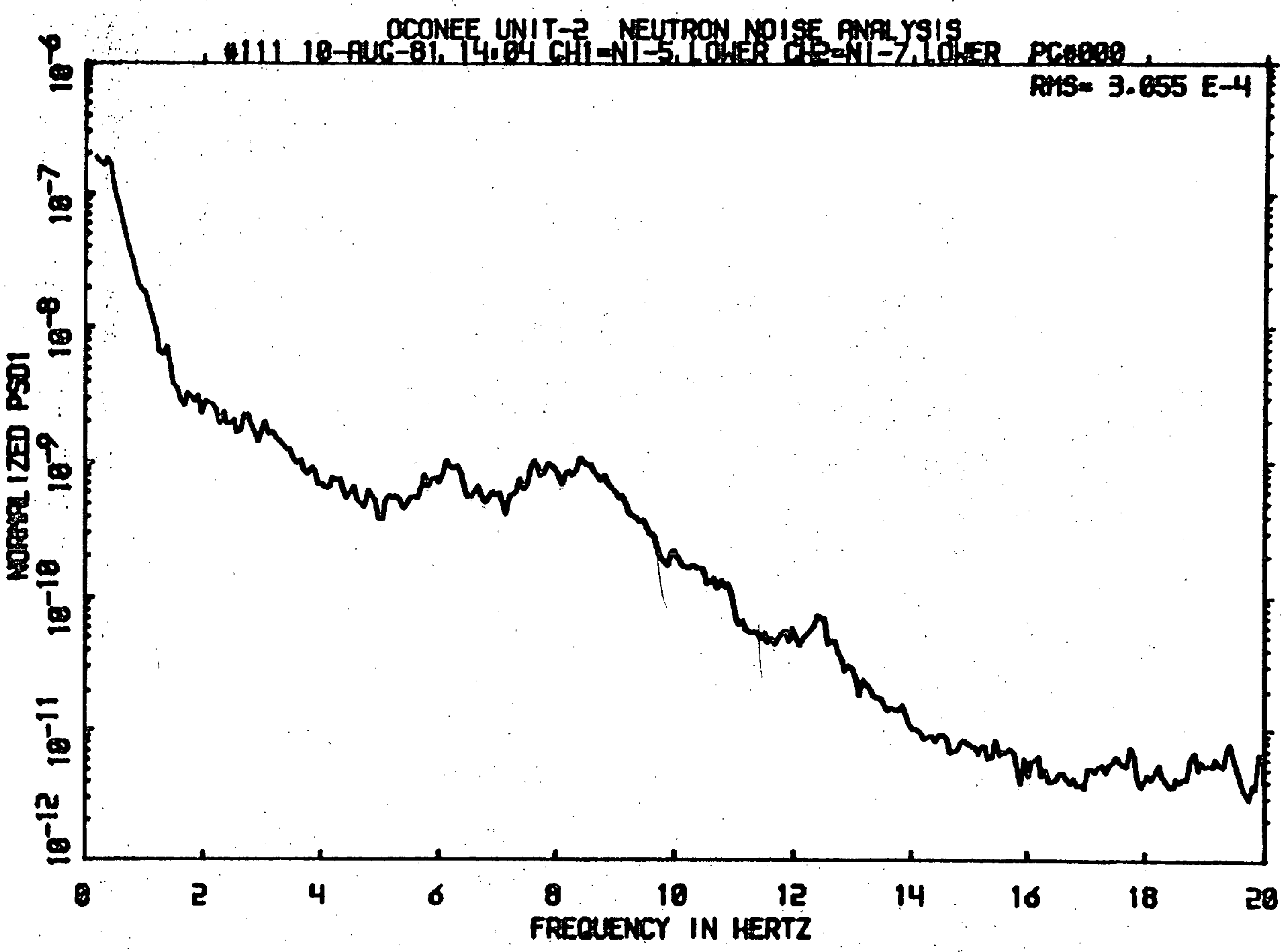


OCONEE UNIT-2 NEUTRON NOISE ANALYSIS
#111 10-AUG-81, 14:04 CH1=NI-5,LOWER CH2=NI-7,LOWER PG#000
PHASE IN DEGREES
90
0
-90
-180
-270
0
2
4
6
8
10
12
14
16
18
20
FREQUENCY IN HERTZ

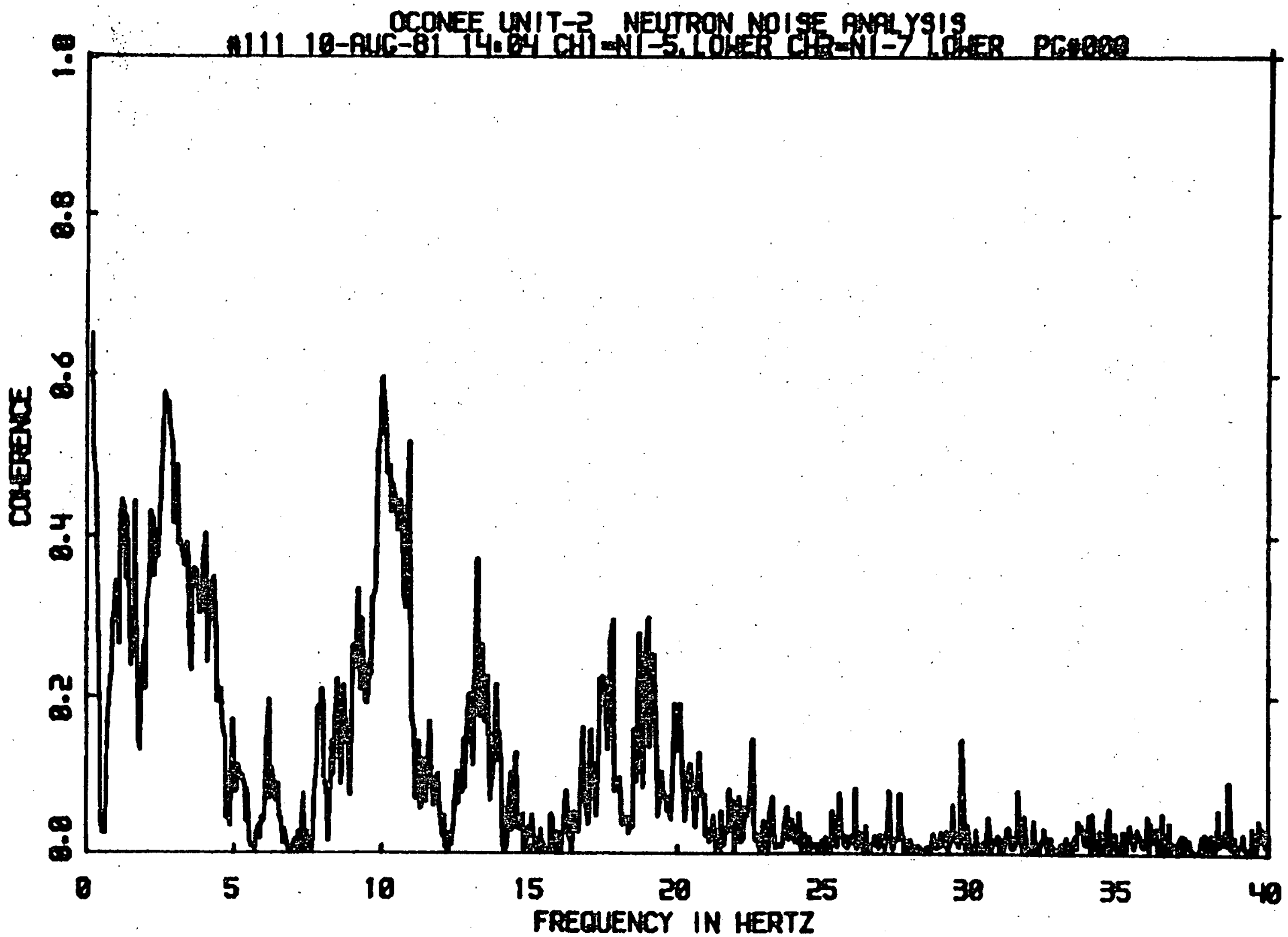

OCONEE UNIT-2 NEUTRON NOISE ANALYSIS
#111 10-AUG-81, 14:04 CH1=NI-5,LOWER CH2=NI-7,LOWER PC#000
RMS= 1.994 E-4
NORM CPSD MAGNITUDE
10^-12 10^-11 10^-10 10^-9 10^-8 10^-7 10^-6
0 2 4 6 8 10 12 14 16 18 20
FREQUENCY IN HERTZ

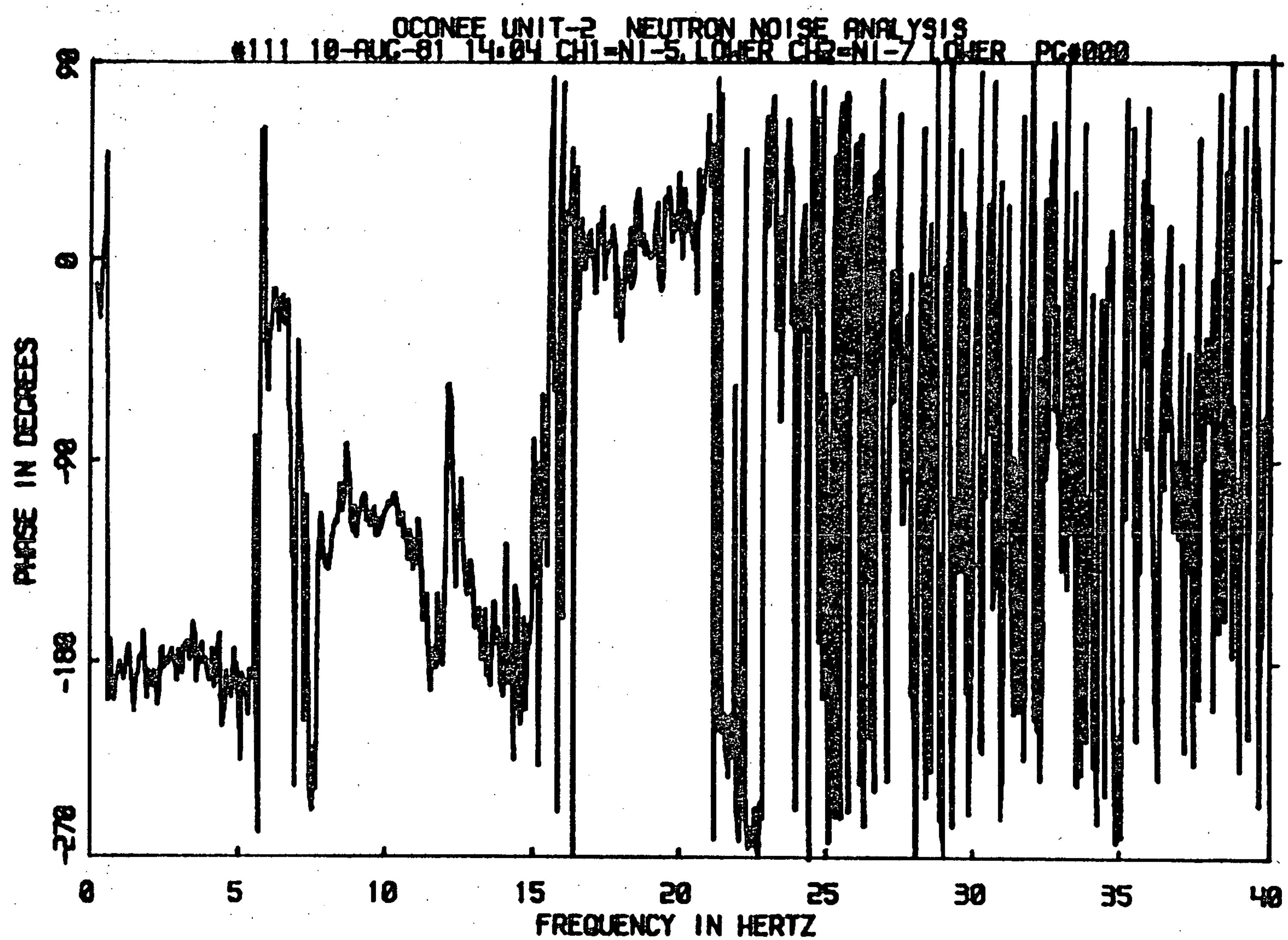


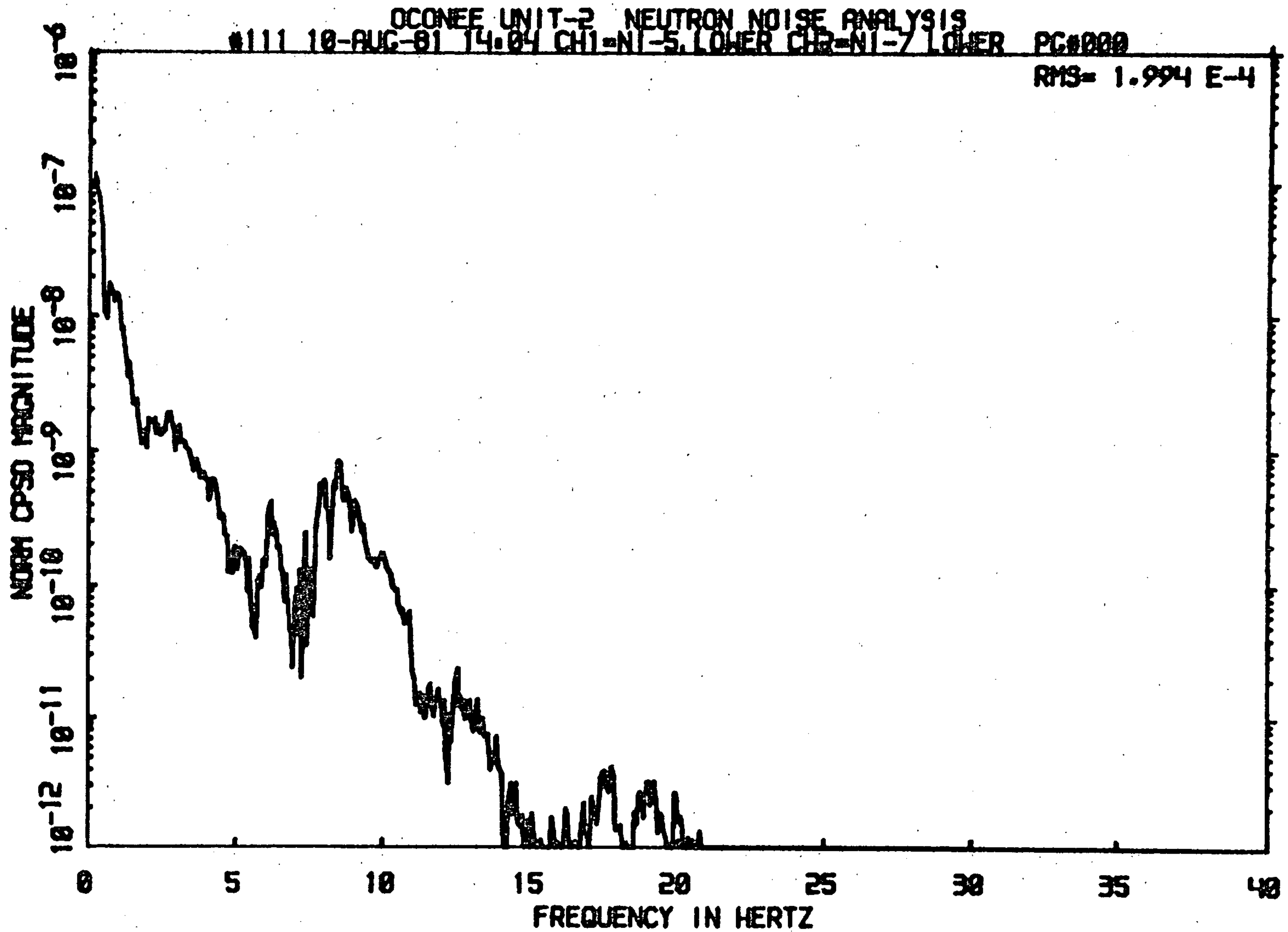
OCONEE UNIT-2 NEUTRON NOISE ANALYSIS
#111 10-AUG-81, 14:04 CH1=NI-5,LOWER CH2=NI-7,LOWER PG#000
RMS= 2.573 E-4
NORMALIZED PSD2
10^-12
10^-11
10^-10
10^-9
10^-8
10^-7
10^-6
0
2
4
6
8
10
12
14
16
18
20
FREQUENCY IN HERTZ

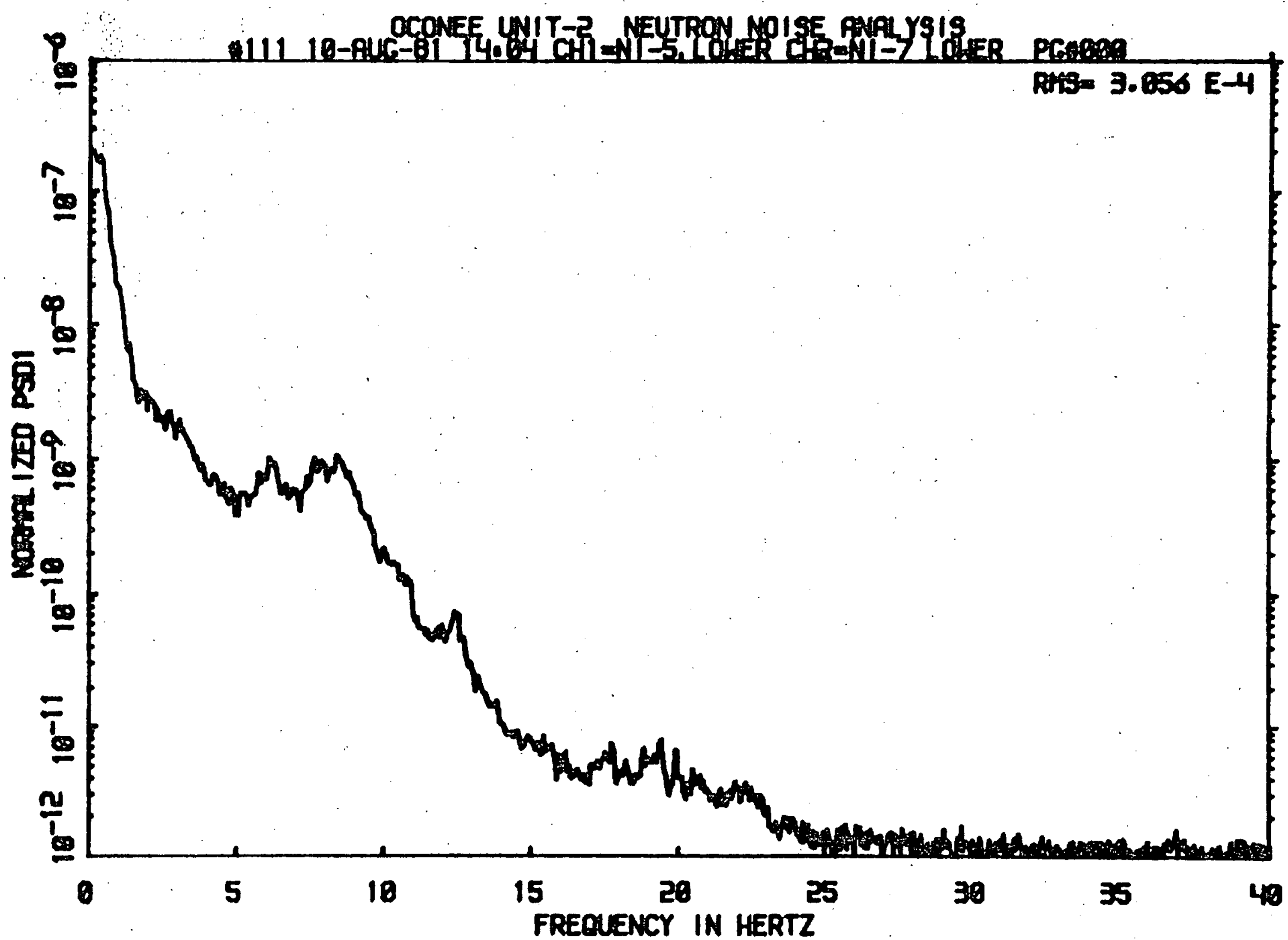


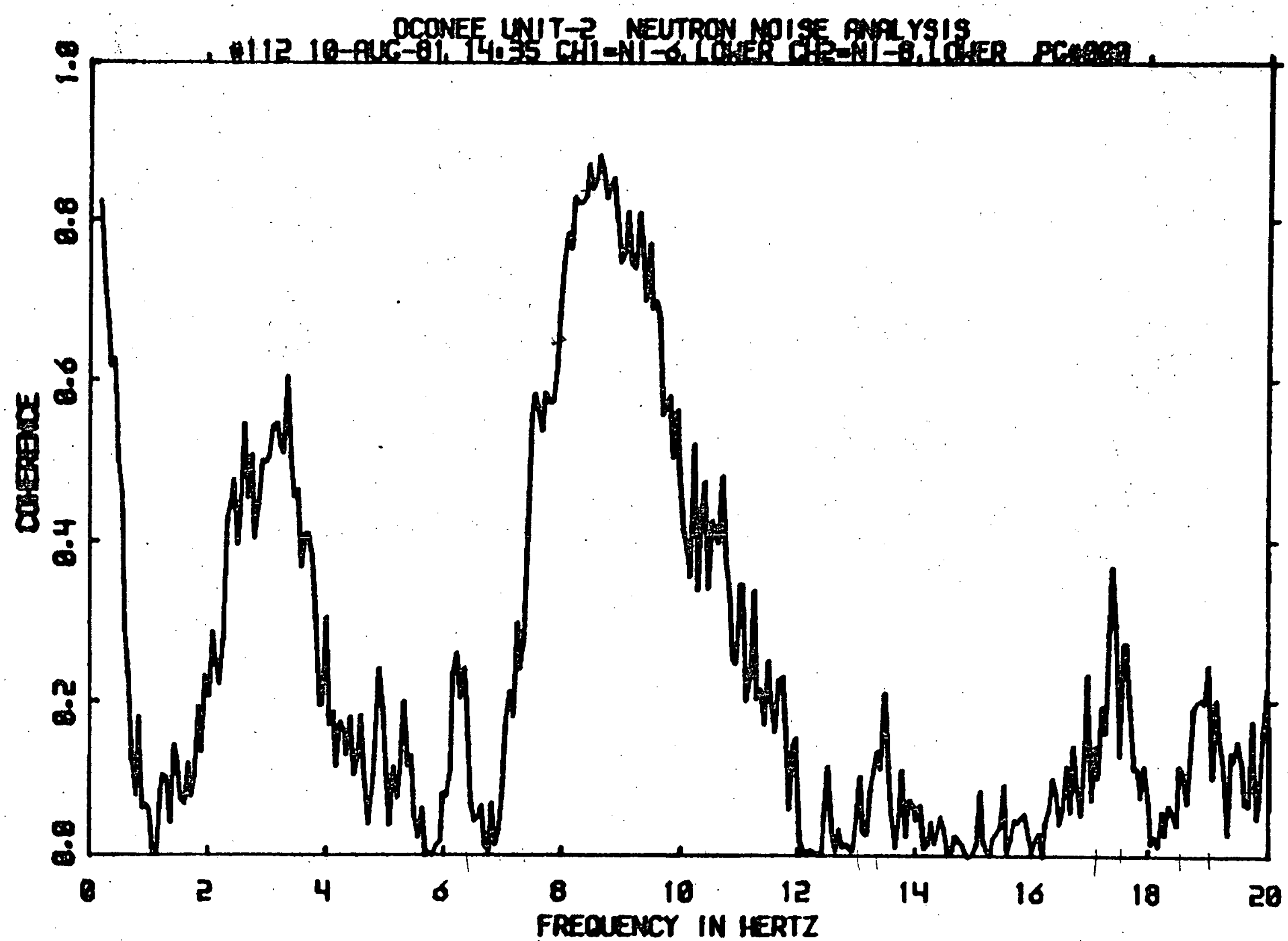
OCONEE UNIT-2 NEUTRON NOISE ANALYSIS
#111 10-AUG-81, 14:04 CH1=NI-5,LOWER CH2=NI-7,LOWER PC#000
RMS= 3.055 E-4
NORMALIZED PSD1
10^-12
10^-11
10^-10
10^-9
10^-8
10^-7
10^-6
0
2
4
6
8
10
12
14
16
18
20
FREQUENCY IN HERTZ


OCONEE UNIT-2 NEUTRON NOISE ANALYSIS
#111 10-AUG-81 14:04 CH1=NI-5,LOWER CH2=NI-7 LOWER PG#000
COHERENCE
0.0
0.2
0.4
0.6
0.8
1.0
0
5
10
15
20
25
30
35
40
FREQUENCY IN HERTZ


OCONEE UNIT-2 NEUTRON NOISE ANALYSIS
#111 10-AUG-81 14:04 CH1=NI-5 LOWER CH2=NI-7 LOWER PC#000
PHASE IN DEGREES
90
0
-90
-180
-270
0
5
10
15
20
25
30
35
40
FREQUENCY IN HERTZ

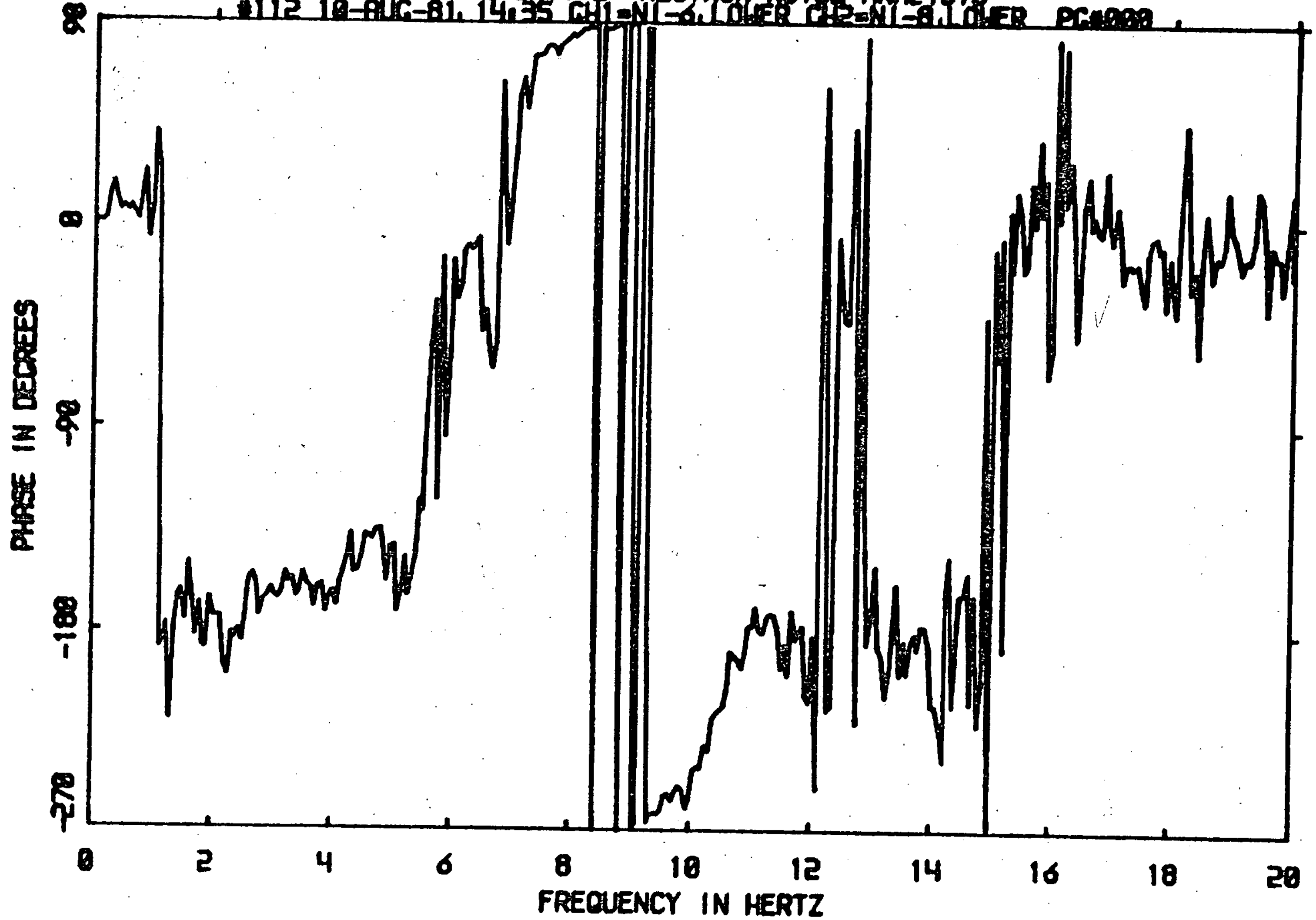

OCONEE UNIT-2 NEUTRON NOISE ANALYSIS
#111 10-AUG-81 14:04 CH1=NI-5 LOWER CH2=NI-7 LOWER PG#000
RMS= 1.994 E-4
NORM CPSD MAGNITUDE
10^-6
10^-7
10^-8
10^-9
10^-10
10^-11
10^-12
0
5
10
15
20
25
30
35
40
FREQUENCY IN HERTZ

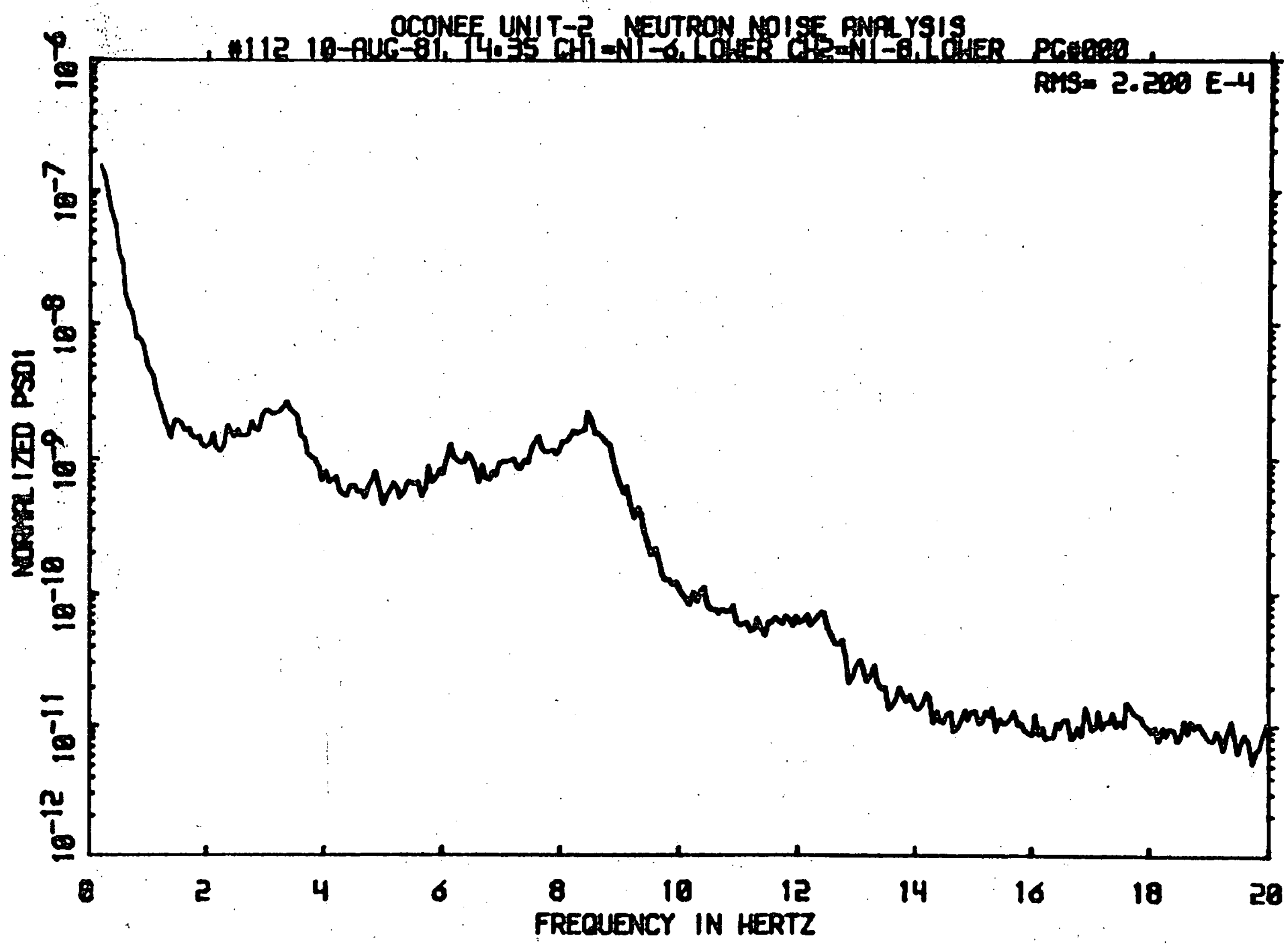

OCONEE UNIT-2 NEUTRON NOISE ANALYSIS
#111 10-AUG-81 14:04 CH1=NI-5,LOWER CH2=NI-7 LOWER PG#000
RMS= 3.056 E-4
NORMALIZED PSD1
10^-12
10^-11
10^-10
10^-9
10^-8
10^-7
10^-6
0
5
10
15
20
25
30
35
40
FREQUENCY IN HERTZ



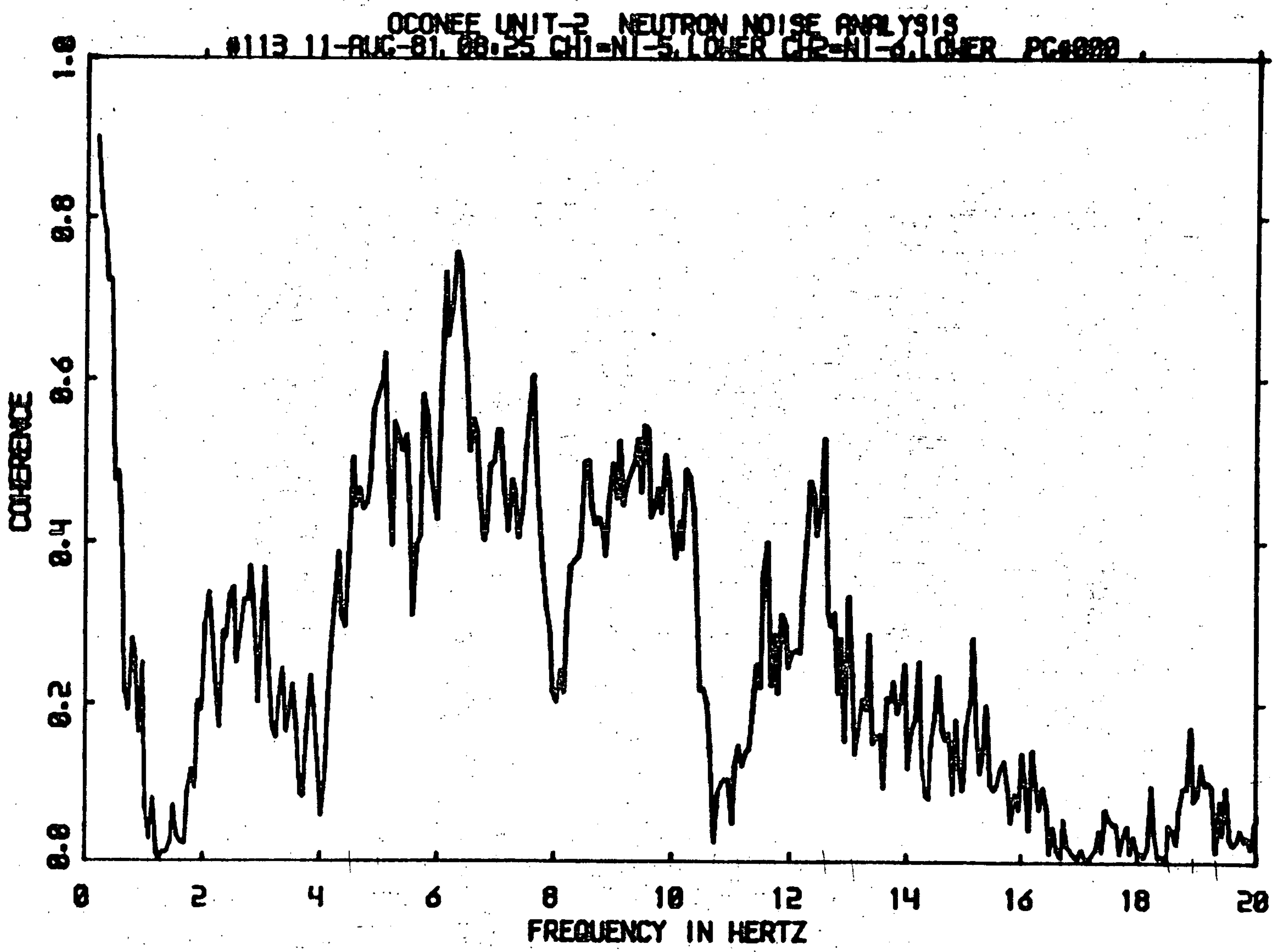
OCONEE UNIT-2 NEUTRON NOISE ANALYSIS
#112 10-AUG-81, 14:35 CH1=NI-6,LOWER CH2=NI-8,LOWER PC#000
COHERENCE
0.0
0.2
0.4
0.6
0.8
1.0
0
2
4
6
8
10
12
14
16
18
20
FREQUENCY IN HERTZ

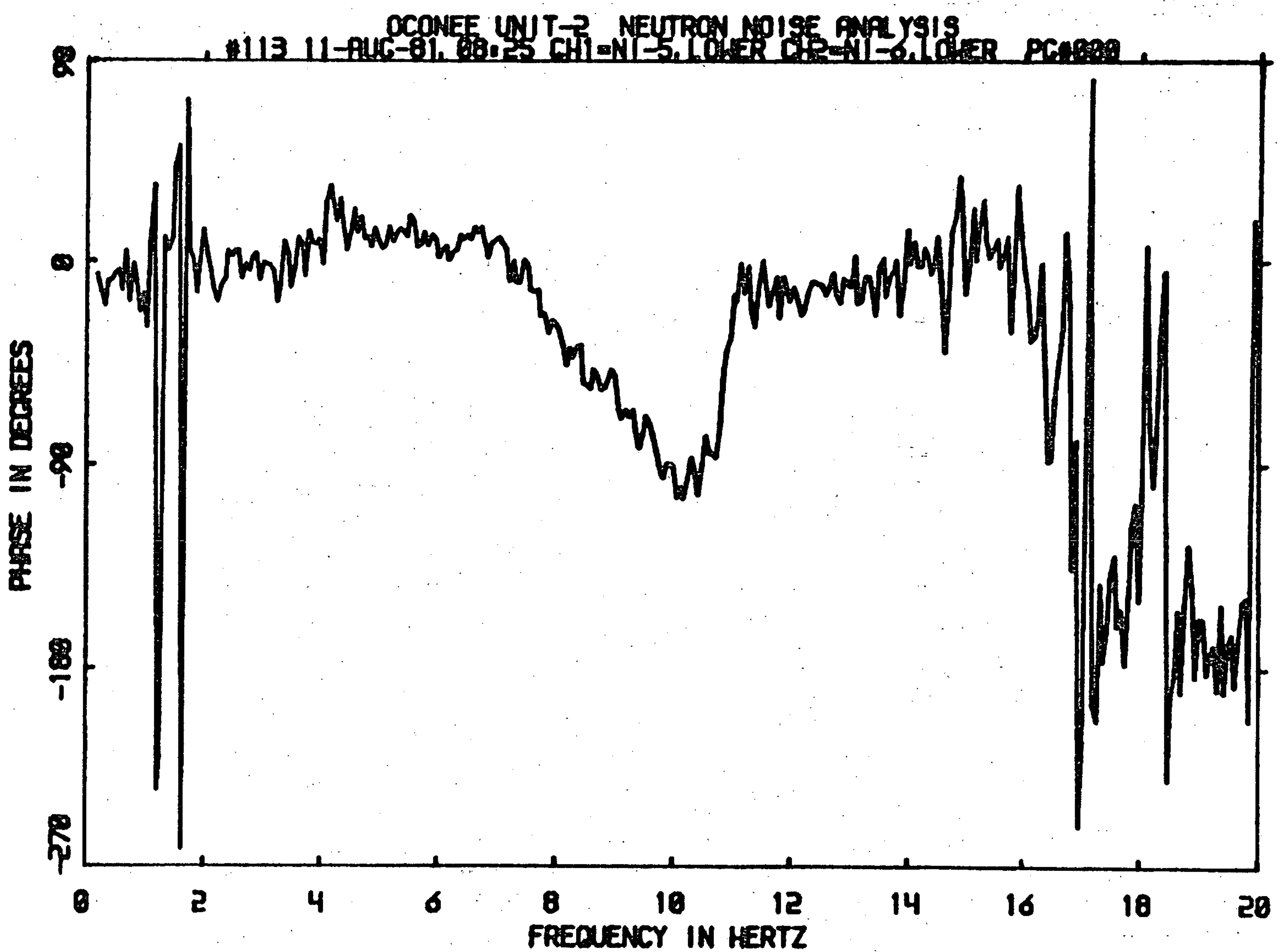
OCONEE UNIT-2 NEUTRON NOISE ANALYSIS
#112 10-AUG-81 14:35 CH1=NI-6 LOWER CH2=NI-8 LOWER PC#000

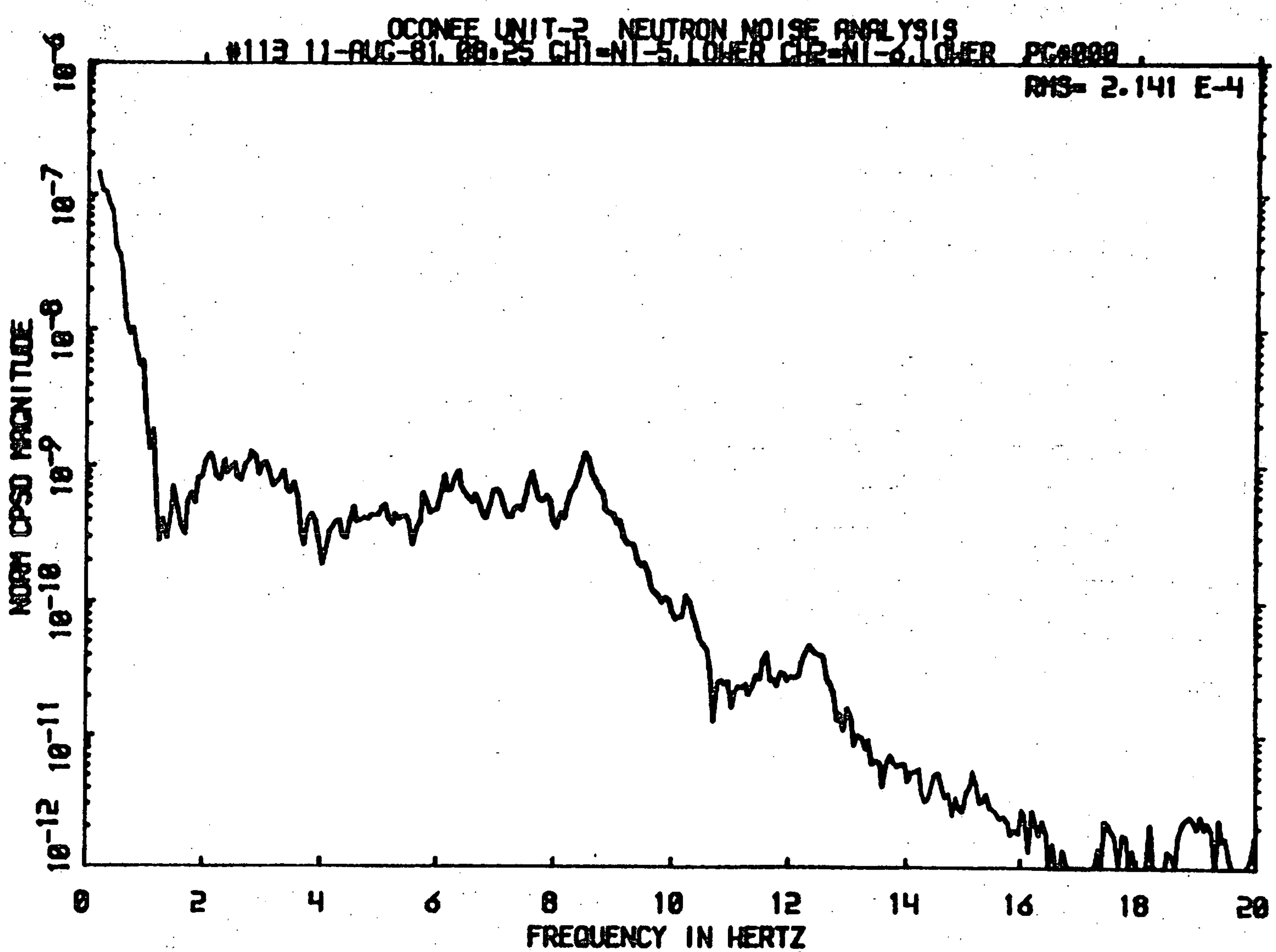


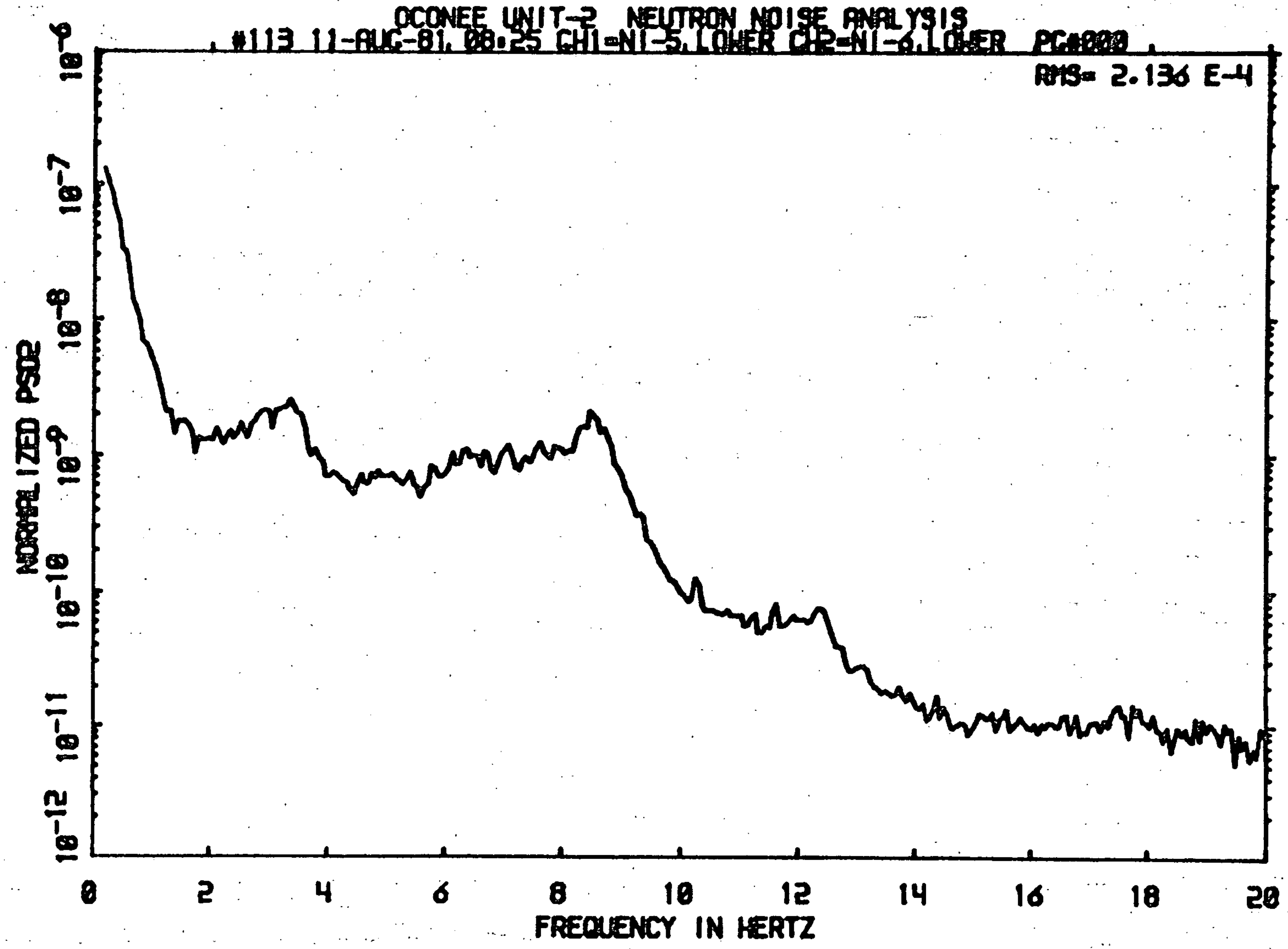


OCONEE UNIT-2 NEUTRON NOISE ANALYSIS
#112 10-AUG-81, 14:35 CH1=NI-6,LOWER CH2=NI-8,LOWER PG#000
RMS= 2.200 E-4
NORMALIZED PSD1
10-6
10-7
10-8
10-9
10-10
10-11
10-12
0
2
4
6
8
10
12
14
16
18
20
FREQUENCY IN HERTZ

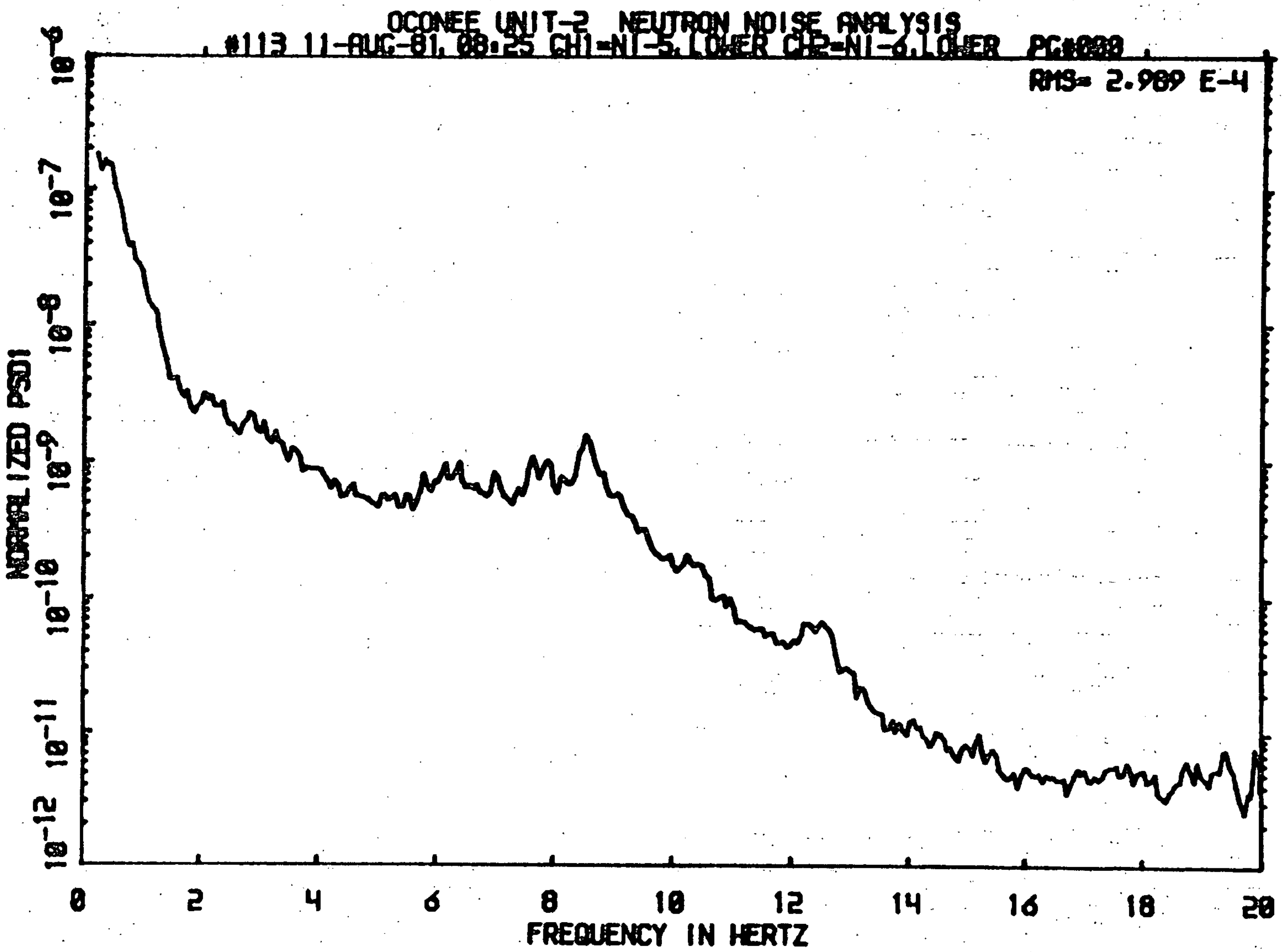

OCONEE UNIT-2 NEUTRON NOISE ANALYSIS
#113 11-AUG-81 08:25 CH1=NI-5,LOWER CH2=NI-6,LOWER PG#000
COHERENCE
0.0
0.2
0.4
0.6
0.8
1.0
0
2
4
6
8
10
12
14
16
18
20
FREQUENCY IN HERTZ


OCONEE UNIT-2 NEUTRON NOISE ANALYSIS
#113 11-AUG-81, 08:25 CH1=NI-5,LOWER CH2=NI-6,LOWER PG#000
PHASE IN DEGREES
90
0
-90
-180
-270
0
2
4
6
8
10
12
14
16
18
20
FREQUENCY IN HERTZ

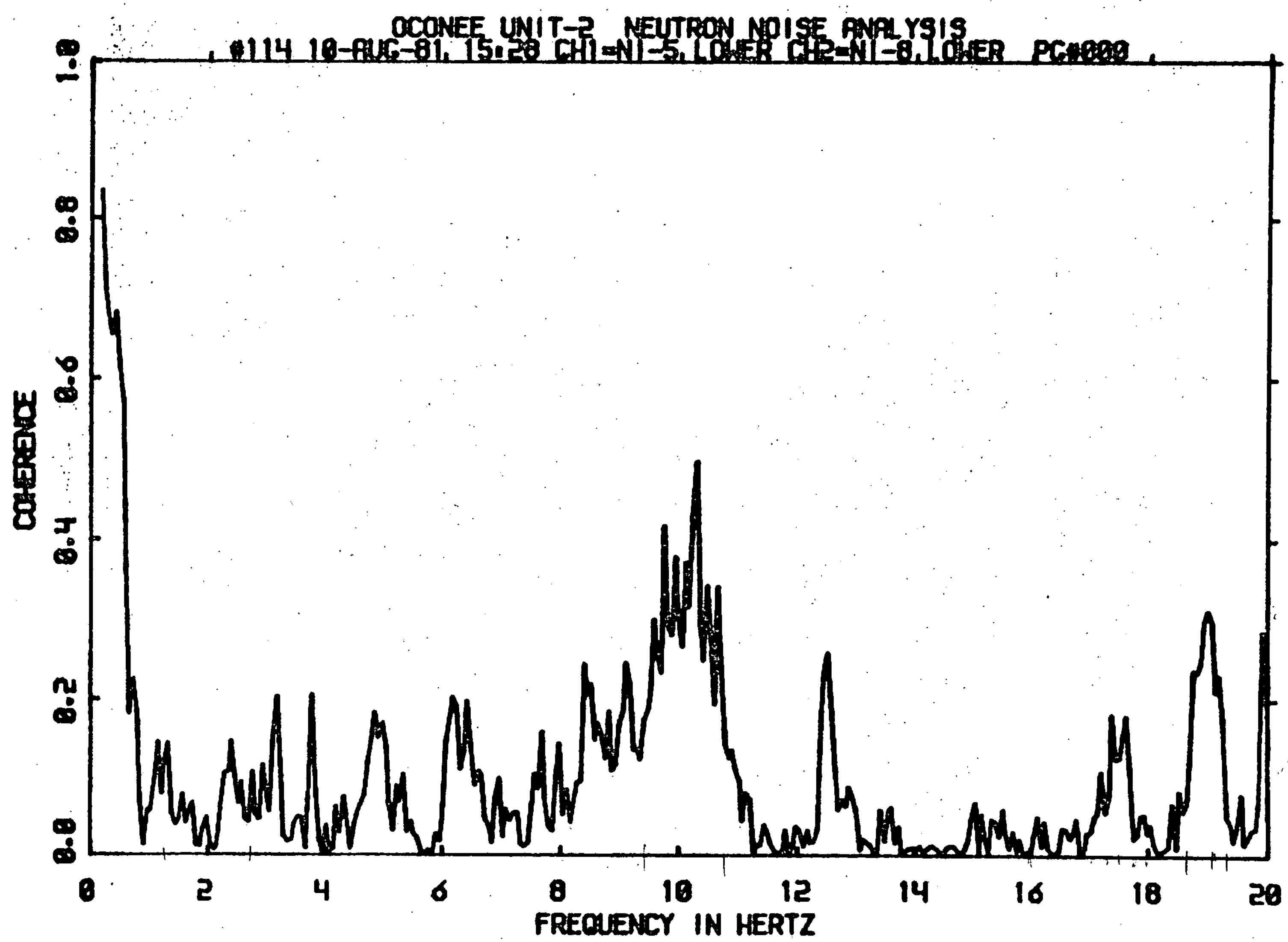

OCONEE UNIT-2 NEUTRON NOISE ANALYSIS
#113 11-AUG-81, 08:25 CH1=NI-5,LOWER CH2=NI-6,LOWER PG#000
RMS= 2.141 E-4
NORM CPSD MAGNITUDE
10^-12 10^-11 10^-10 10^-9 10^-8 10^-7 10^-6
0 2 4 6 8 10 12 14 16 18 20
FREQUENCY IN HERTZ

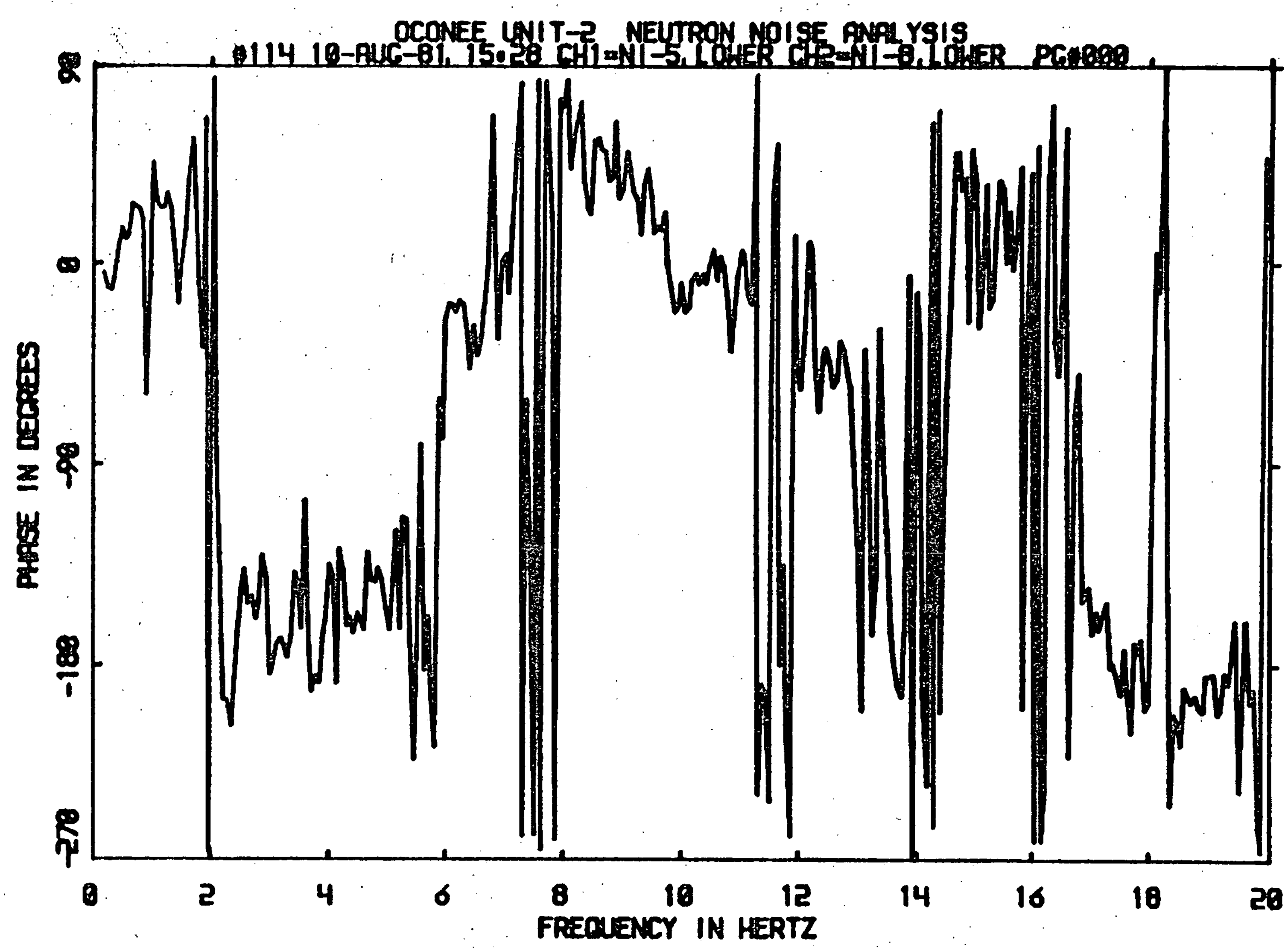


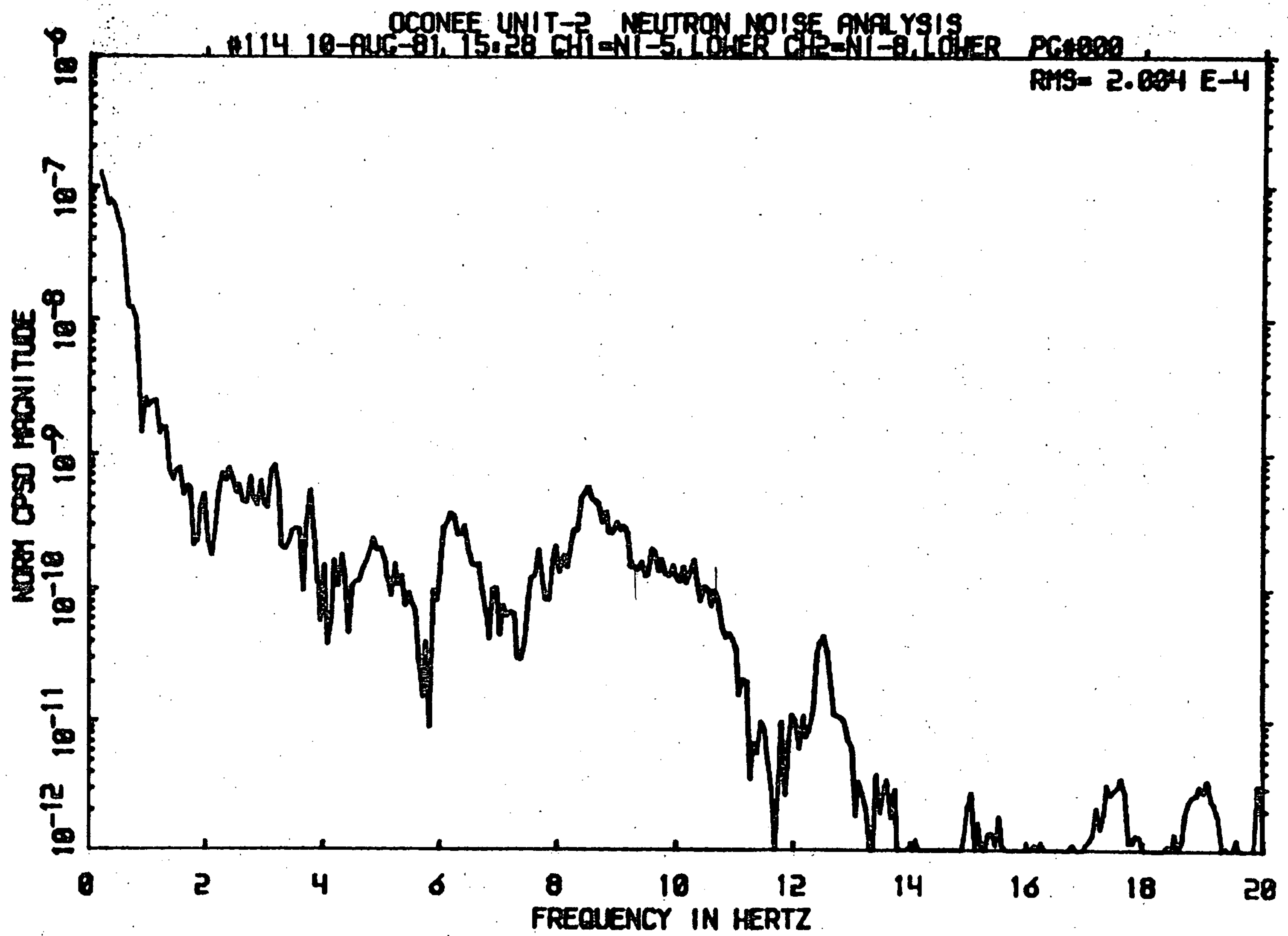
OCONEE UNIT-2 NEUTRON NOISE ANALYSIS
#113 11-AUG-81, 08:25 CH1=NI-5,LOWER CH2=NI-6,LOWER PG#000
RMS= 2.136 E-4
NORMALIZED PSD2
10^-6
10^-7
10^-8
10^-9
10^-10
10^-11
10^-12
0
2
4
6
8
10
12
14
16
18
20
FREQUENCY IN HERTZ

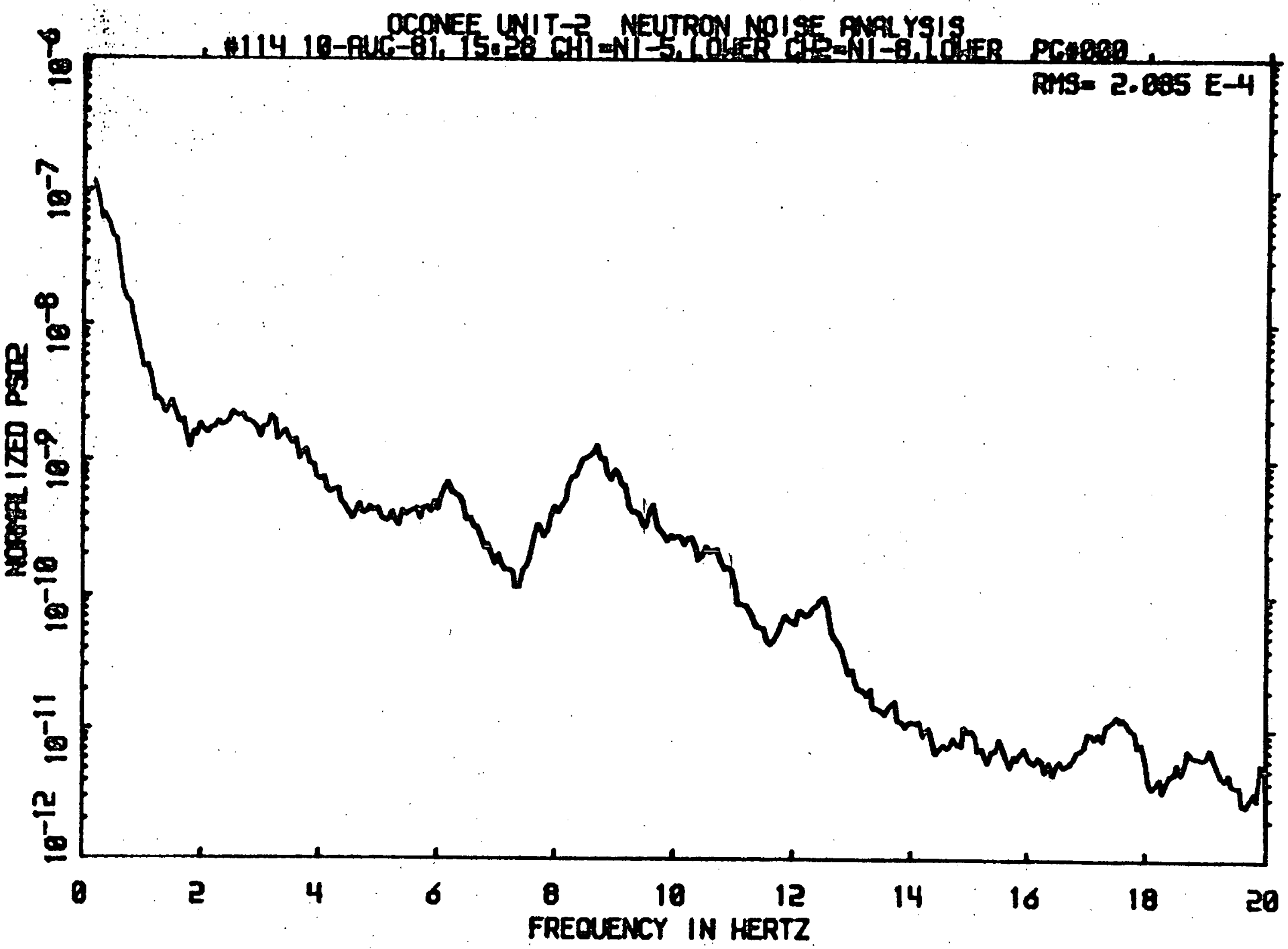


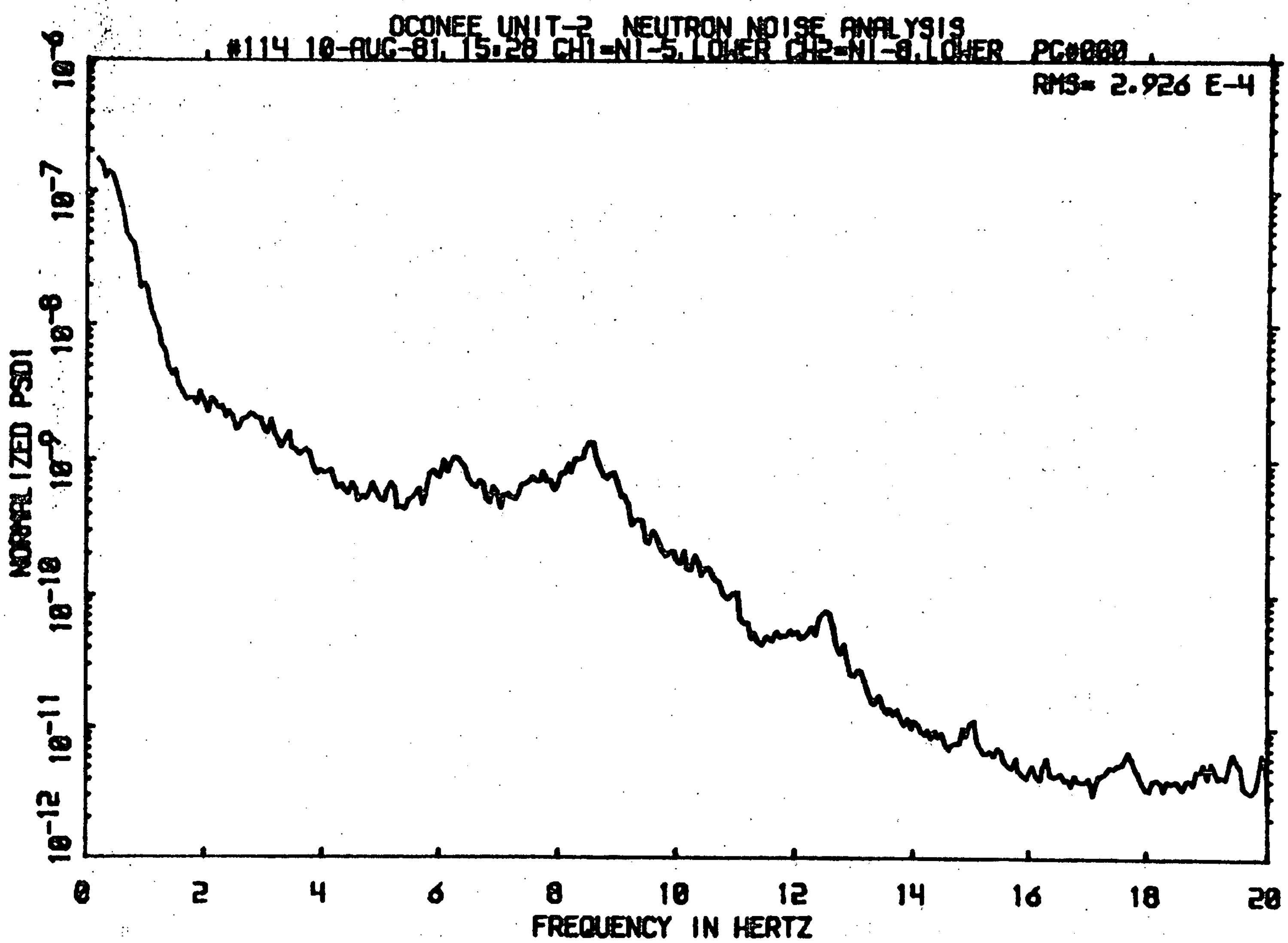
OCONEE UNIT-2 NEUTRON NOISE ANALYSIS
#113 11-AUG-81, 08:25 CH1=NI-5,LOWER CH2=NI-6,LOWER PG#080
RMS= 2.989 E-4
NORMALIZED PSD1
10^-12
10^-11
10^-10
10^-9
10^-8
10^-7
10^-6
0
2
4
6
8
10
12
14
16
18
20
FREQUENCY IN HERTZ


OCONEE UNIT-2 NEUTRON NOISE ANALYSIS
#114 10-AUG-81, 15:28 CH1=NI-5,LOWER CH2=NI-8,LOWER PC#000
COHERENCE
0.0
0.2
0.4
0.6
0.8
1.0
0
2
4
6
8
10
12
14
16
18
20
FREQUENCY IN HERTZ


OCONEE UNIT-2 NEUTRON NOISE ANALYSIS
#114 10-AUG-81, 15:28 CH1=NI-5,LOWER CH2=NI-8,LOWER PG#000
PHASE IN DEGREES
90
0
-90
-180
-270
0
2
4
6
8
10
12
14
16
18
20
FREQUENCY IN HERTZ


OCONEE UNIT-2 NEUTRON NOISE ANALYSIS
#114 10-AUG-81, 15:28 CH1=NI-5,LOWER CH2=NI-8,LOWER PG#000
RMS= 2.004 E-4
NORM CPSD MAGNITUDE
10^-6
10^-7
10^-8
10^-9
10^-10
10^-11
10^-12
0
2
4
6
8
10
12
14
16
18
20
FREQUENCY IN HERTZ


OCONEE UNIT-2 NEUTRON NOISE ANALYSIS
#114 10-AUG-81, 15:28 CH1=NI-5,LOWER CH2=NI-8,LOWER PG#000
RMS= 2.085 E-4
NORMALIZED PSDP
FREQUENCY IN HERTZ


OCONEE UNIT-2 NEUTRON NOISE ANALYSIS
#114 10-AUG-81, 15:28 CH1=NI-5,LOWER CH2=NI-8,LOWER PG#000
RMS= 2.926 E-4
NORMALIZED PSD1
10^-6
10^-7
10^-8
10^-9
10^-10
10^-11
10^-12
0
2
4
6
8
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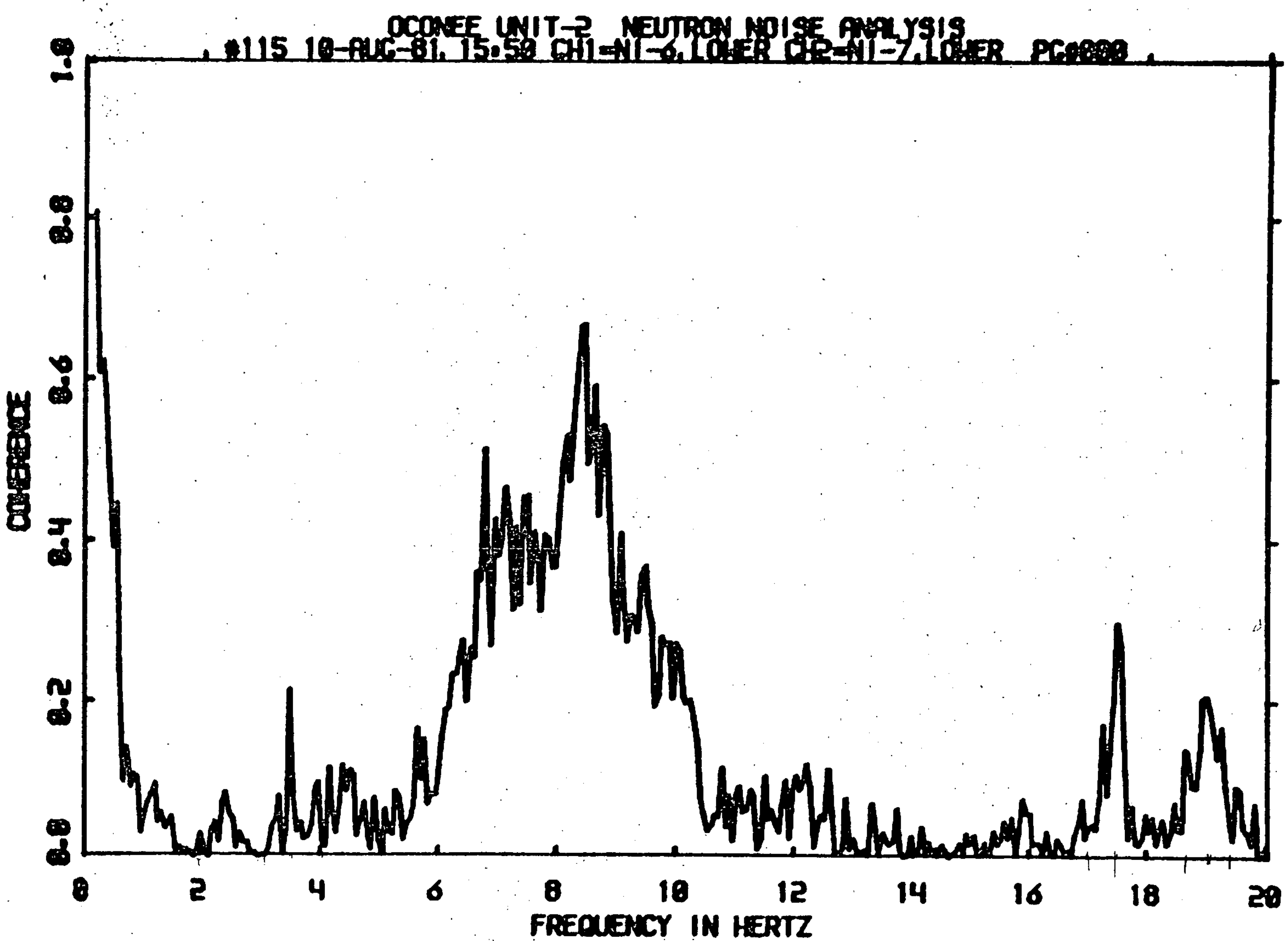
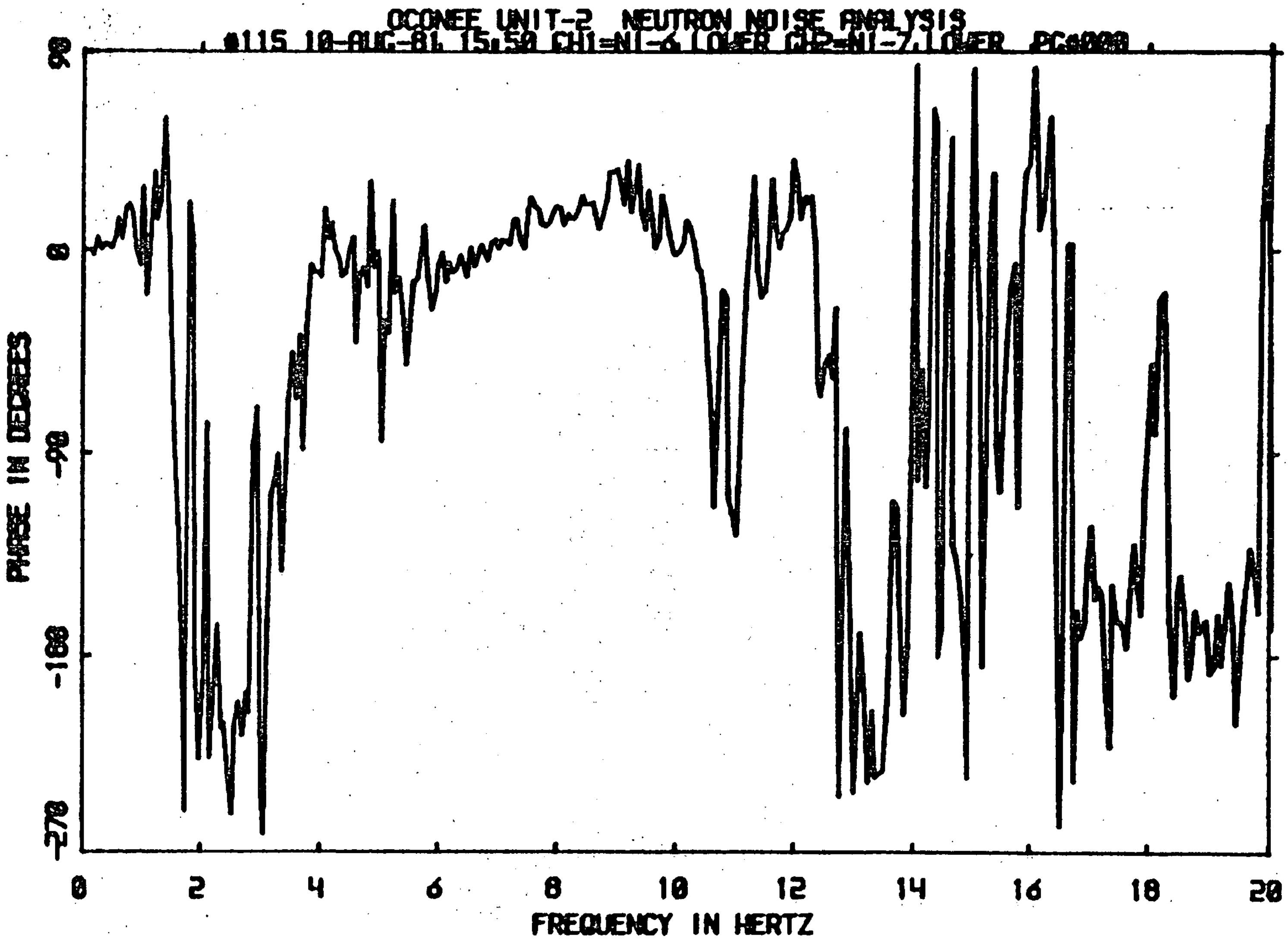
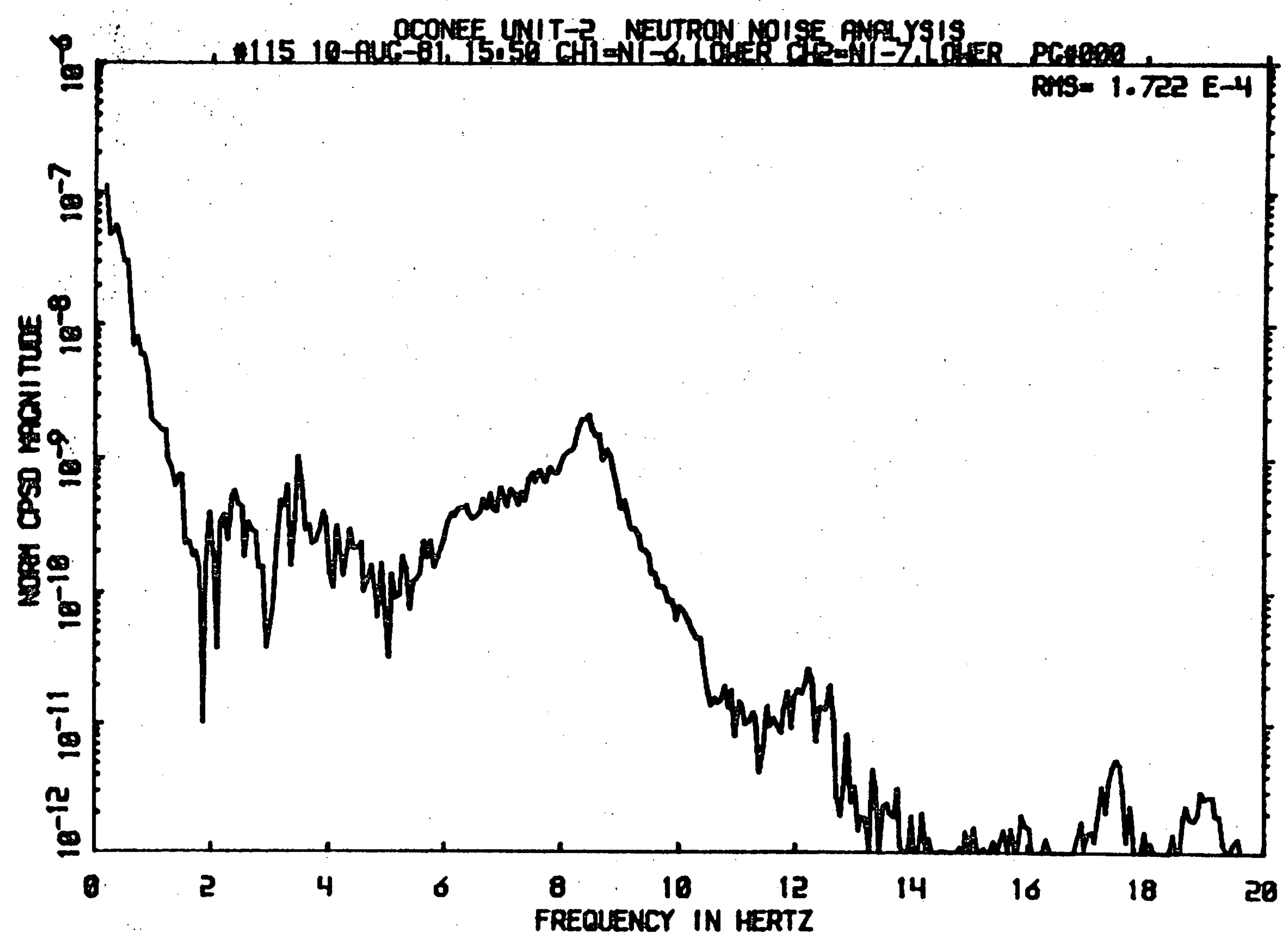
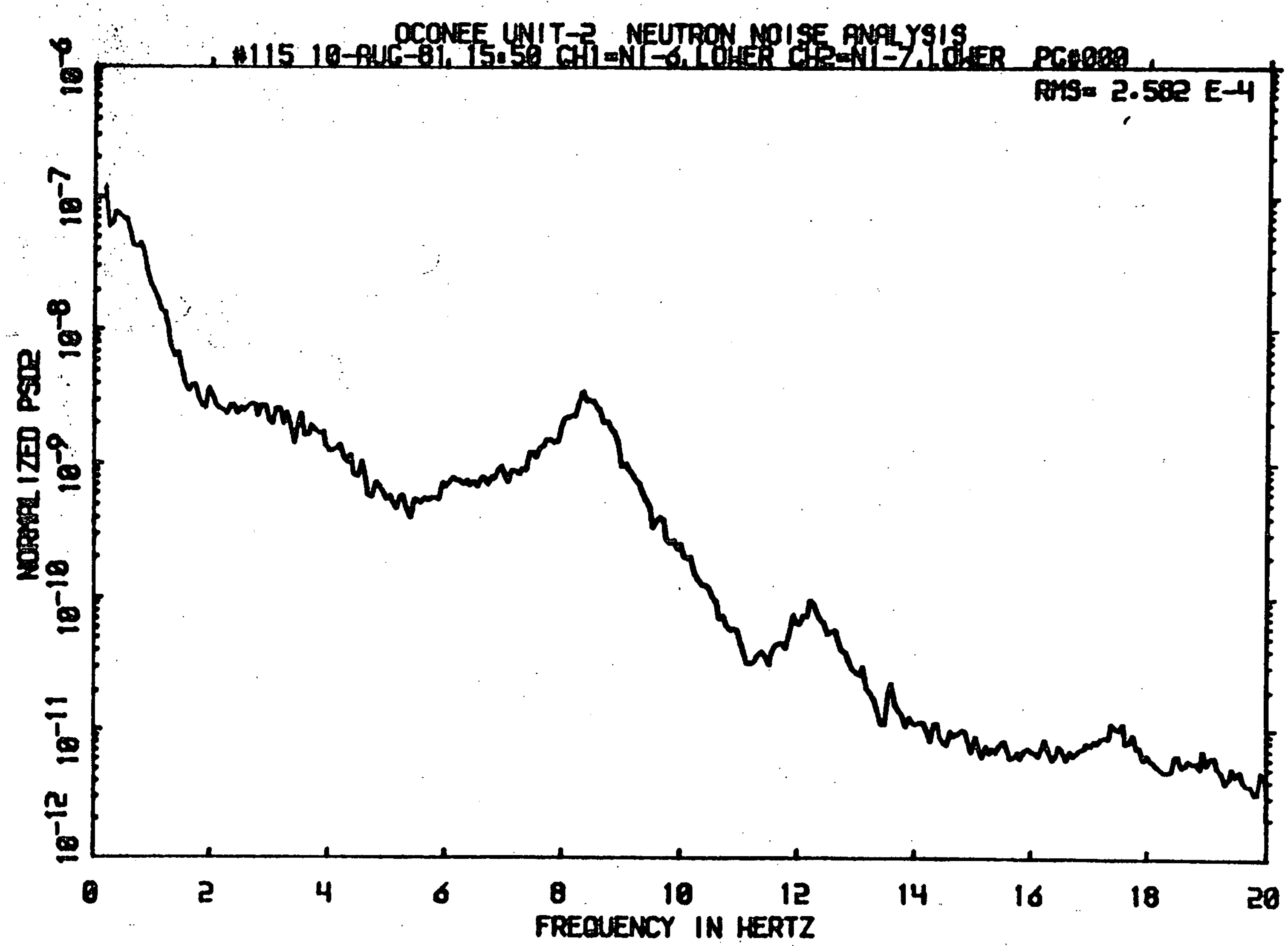
12
14
16
18
20
FREQUENCY IN HERTZ


OCONEE UNIT-2 NEUTRON NOISE ANALYSIS
#115 10-AUG-81, 15:50 CH1=NI-6,LOWER CH2=NI-7,LOWER PC#000
COHERENCE
0.0
0.2
0.4
0.6
0.8
1.0
0
2
4
6
8
10
12
14
16
18
20
FREQUENCY IN HERTZ

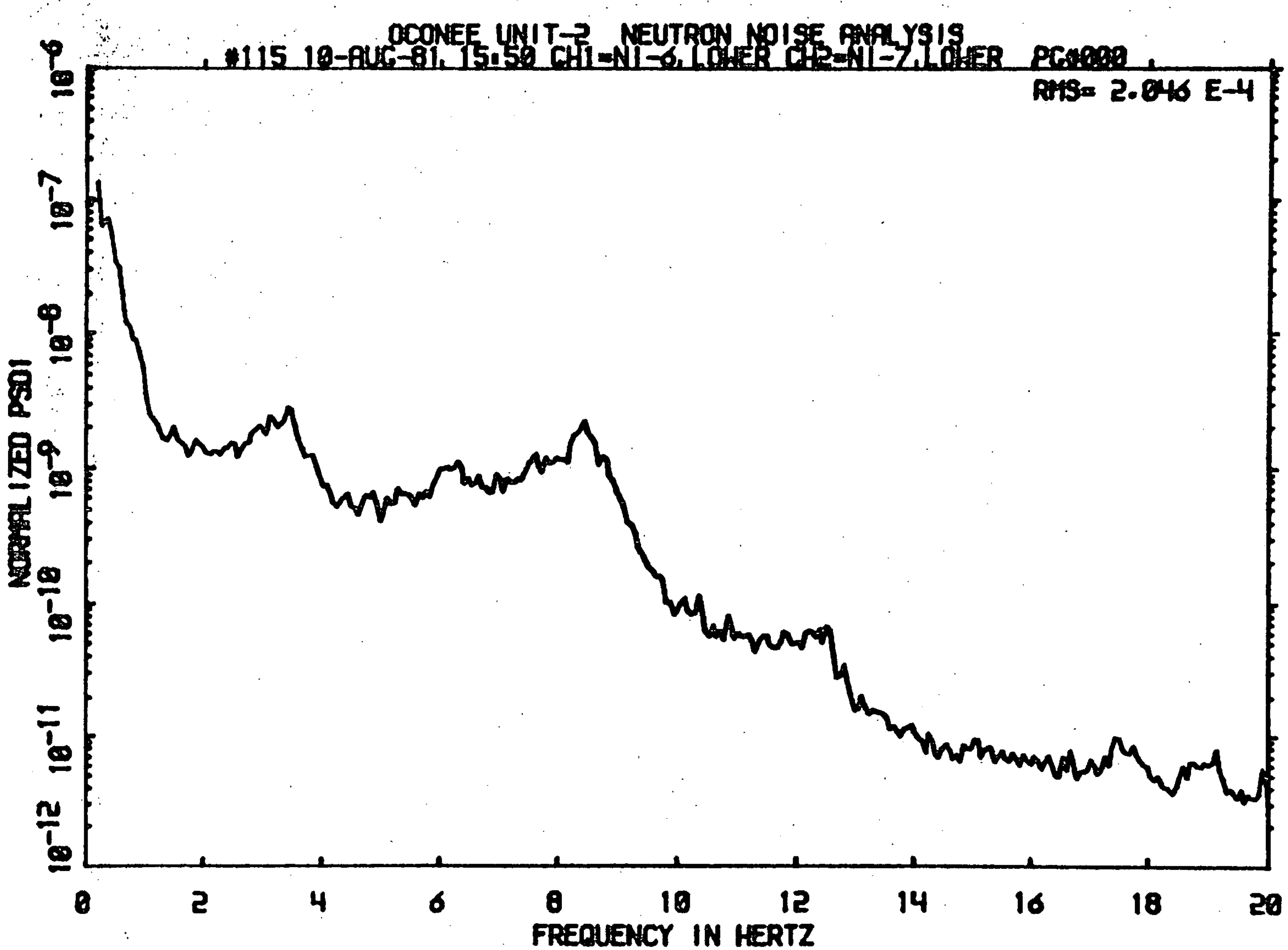

OCONEE UNIT-2 NEUTRON NOISE ANALYSIS
#115 10-AUG-81 15:50 CH1=NI-6 LOWER CH2=NI-7 LOWER PC#000
PHASE IN DEGREES
90
0
-90
-180
-270
0
2
4
6
8
10
12
14
16
18
20
FREQUENCY IN HERTZ

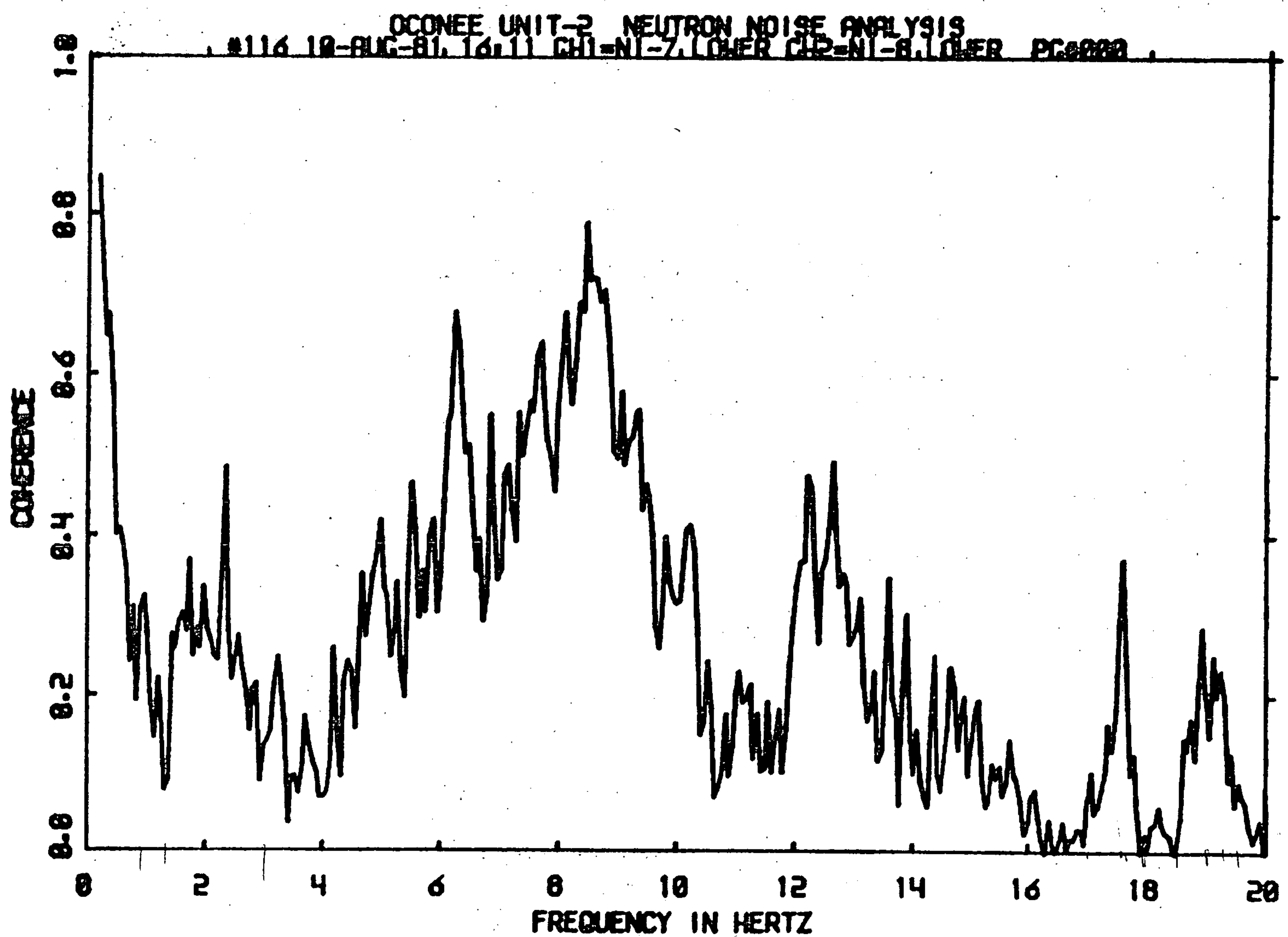


OCONEE UNIT-2 NEUTRON NOISE ANALYSIS
#115 10-AUG-81 15:50 CH1=NI-6,LOWER CH2=NI-7,LOWER PG#000
RMS= 1.722 E-4
NORM CPSD MAGNITUDE
10^-6
10^-7
10^-8
10^-9
10^-10
10^-11
10^-12
0
2
4
6
8
10
12
14
16
18
20
FREQUENCY IN HERTZ

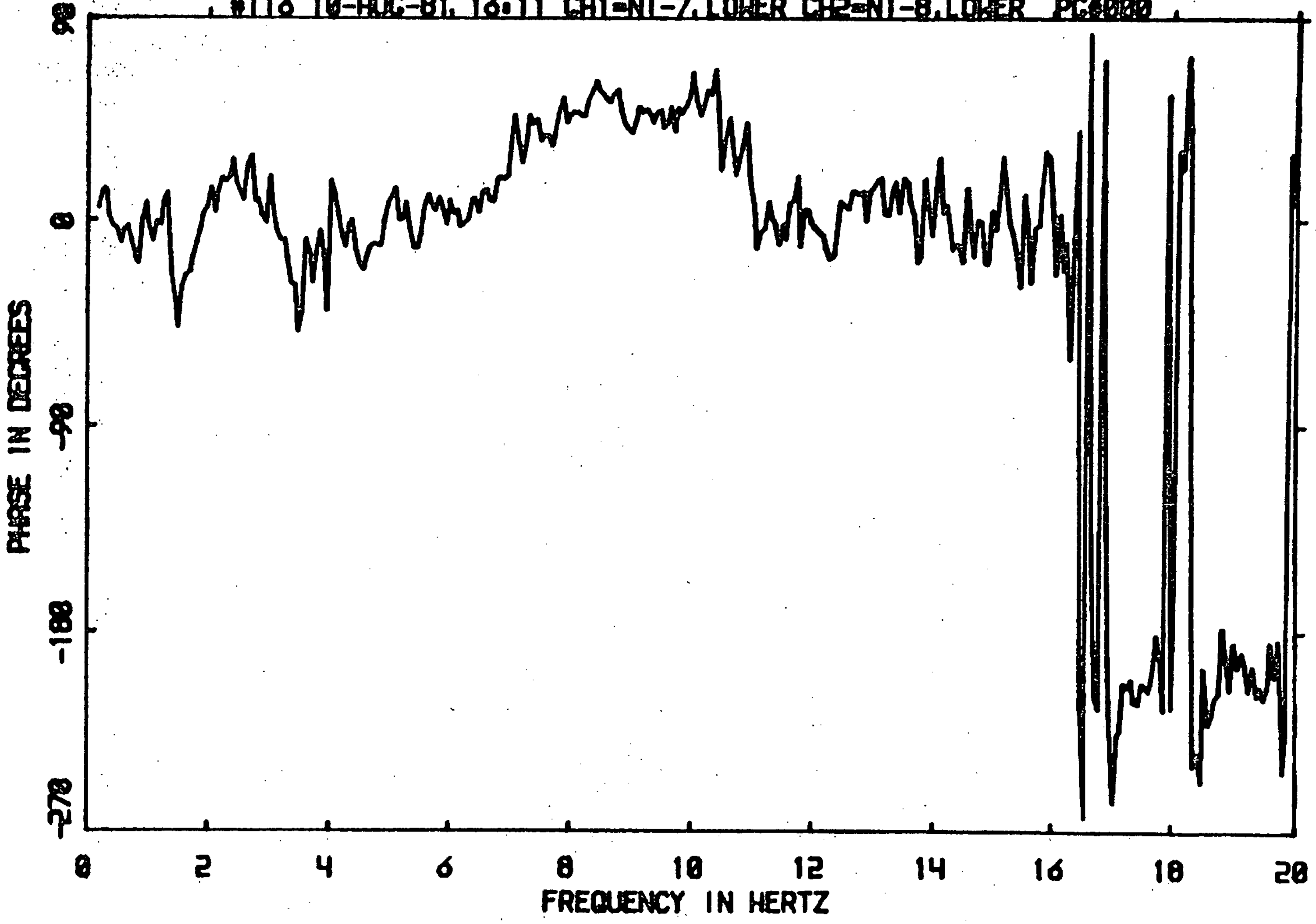


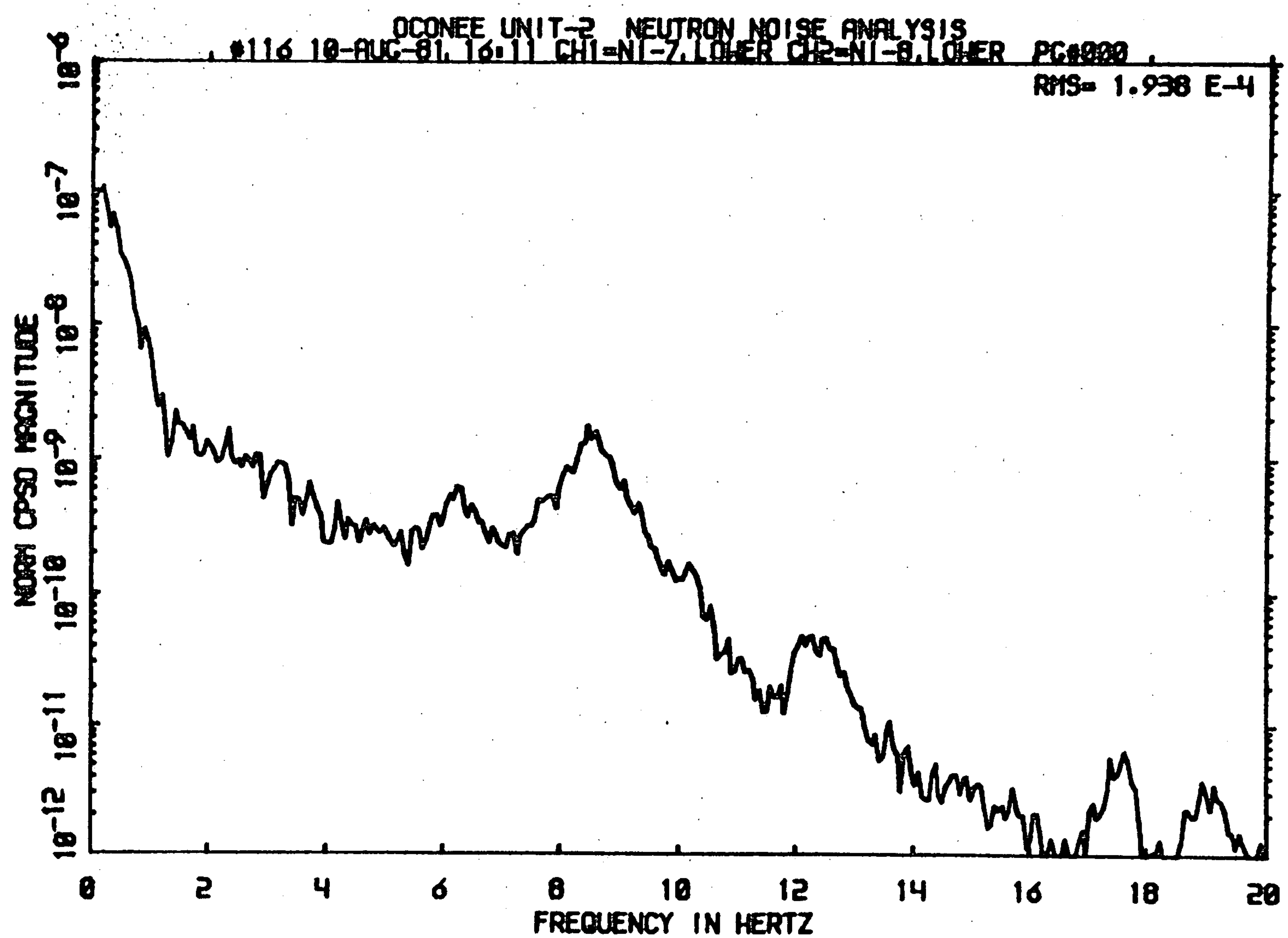
OCONEE UNIT-2 NEUTRON NOISE ANALYSIS
#115 10-AUG-81, 15:50 CH1=NI-6,LOWER CH2=NI-7,LOWER PG#000
RMS= 2.582 E-4
NORMALIZED PSD2
10^{-6}
10^{-7}
10^{-8}
10^{-9}
10^{-10}
10^{-11}
10^{-12}
0
2
4
6
8
10
12
14
16
18
20
FREQUENCY IN HERTZ


OCONEE UNIT-3 NEUTRON NOISE ANALYSIS
#115 10-AUG-81, 15:50 CH1=NI-6,LOWER CH2=NI-7,LOWER PG#000
RMS= 2.046 E-4
NORMALIZED PSD1
10^-12
10^-11
10^-10
10^-9
10^-8
10^-7
10^-6
0
2
4
6
8
10
12
14
16
18
20
FREQUENCY IN HERTZ

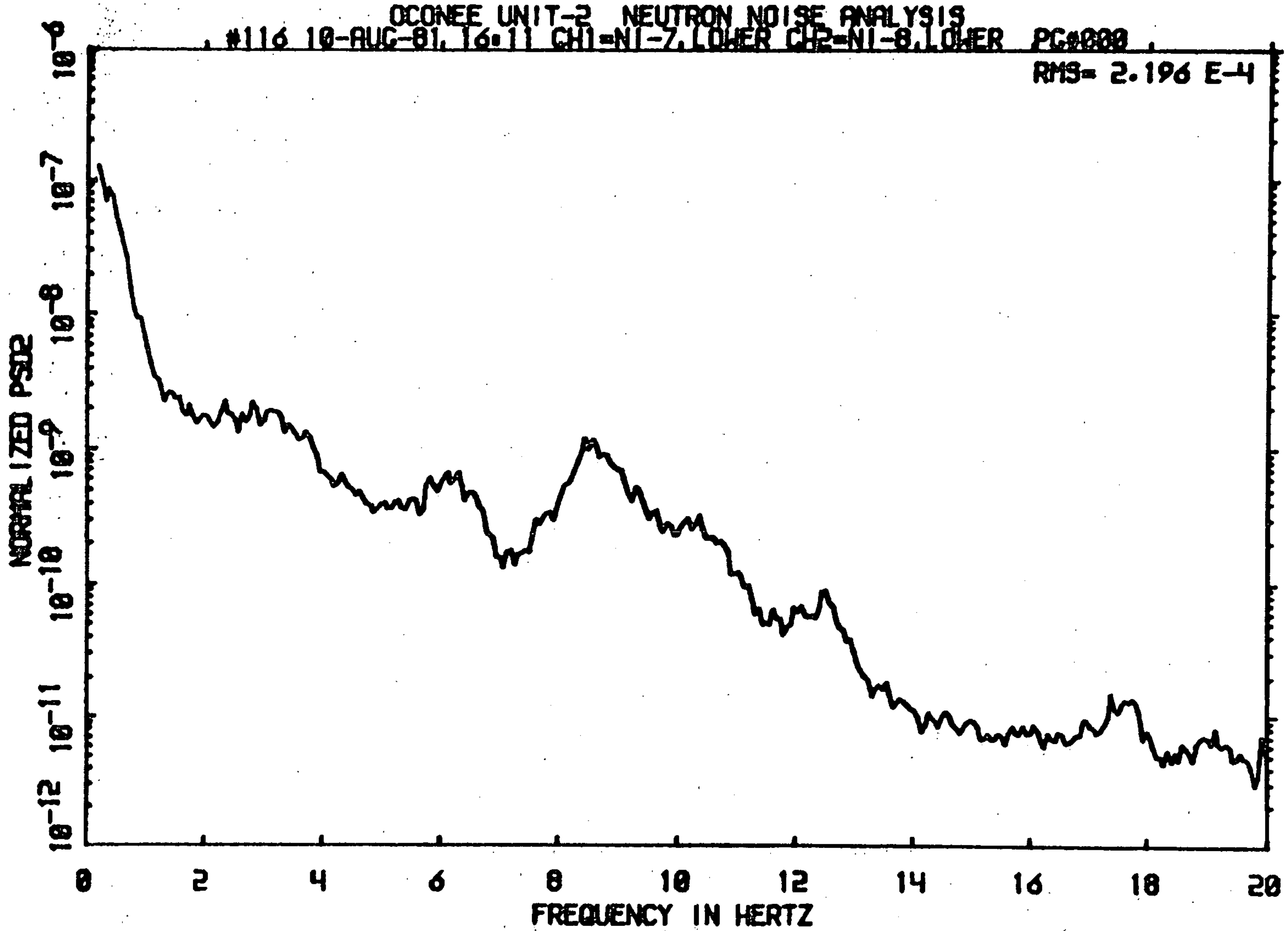

OCONEE UNIT-2 NEUTRON NOISE ANALYSIS
#116 10-AUG-81 16:11 CH1=NI-7 LOWER CH2=NI-8 LOWER PG#000
COHERENCE
0.0
0.2
0.4
0.6
0.8
1.0
0
2
4
6
8
10
12
14
16
18
20
FREQUENCY IN HERTZ

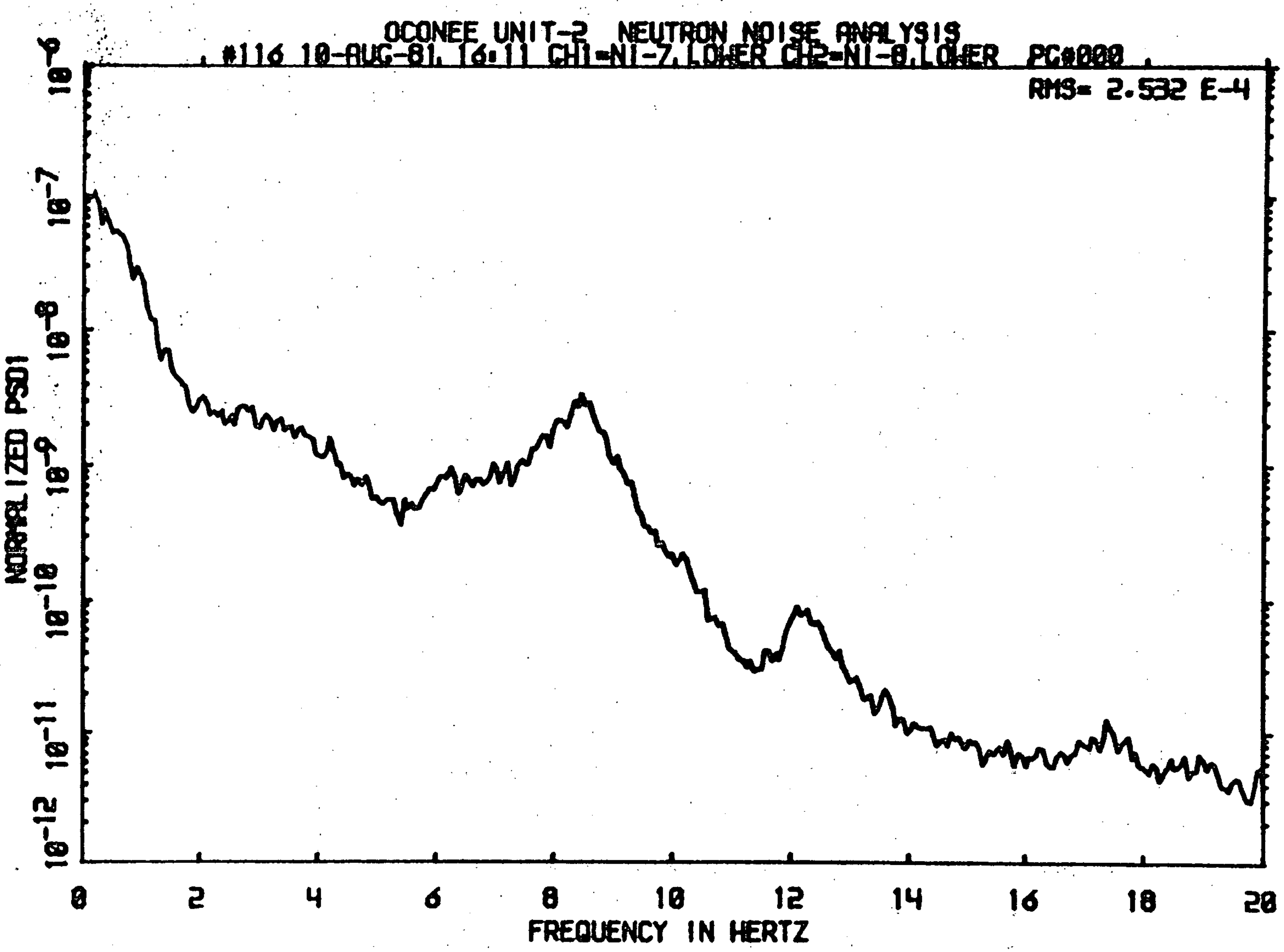
OCONEE UNIT-2 NEUTRON NOISE ANALYSIS
#116 10-AUG-81, 16:11 CH1=NI-7,LOWER CH2=NI-8,LOWER PC#000



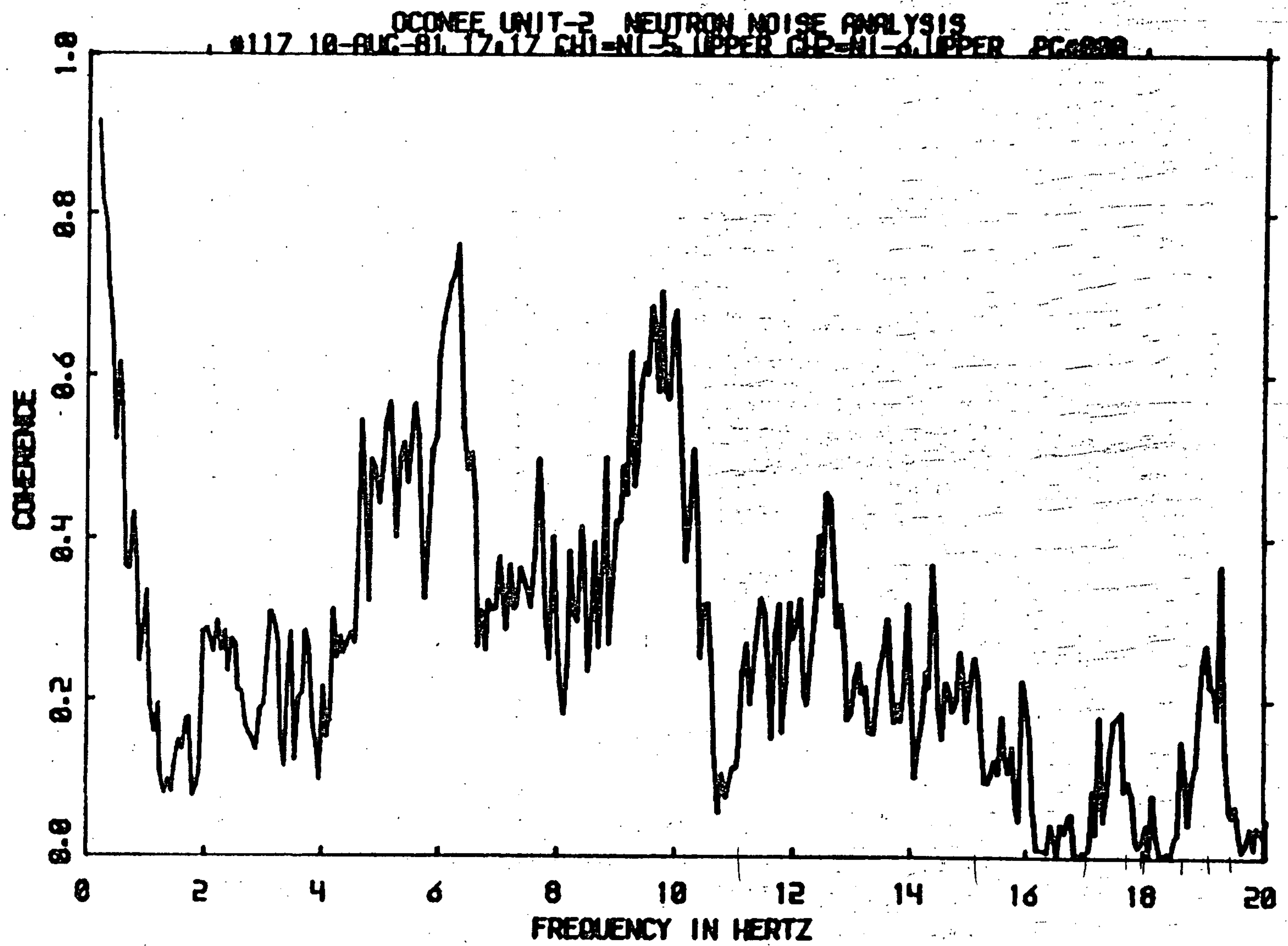


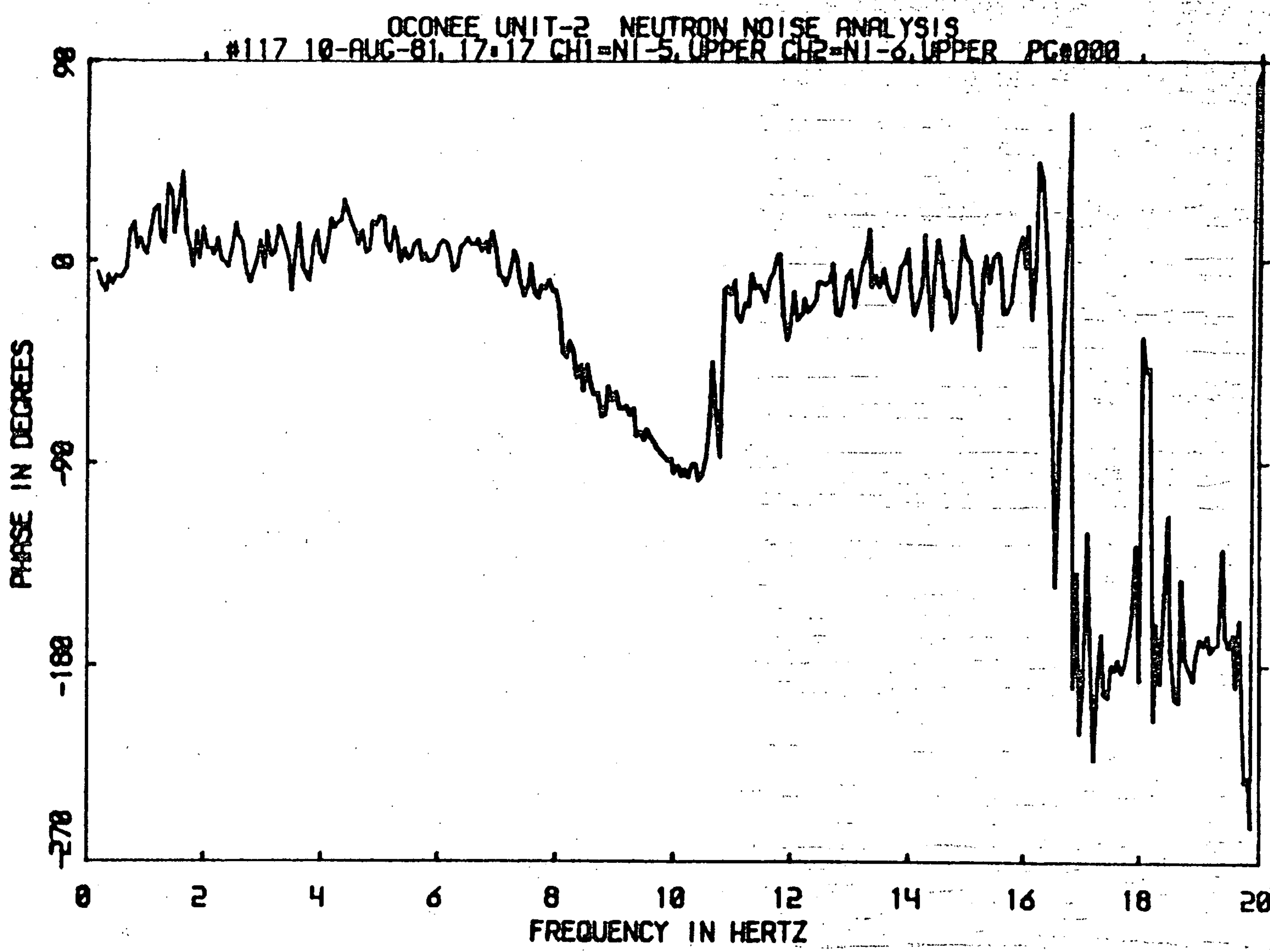
OCONEE UNIT-2 NEUTRON NOISE ANALYSIS
#116 10-AUG-81, 16:11 CH1=NI-7,LOWER CH2=NI-8,LOWER PG#000
RMS= 1.938 E-4
NORM CPSD MAGNITUDE
10^-12
10^-11
10^-10
10^-9
10^-8
10^-7
10^-6
0
2
4
6
8
10
12
14
16
18
20
FREQUENCY IN HERTZ

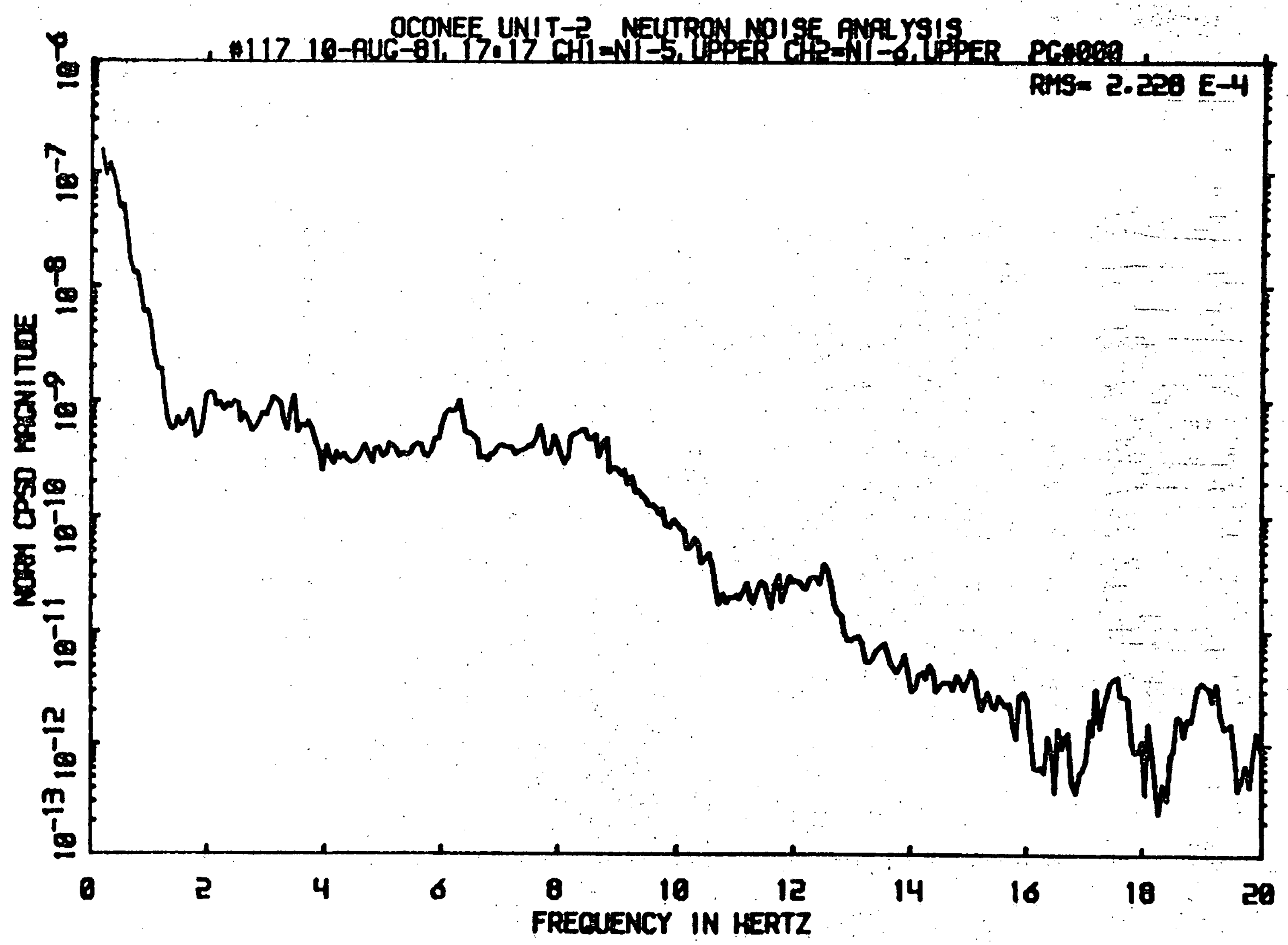

OCONEE UNIT-2 NEUTRON NOISE ANALYSIS
#116 10-AUG-81, 16:11 CH1=NI-7,LOWER CH2=NI-8,LOWER PG#000
RMS= 2.196 E-4
NORMALIZED PSD2
10^-12
10^-11
10^-10
10^-9
10^-8
10^-7
10^-6
0
2
4
6
8
10
12
14
16
18
20
FREQUENCY IN HERTZ

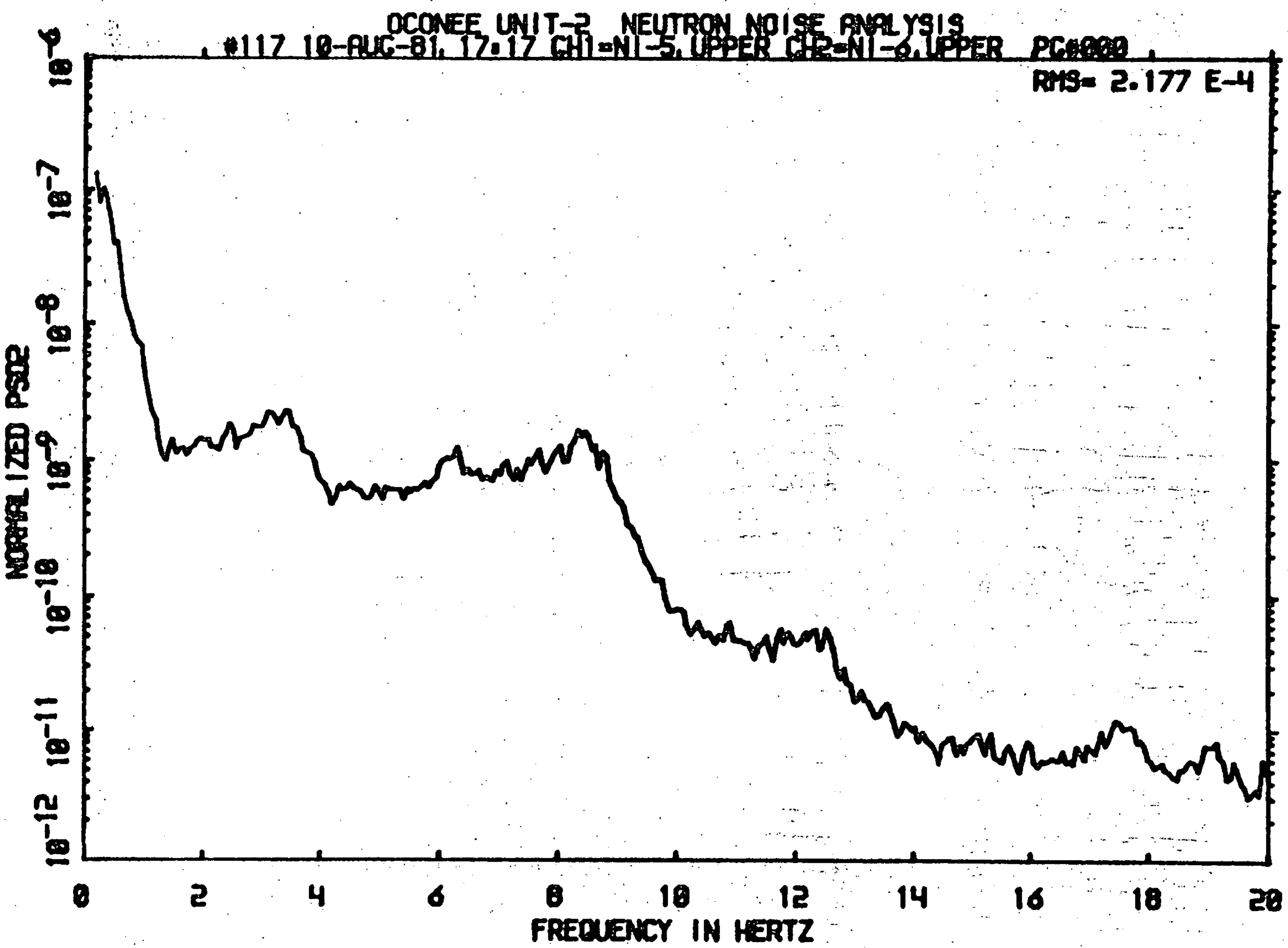


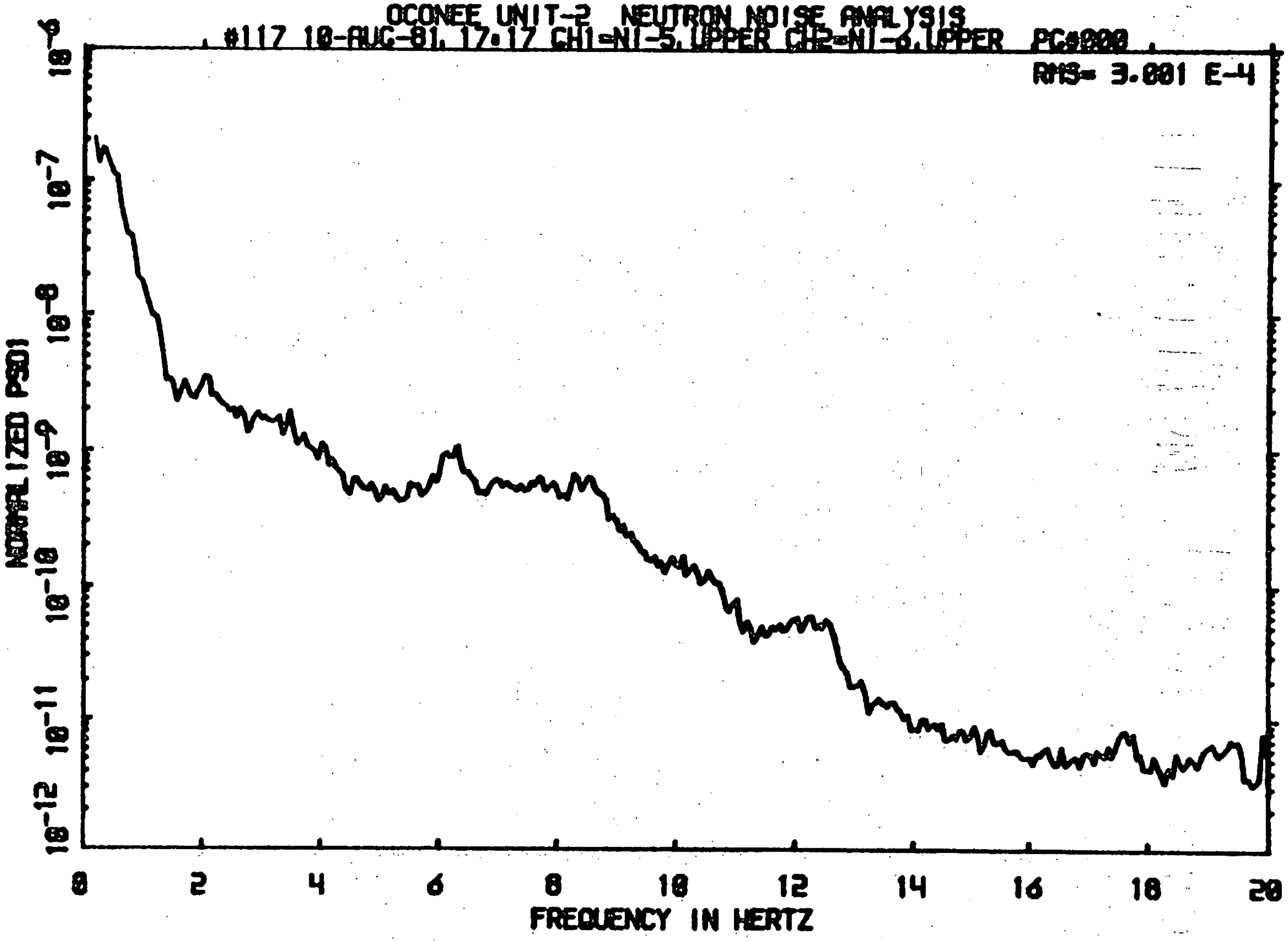
OCONEE UNIT-2 NEUTRON NOISE ANALYSIS
#116 10-AUG-81, 16:11 CH1=NI-7,LOWER CH2=NI-8,LOWER PC#000
RMS= 2.532 E-4
NORMALIZED PSD1
FREQUENCY IN HERTZ


OCONEE UNIT-2 NEUTRON NOISE ANALYSIS
#117 10-AUG-81 17:17 CH1=NI-5 UPPER CH2=NI-6 UPPER PG=000
COHERENCE
0.0
0.2
0.4
0.6
0.8
1.0
0
2
4
6
8
10
12
14
16
18
20
FREQUENCY IN HERTZ

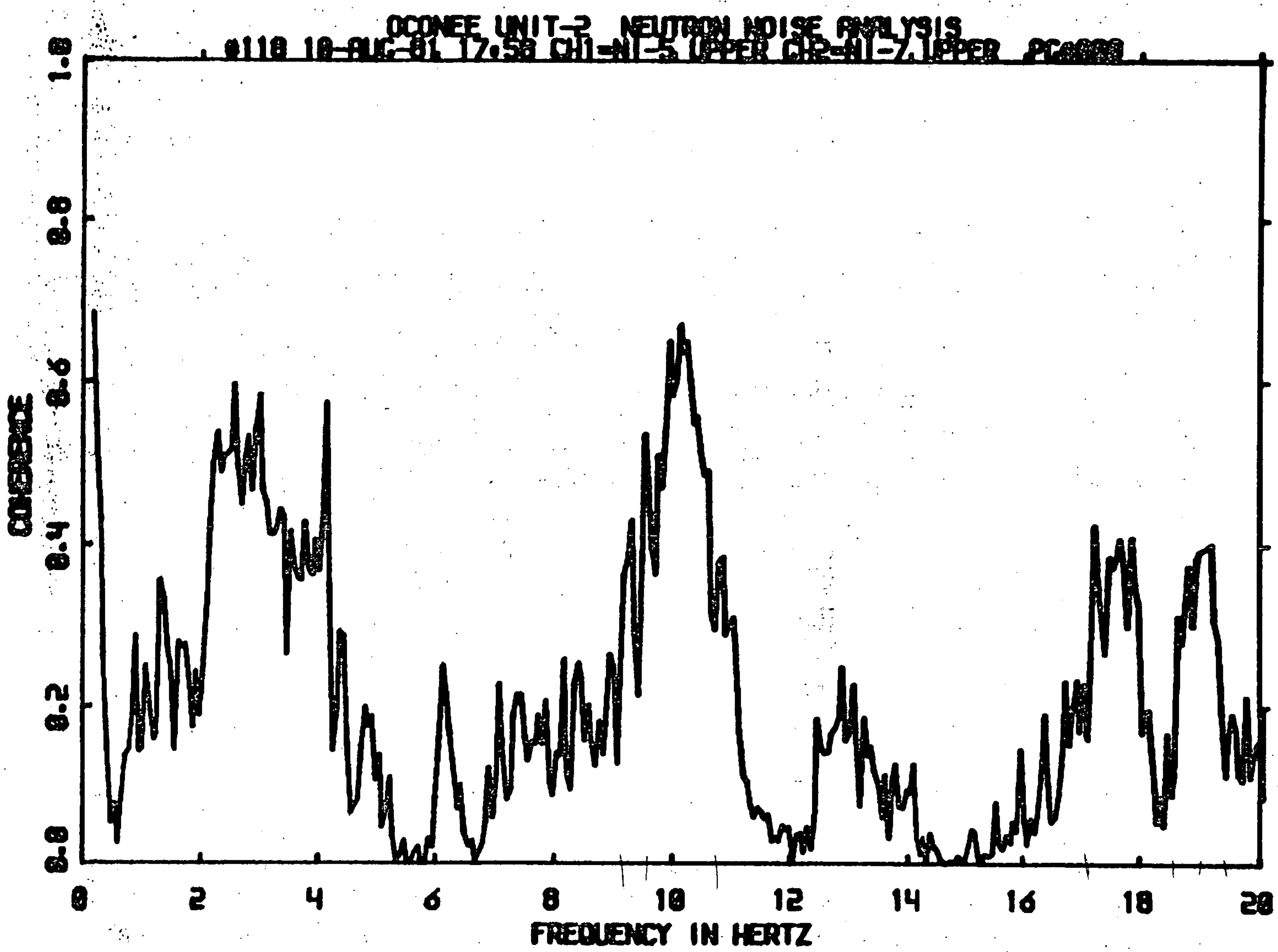

OCONEE UNIT-2 NEUTRON NOISE ANALYSIS
#117 10-AUG-81, 17:17 CH1=NI-5,UPPER CH2=NI-6,UPPER PG#000
PHASE IN DEGREES
90
0
-90
-180
-270
0
2
4
6
8
10
12
14
16
18
20
FREQUENCY IN HERTZ

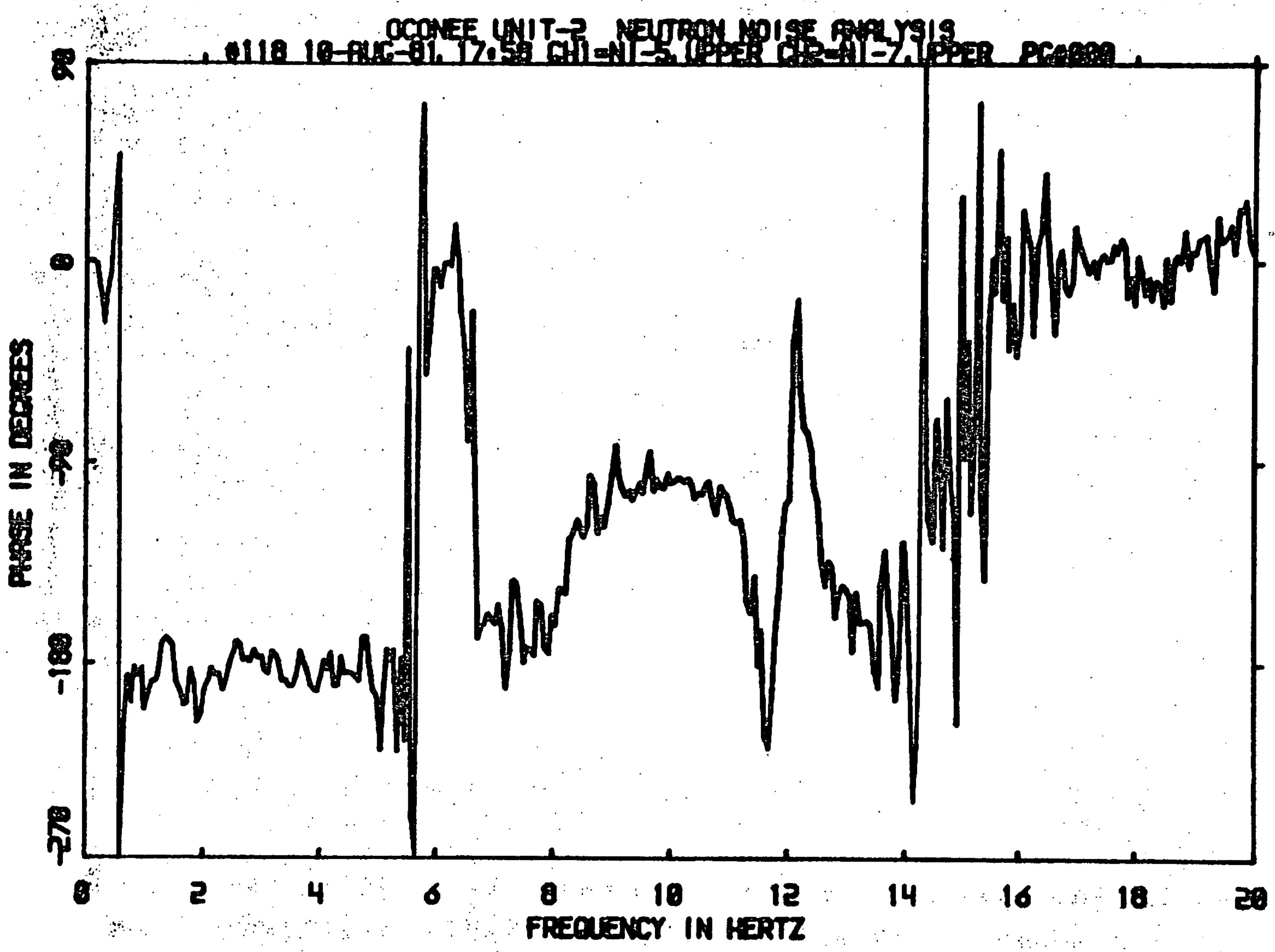

OCONEE UNIT-2 NEUTRON NOISE ANALYSIS
#117 10-AUG-81, 17:17 CH1=NI-5,UPPER CH2=NI-6,UPPER PG#000
RMS= 2.220 E-4
NORM CPSD MAGNITUDE
10^{-13}
10^{-12}
10^{-11}
10^{-10}
10^{-9}
10^{-8}
10^{-7}
10^{-6}
0
2
4
6
8
10
12
14
16
18
20
FREQUENCY IN HERTZ

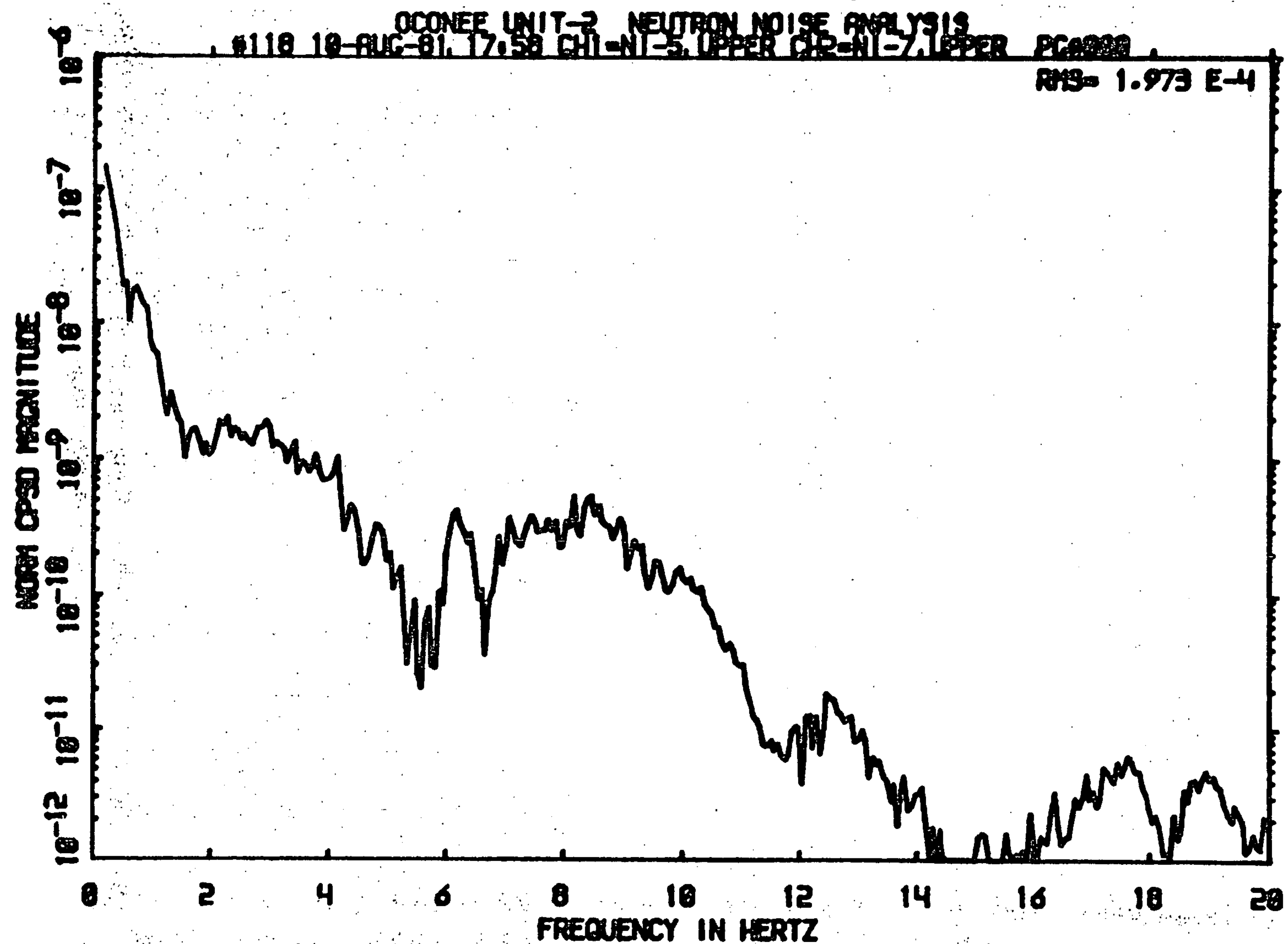

OCONEE UNIT-2 NEUTRON NOISE ANALYSIS
#117 10-AUG-81, 17:17 CH1=NI-5,UPPER CH2=NI-6,UPPER PG#000
RMS= 2.177 E-4
NORMALIZED PSD2
10^{-6}
10^{-7}
10^{-8}
10^{-9}
10^{-10}
10^{-11}
10^{-12}
0
2
4
6
8
10
12
14
16
18
20
FREQUENCY IN HERTZ



OCONEE UNIT-2 NEUTRON NOISE ANALYSIS
#117 10-AUG-81, 17:17 CH1=NI-5, UPPER CH2=NI-6, UPPER PC#000
RMS= 3.001 E-4
NORMALIZED PSD1
10^-12
10^-11
10^-10
10^-9
10^-8
10^-7
10^-6
0
2
4
6
8
10
12
14
16
18
20
FREQUENCY IN HERTZ


OCONEE UNIT-2 NEUTRON NOISE ANALYSIS
#118 10-AUG-81 17:58 CH1=NI-5 UPPER CH2=NI-7 UPPER PG#008
COHERENCE
0.0
0.2
0.4
0.6
0.8
1.0
0
2
4
6
8
10
12
14
16
18
20
FREQUENCY IN HERTZ


OCONEE UNIT-2 NEUTRON NOISE ANALYSIS
#118 10-AUG-81, 17:58 CH1=NI-5,UPPER CH2=NI-7,UPPER PC#000
PHASE IN DEGREES
90
0
-90
-180
-270
0
2
4
6
8
10
12
14
16
18
20
FREQUENCY IN HERTZ



OCONEE UNIT-2 NEUTRON NOISE ANALYSIS
#118 10-AUG-81, 17:58 CH1=NI-5,UPPER CH2=NI-7,UPPER PCA000
RMS= 1.973 E-4
NORM CPSD MAGNITUDE
10^-12
10^-11
10^-10
10^-9
10^-8
10^-7
10^-6
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2
4
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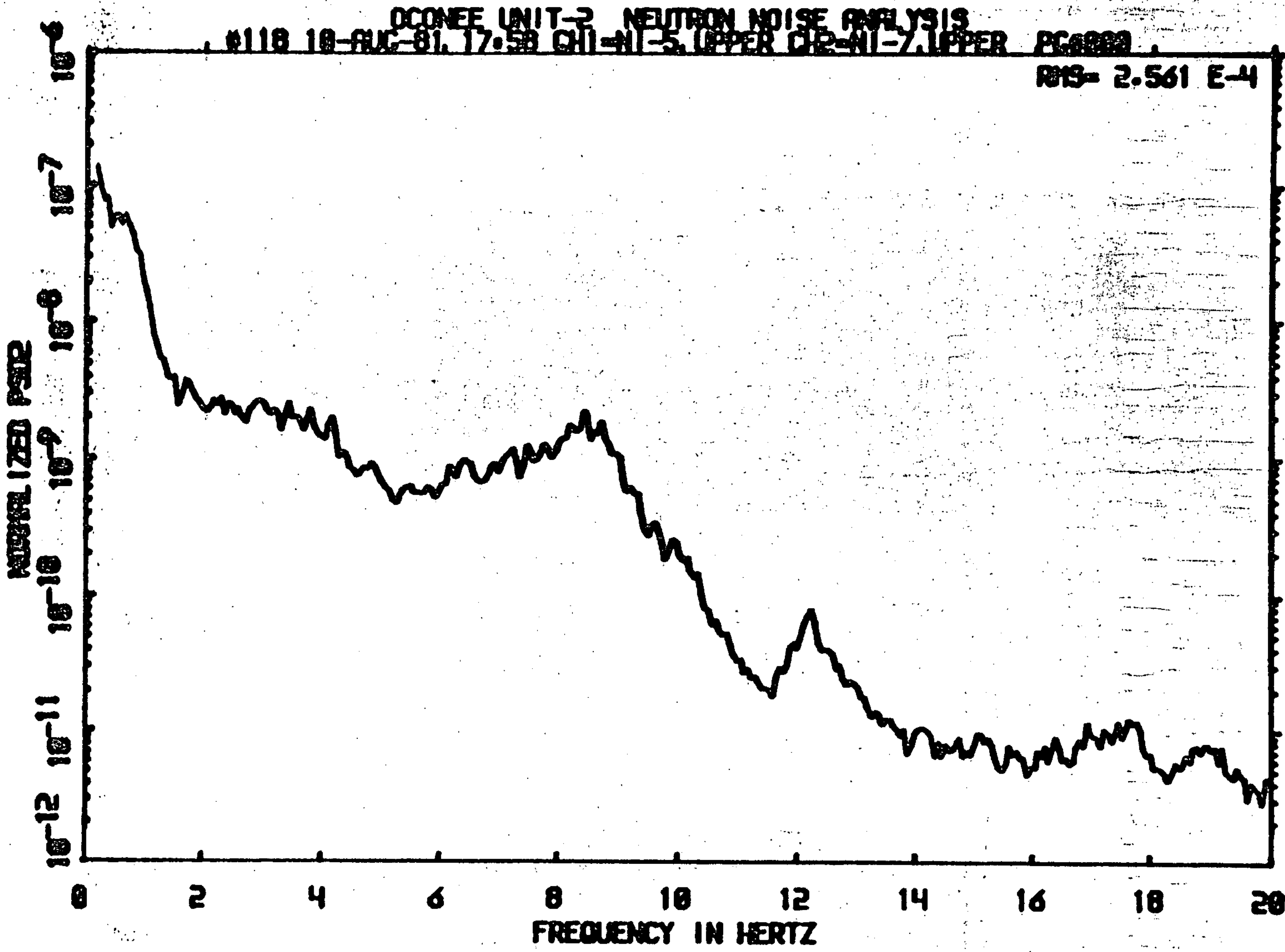
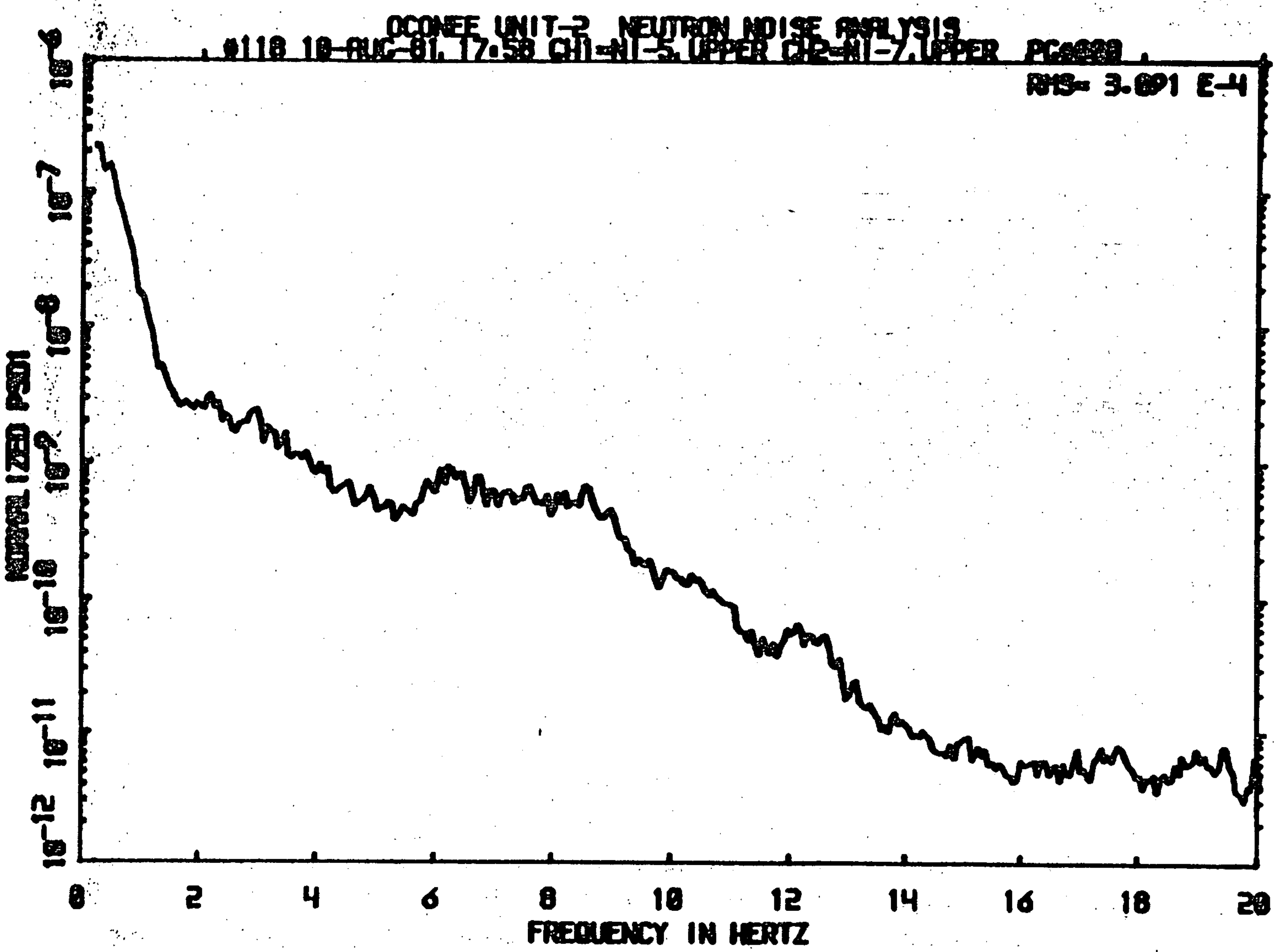
8
10
12
14
16
18
20
FREQUENCY IN HERTZ


OCONEE UNIT-2 NEUTRON NOISE ANALYSIS
#118 10-AUG-81, 17:58 CH1=NI-5,UPPER CH2=NI-7,UPPER PC6000
RMS= 2.561 E-4
NORMALIZED PSD2
10^-12
10^-11
10^-10
10^-9
10^-8
10^-7
10^-6
0
2
4
6
8
10
12
14
16
18
20
FREQUENCY IN HERTZ


OCONEE UNIT-2 NEUTRON NOISE ANALYSIS
#118 10-AUG-81, 17:58 CH1=NI-5,UPPER CH2=NI-7,UPPER
RMS= 3.091 E-4
NORMALIZED PSD1
10^-6
10^-7
10^-8
10^-9
10^-10
10^-11
10^-12
0
2
4
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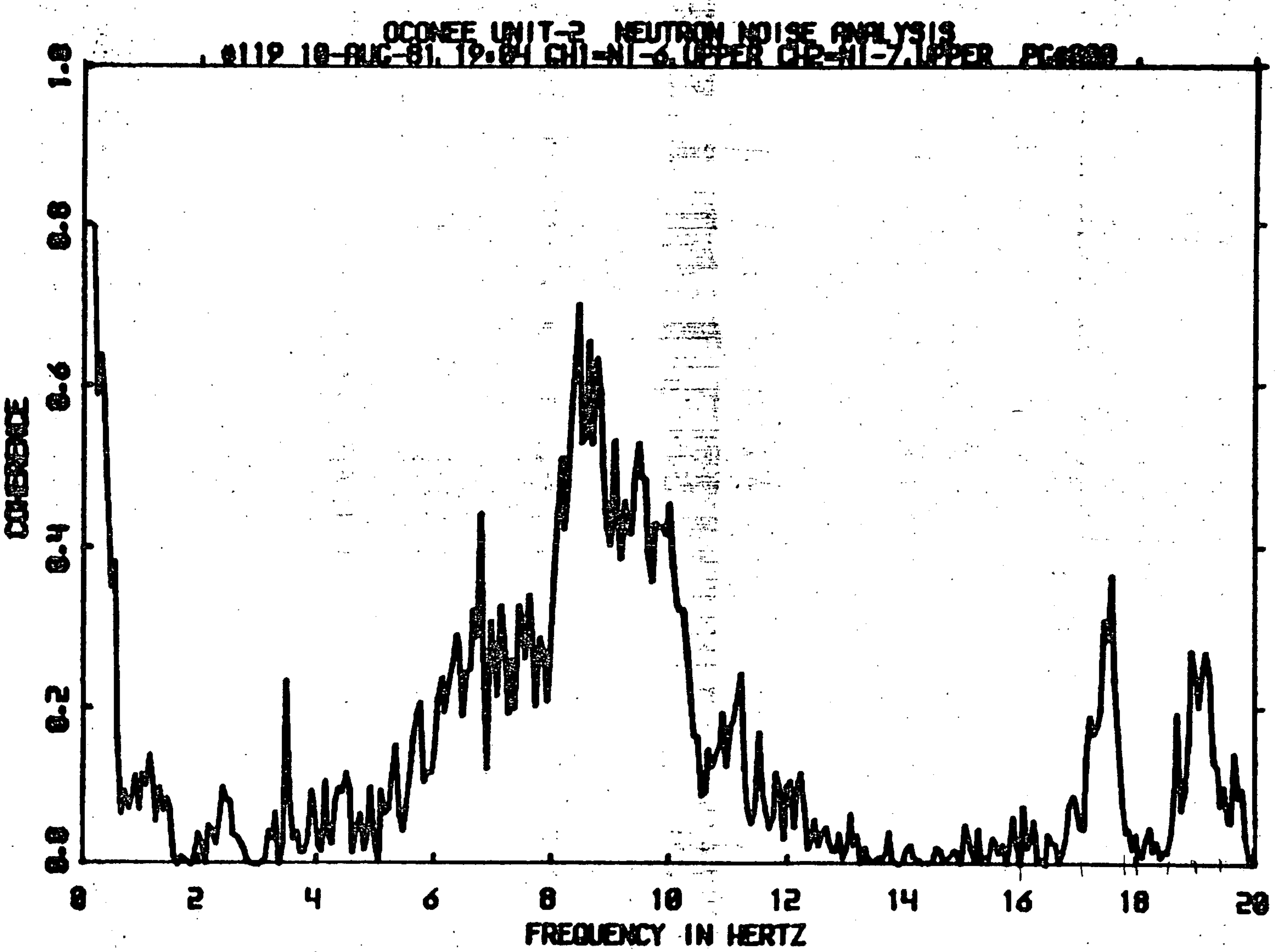
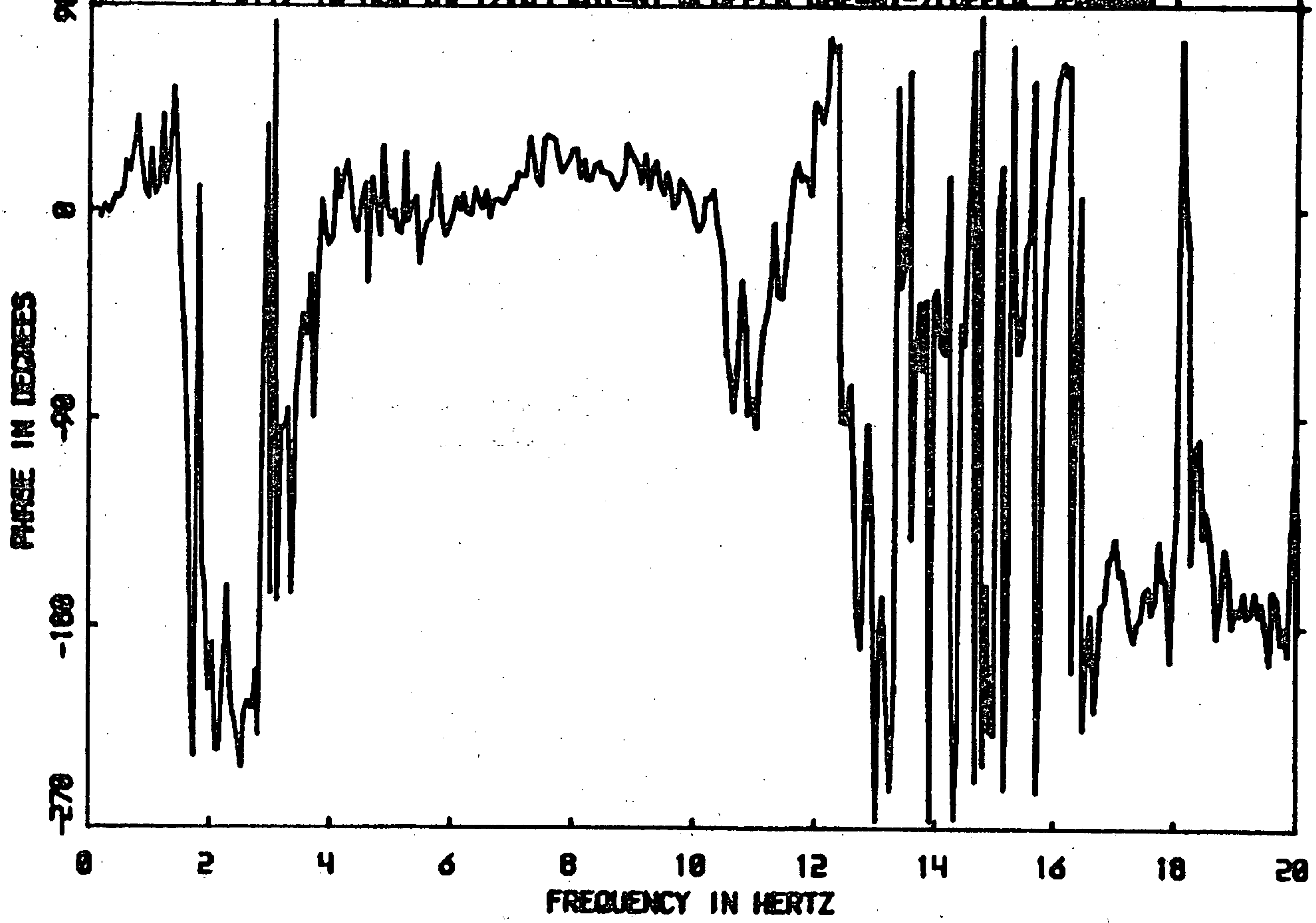
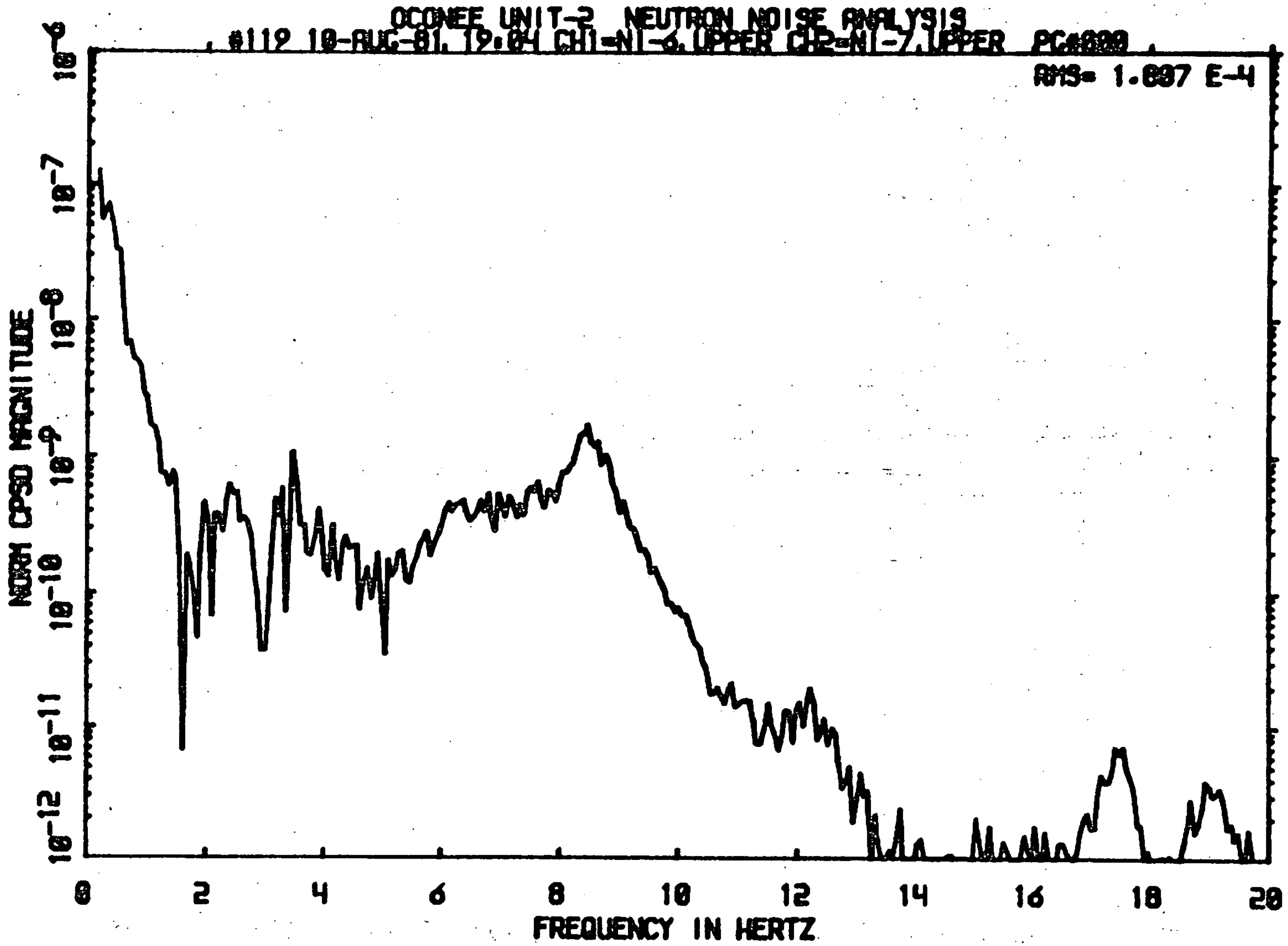
8
10
12
14
16
18
20
FREQUENCY IN HERTZ

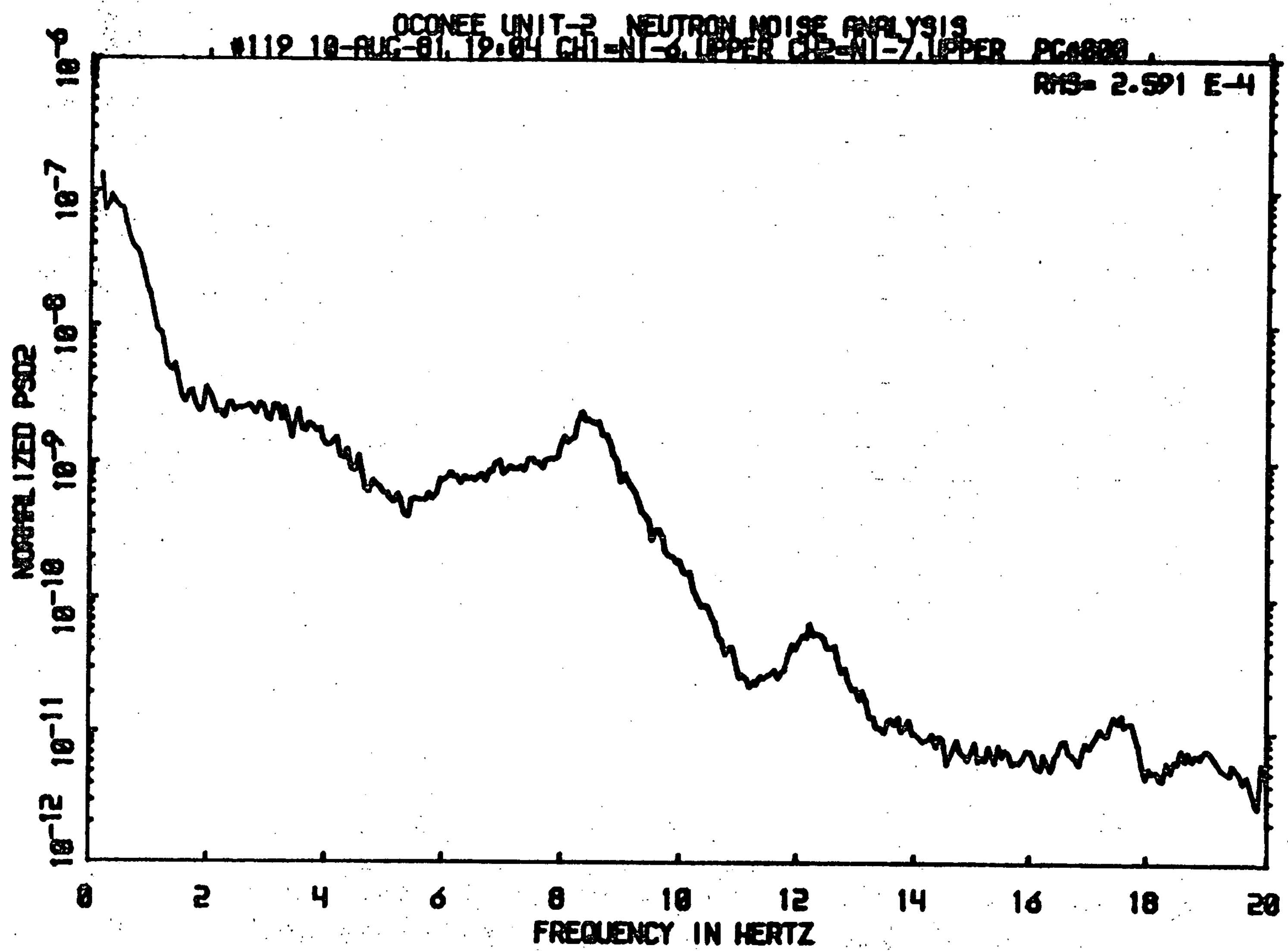

OCONEE UNIT-2 NEUTRON NOISE ANALYSIS
#119 10-AUG-81, 19:04 CH1=NI-6,UPPER CH2=NI-7,UPPER PG=000
COHERENCE
0.0
0.2
0.4
0.6
0.8
1.0
0
2
4
6
8
10
12
14
16
18
20
FREQUENCY IN HERTZ

OCONEE UNIT-2 NEUTRON NOISE ANALYSIS

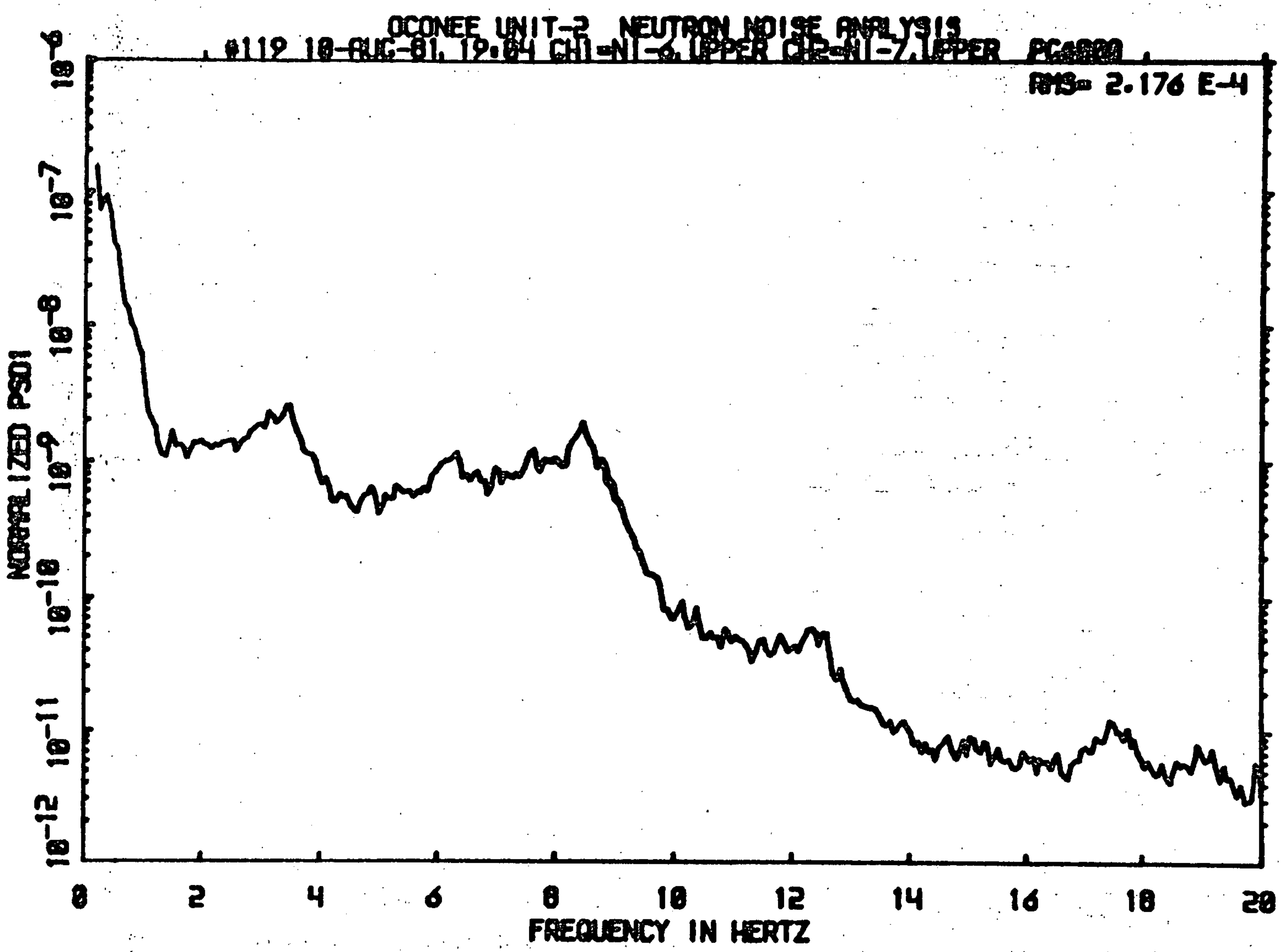
#112 10-AUG-81 19:04 CH1=NI-6 UPPER CH2=NI-7 UPPER PC4000

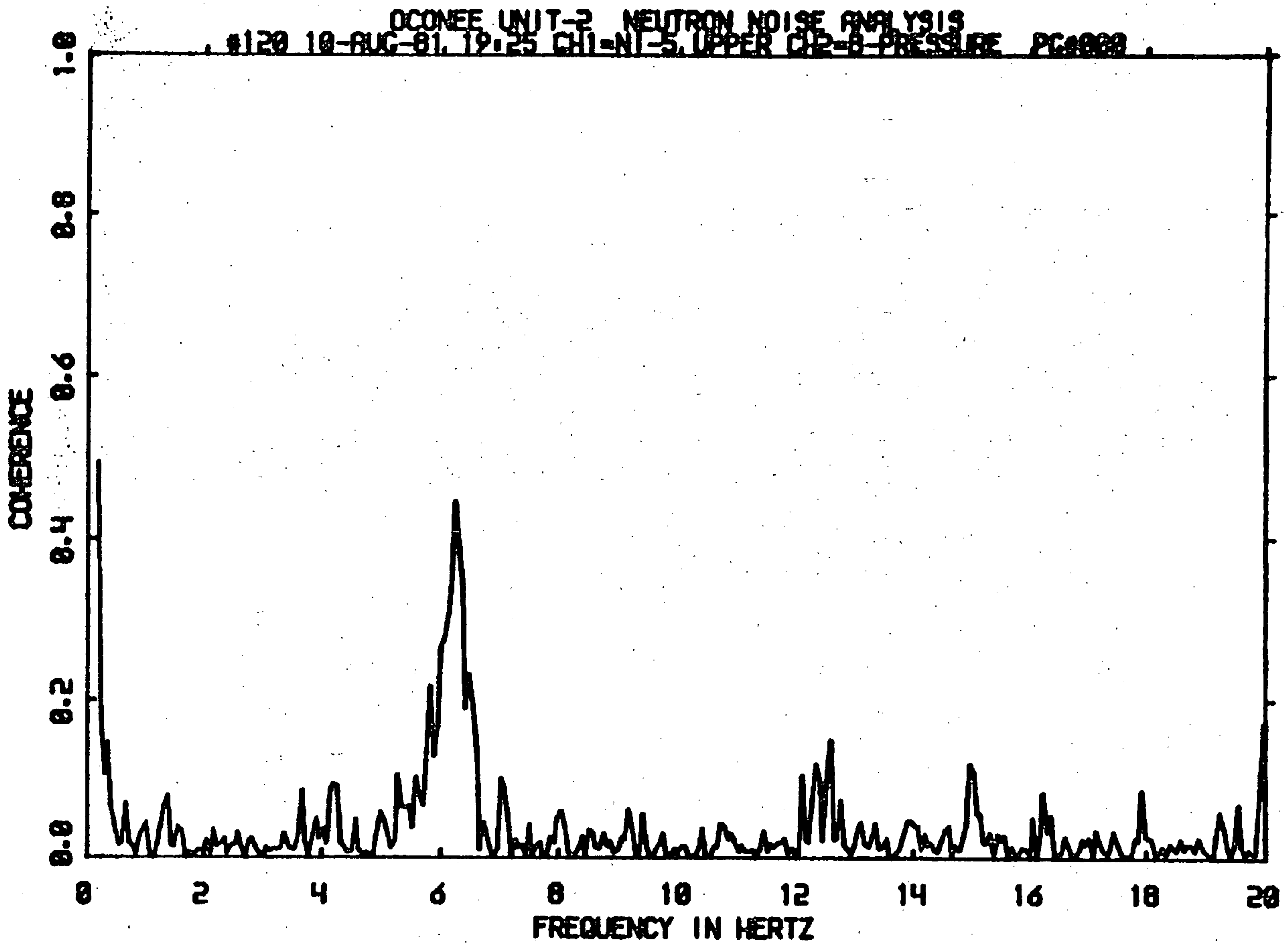


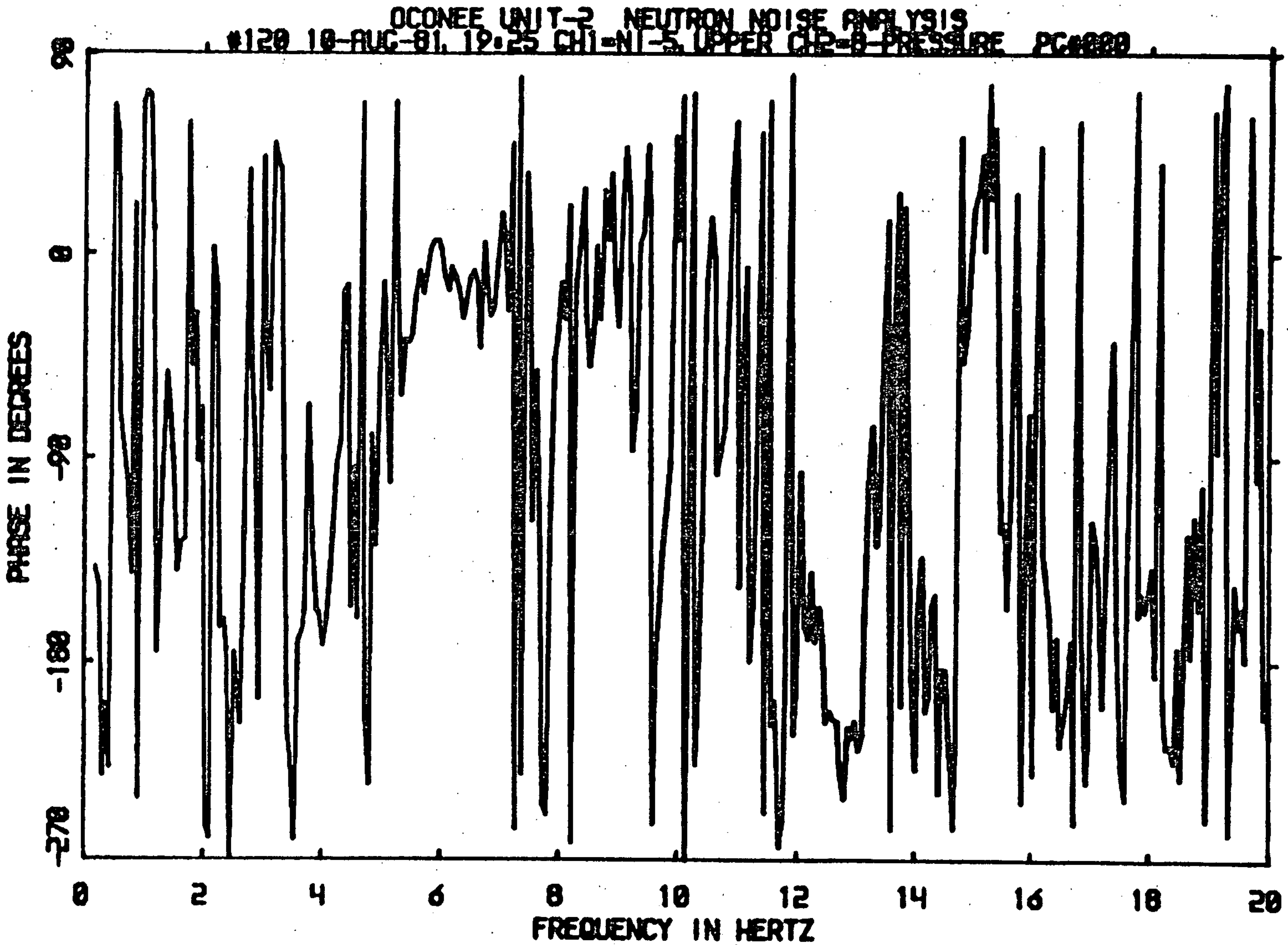

OCONEE UNIT-2 NEUTRON NOISE ANALYSIS
#119 10-AUG-81, 19:04 CH1=NI-6,UPPER CH2=NI-7,UPPER PG#000
RMS= 1.087 E-4
NORM CPSD MAGNITUDE
10^-12
10^-11
10^-10
10^-9
10^-8
10^-7
10^-6
0
2
4
6
8
10
12
14
16
18
20
FREQUENCY IN HERTZ

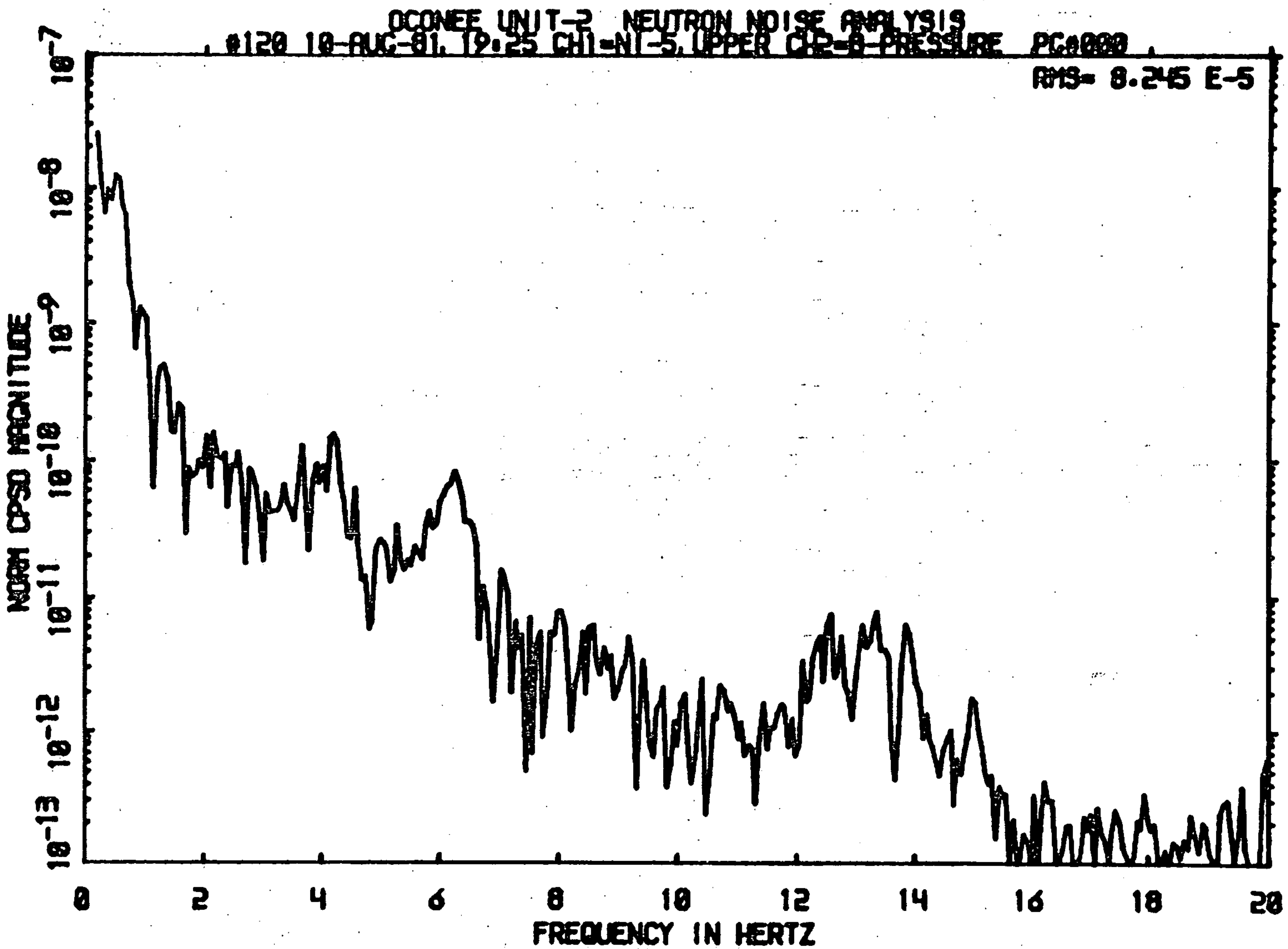


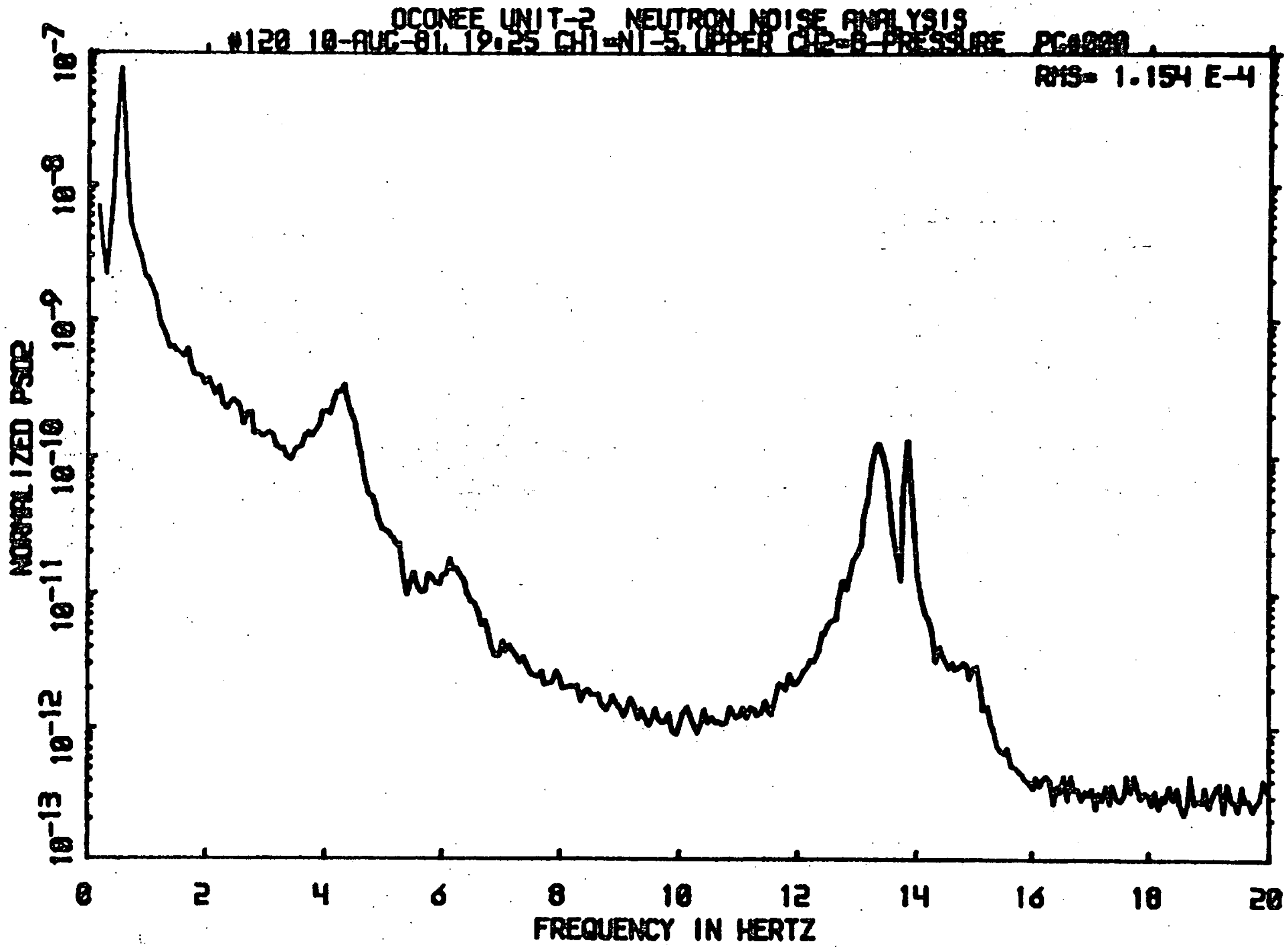
OCONEE UNIT-2 NEUTRON NOISE ANALYSIS
#119 10-AUG-81, 19:04 CH1=NI-6,UPPER CH2=NI-7,UPPER PG#000
RMS= 2.591 E-4
NORMALIZED PSD2
10^-12
10^-11
10^-10
10^-9
10^-8
10^-7
10^-6
0
2
4
6
8
10
12
14
16
18
20
FREQUENCY IN HERTZ

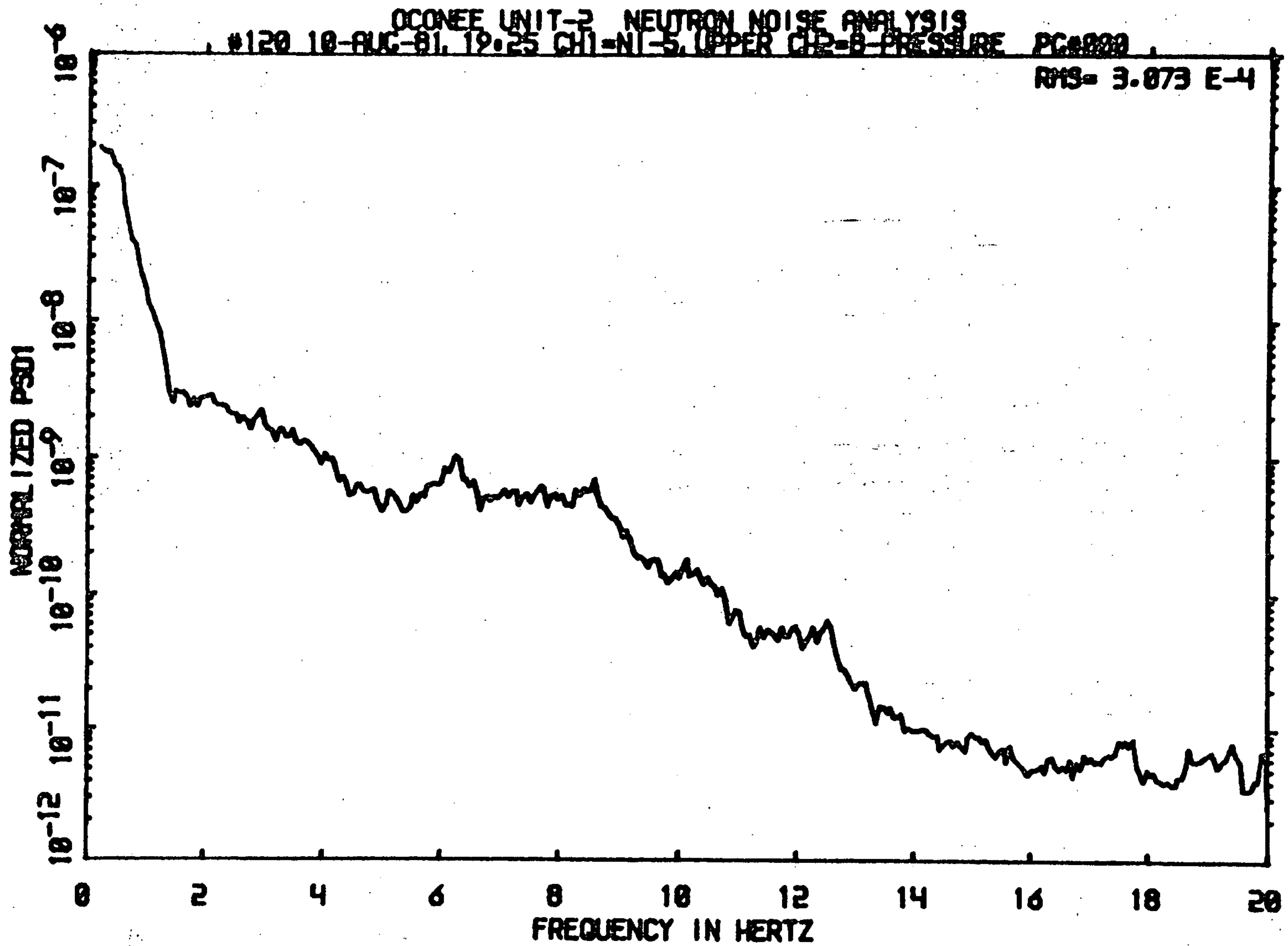

OCONEE UNIT-2 NEUTRON NOISE ANALYSIS
#119 10-AUG-81, 19:04 CH1=NI-6,UPPER CH2=NI-7,UPPER PC#000
RMS= 2.176 E-4
NORMALIZED PSD1
10^{-6}
10^{-7}
10^{-8}
10^{-9}
10^{-10}
10^{-11}
10^{-12}
0
2
4
6
8
10
12
14
16
18
20
FREQUENCY IN HERTZ

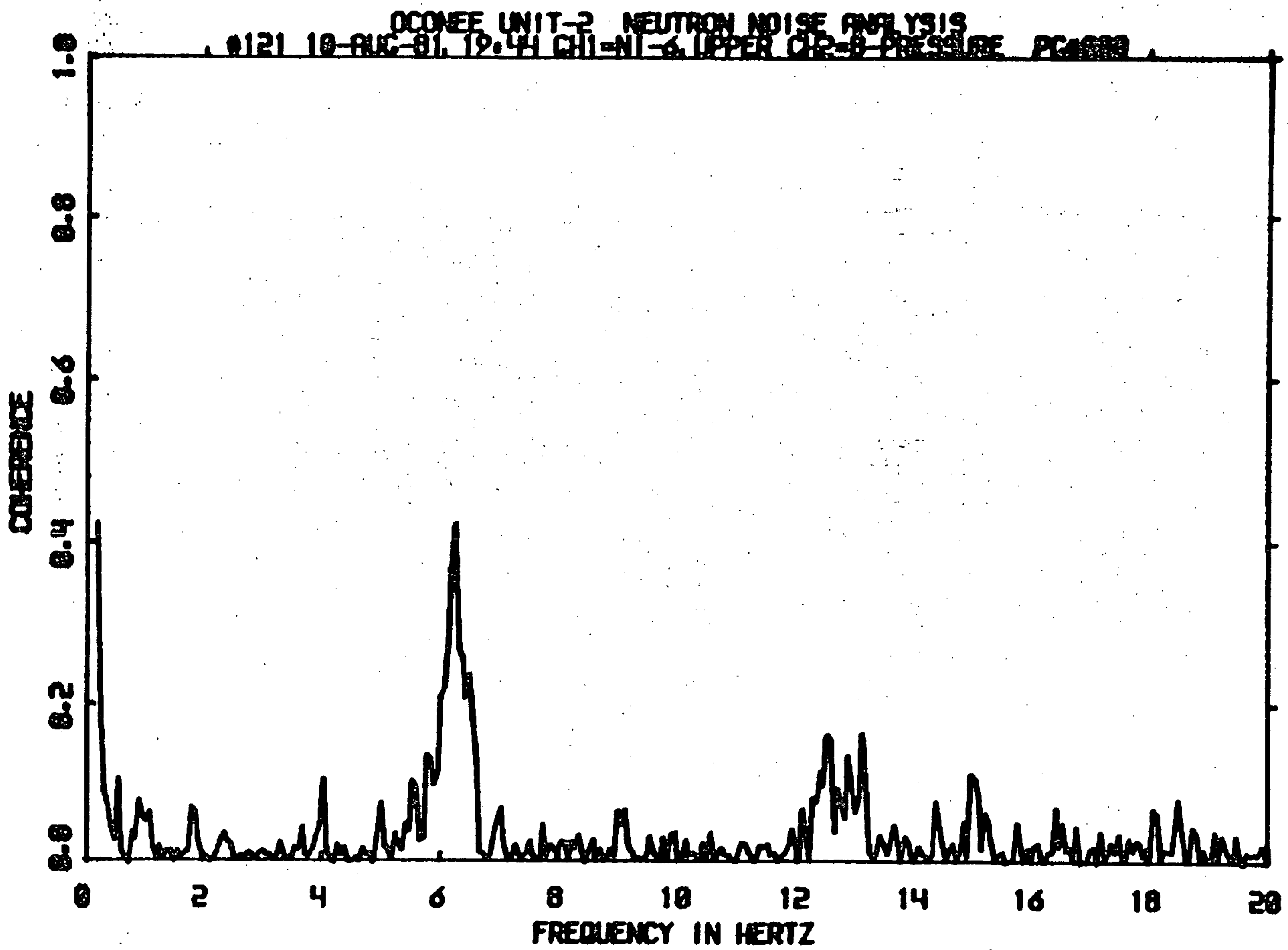

OCONEE UNIT-2 NEUTRON NOISE ANALYSIS
#120 10-AUG-81, 19:25 CH1=NI-5,UPPER CH2=B-PRESSURE PG=000
COHERENCE
0.0
0.2
0.4
0.6
0.8
1.0
0
2
4
6
8
10
12
14
16
18
20
FREQUENCY IN HERTZ

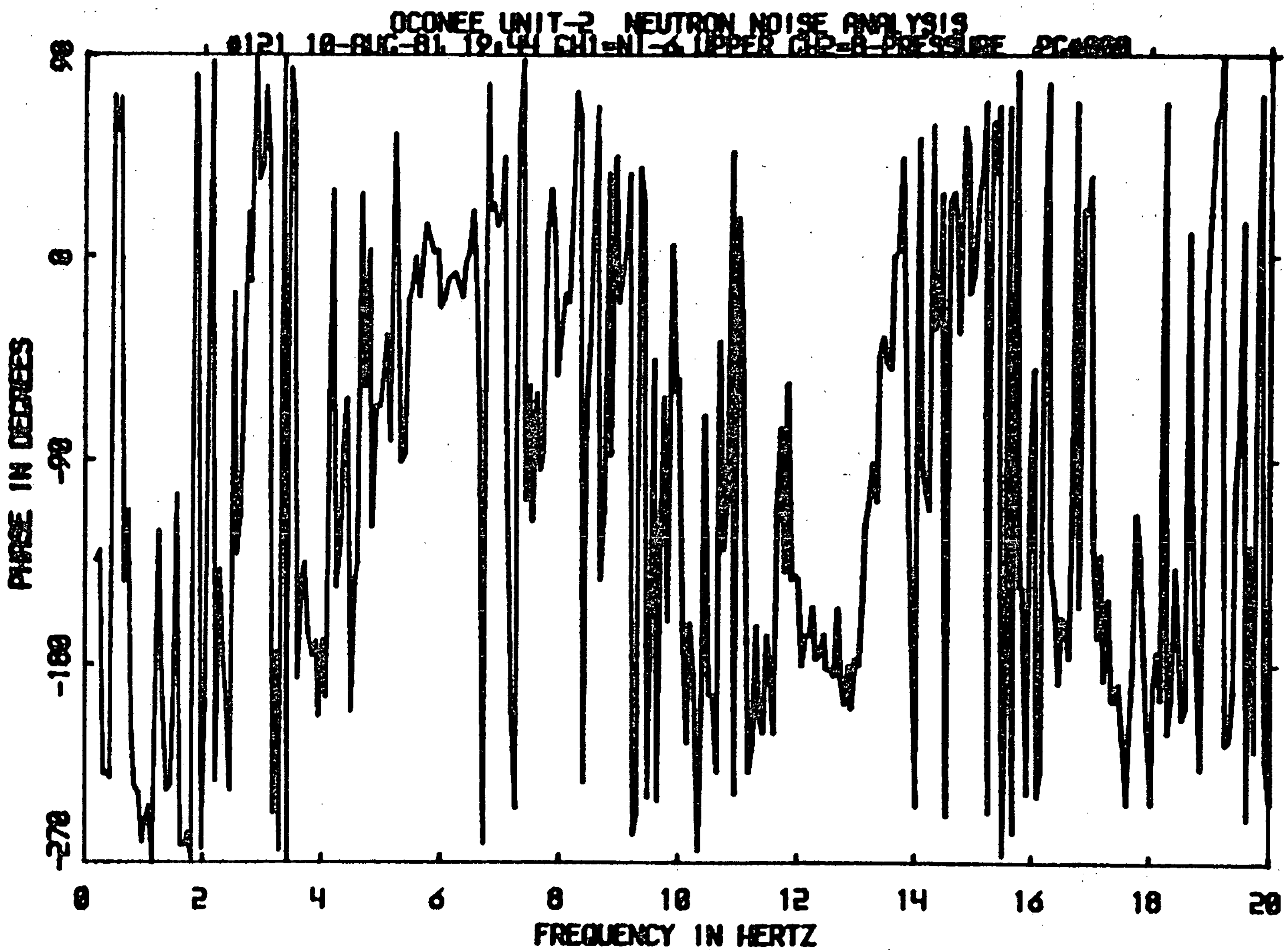

OCONEE UNIT-2 NEUTRON NOISE ANALYSIS
#120 10-AUG-81, 19:25 CH1=NI-5, UPPER CH2=B-PRESSURE PG#000
PHASE IN DEGREES
90
0
-90
-180
-270
0
2
4
6
8
10
12
14
16
18
20
FREQUENCY IN HERTZ


OCONEE UNIT-2 NEUTRON NOISE ANALYSIS
#120 10-AUG-81, 19:25 CH1=NI-5,UPPER CH2=B-PRESSURE PC#000
RMS= 8.245 E-5
NORM CPSD MAGNITUDE
10^-7
10^-8
10^-9
10^-10
10^-11
10^-12
10^-13
0
2
4
6
8
10
12
14
16
18
20
FREQUENCY IN HERTZ

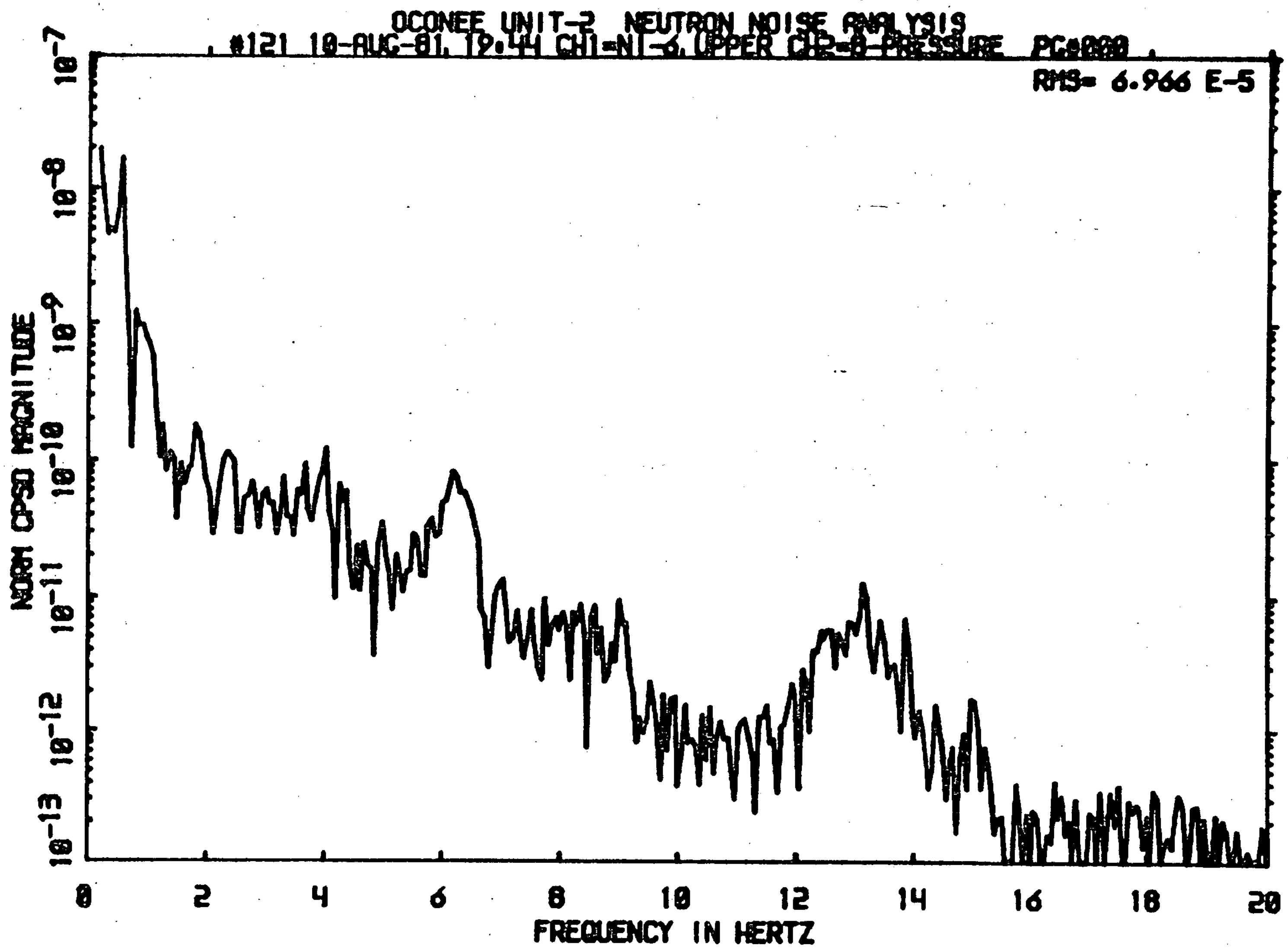

OCONEE UNIT-2 NEUTRON NOISE ANALYSIS
#120 10-AUG-81, 19:25 CH1=NI-5,UPPER CH2=B-PRESSURE PG#000
RMS= 1.154 E-4
NORMALIZED PSD2
10^-7
10^-8
10^-9
10^-10
10^-11
10^-12
10^-13
0
2
4
6
8
10
12
14
16
18
20
FREQUENCY IN HERTZ

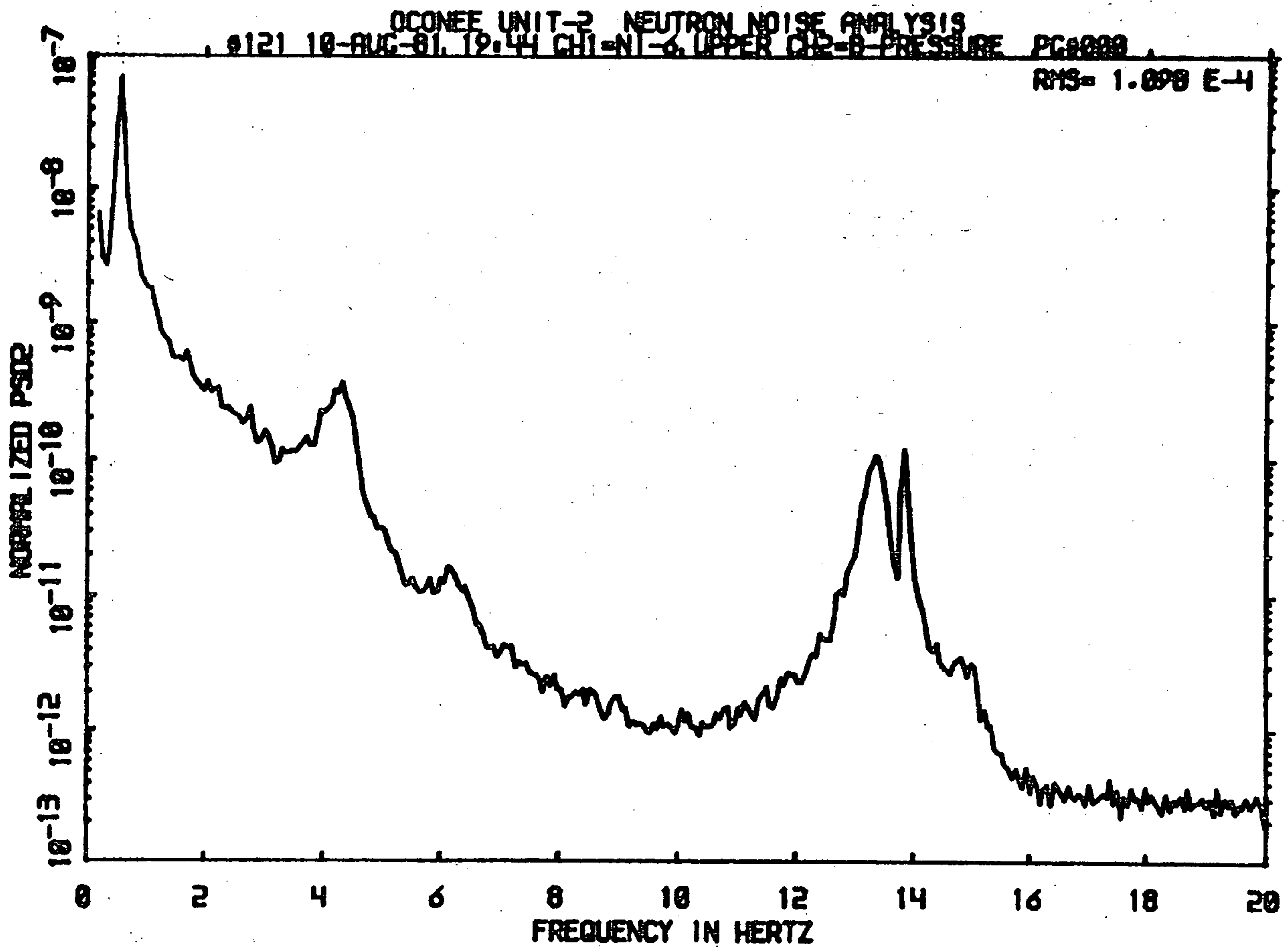

OCONEE UNIT-2 NEUTRON NOISE ANALYSIS
#120 10-AUG-81, 19:25 CH1=NI-5,UPPER CH2=B-PRESSURE PC#000
RMS= 3.073 E-4
NORMALIZED PSD1
10^-6
10^-7
10^-8
10^-9
10^-10
10^-11
10^-12
0
2
4
6
8
10
12
14
16
18
20
FREQUENCY IN HERTZ


OCONEE UNIT-2 NEUTRON NOISE ANALYSIS
#121 10-AUG-81, 19:44 CH1=NI-6,UPPER CH2=B-PRESSURE
COHERENCE
0.0
0.2
0.4
0.6
0.8
1.0
0
2
4
6
8
10
12
14
16
18
20
FREQUENCY IN HERTZ

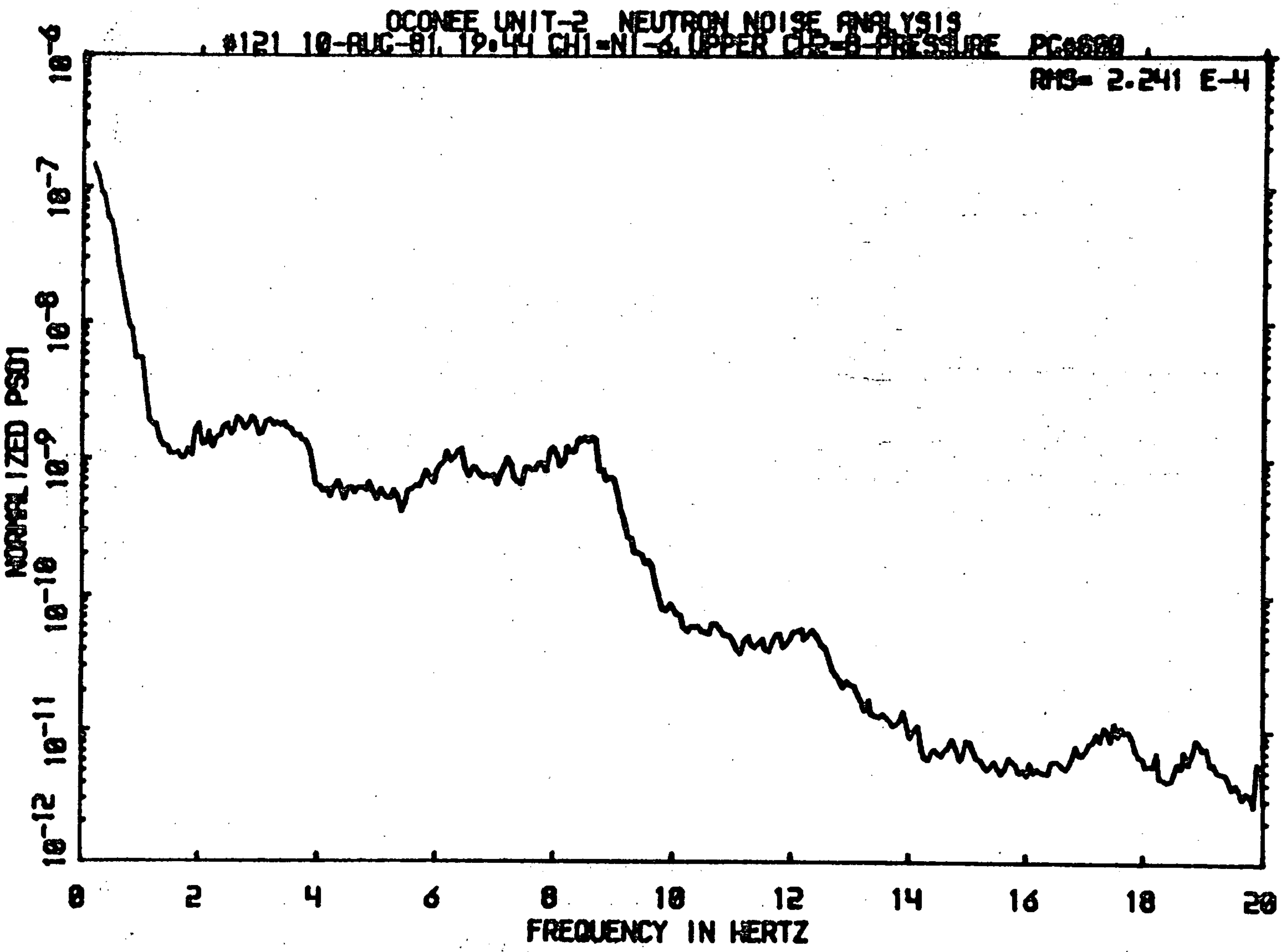


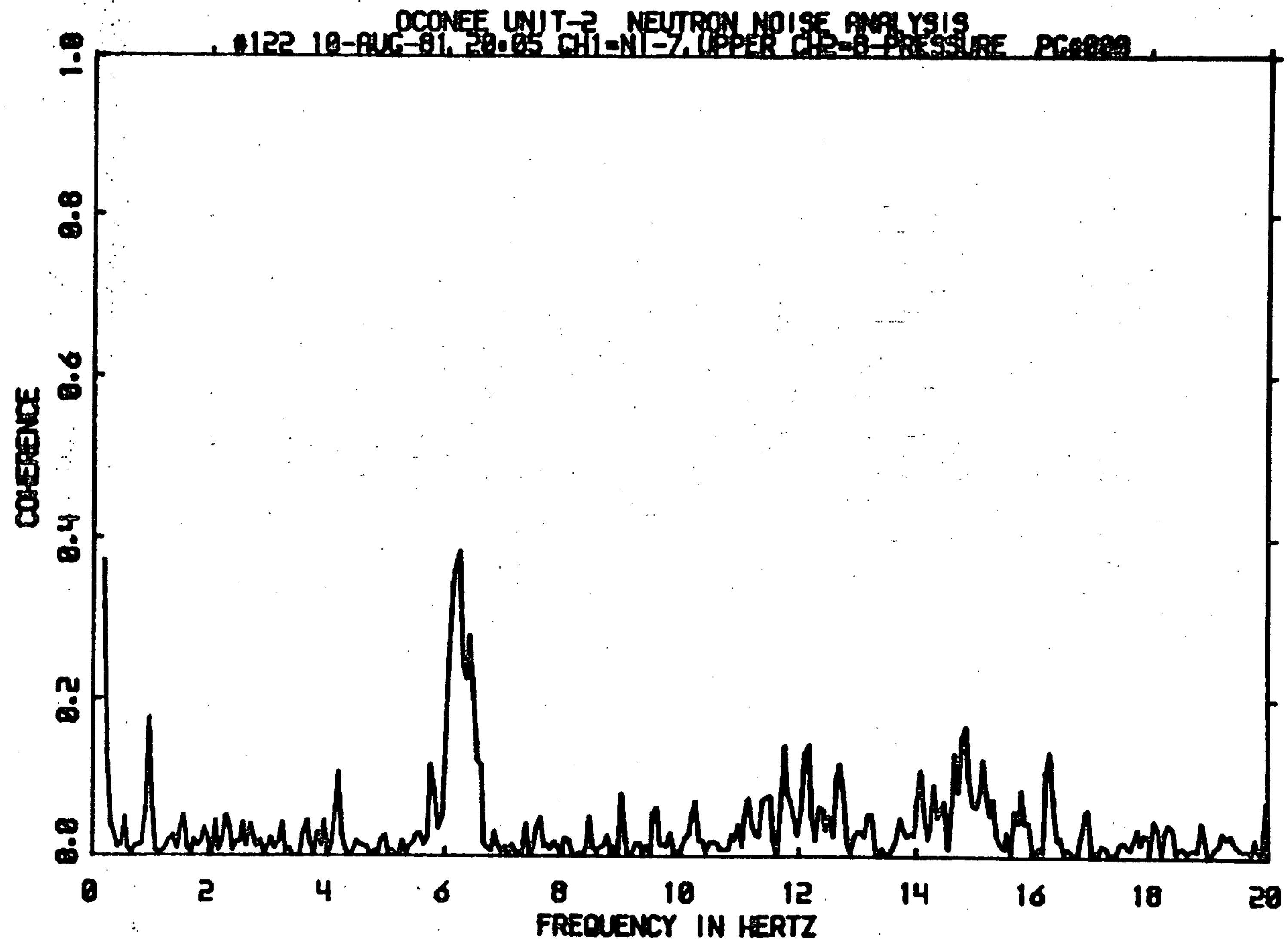
OCONEE UNIT-2 NEUTRON NOISE ANALYSIS
#121 10-AUG-81 19:44 CH1=NI-6 UPPER CH2=B-PRESSURE PC#000
PHASE IN DEGREES
90
0
-90
-180
-270
0
2
4
6
8
10
12
14
16
18
20
FREQUENCY IN HERTZ

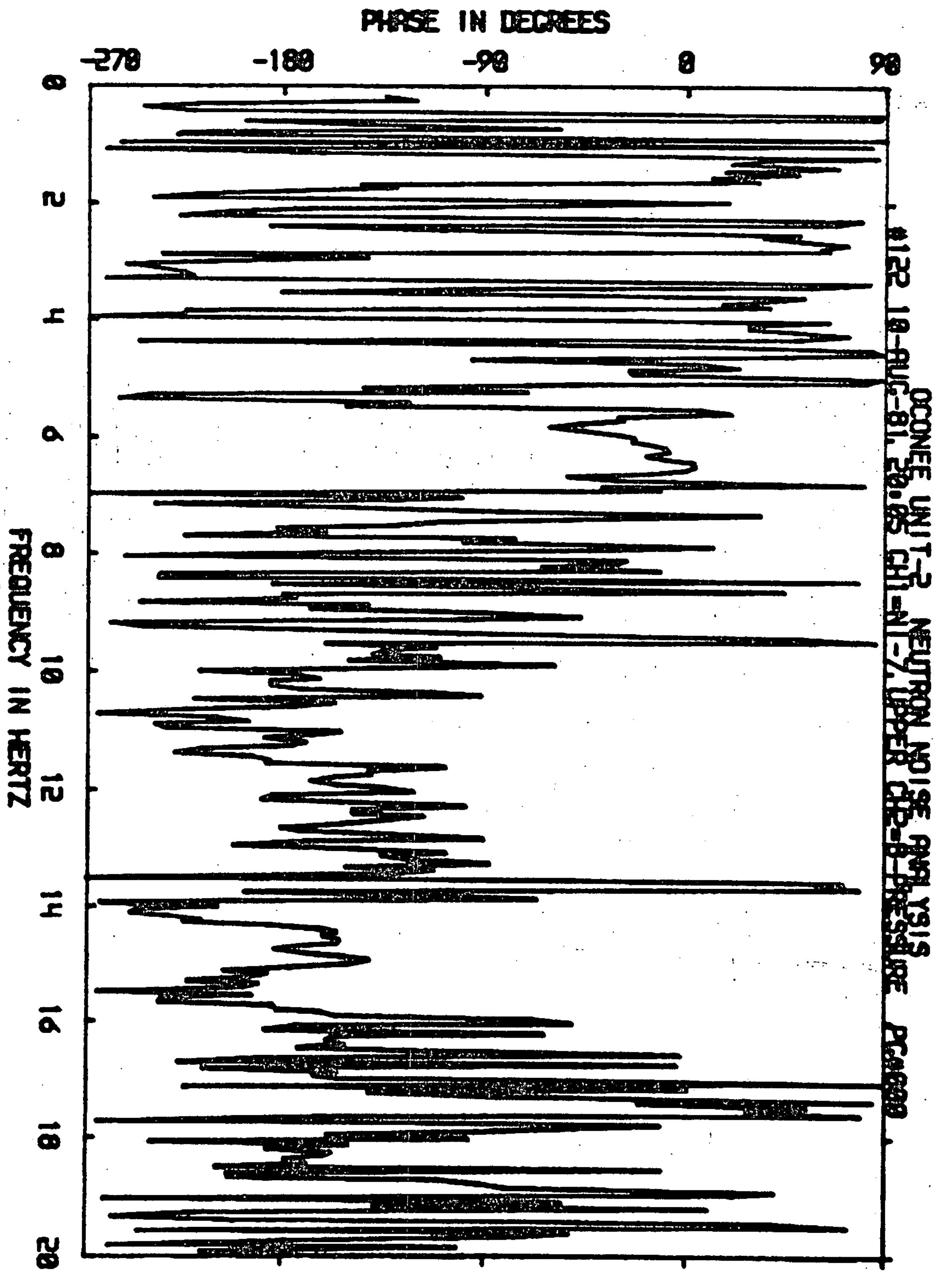

OCONEE UNIT-2 NEUTRON NOISE ANALYSIS
#121 10-AUG-81, 19:44 CH1=NI-6,UPPER CH2=B-PRESSURE PG#000
RMS= 6.966 E-5
NORM CPSD MAGNITUDE
10^-7
10^-8
10^-9
10^-10
10^-11
10^-12
10^-13
0
2
4
6
8
10
12
14
16
18
20
FREQUENCY IN HERTZ

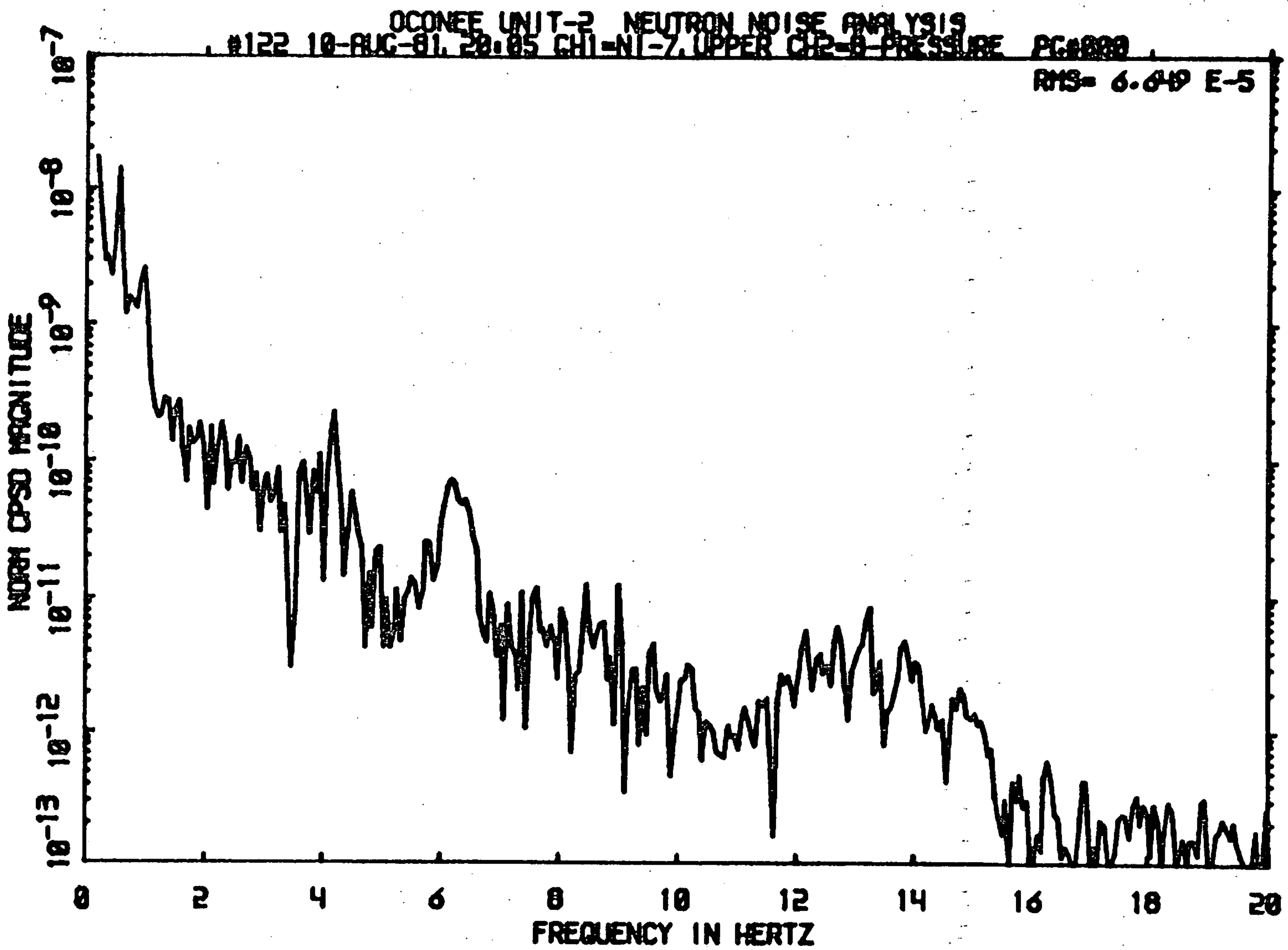


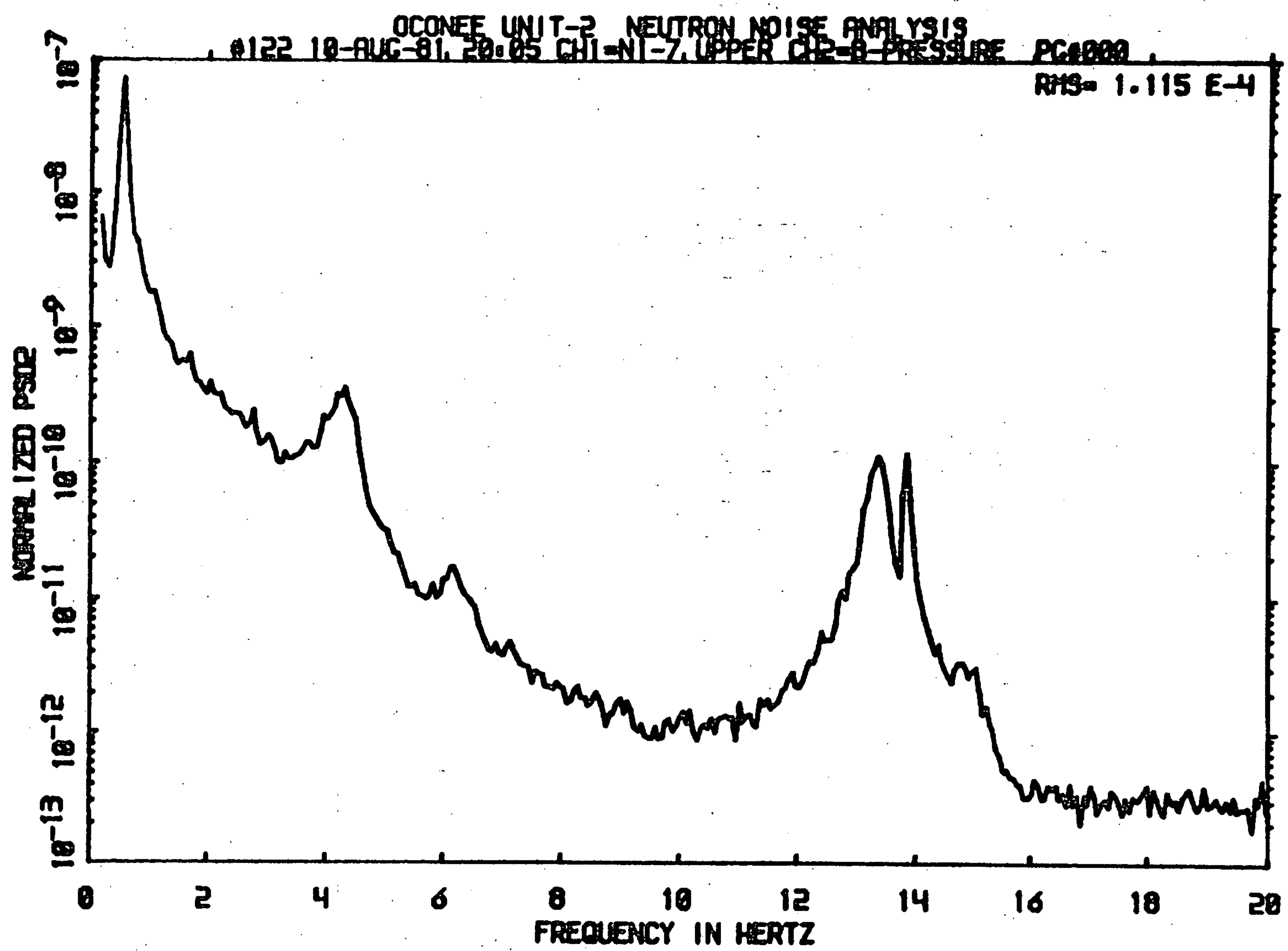
OCONEE UNIT-2 NEUTRON NOISE ANALYSIS
#121 10-AUG-81, 19:44 CH1=NI-6,UPPER CH2=B-PRESSURE PG#000
RMS= 1.090 E-4
NORMALIZED PSD2
10^-7
10^-8
10^-9
10^-10
10^-11
10^-12
10^-13
0
2
4
6
8
10
12
14
16
18
20
FREQUENCY IN HERTZ

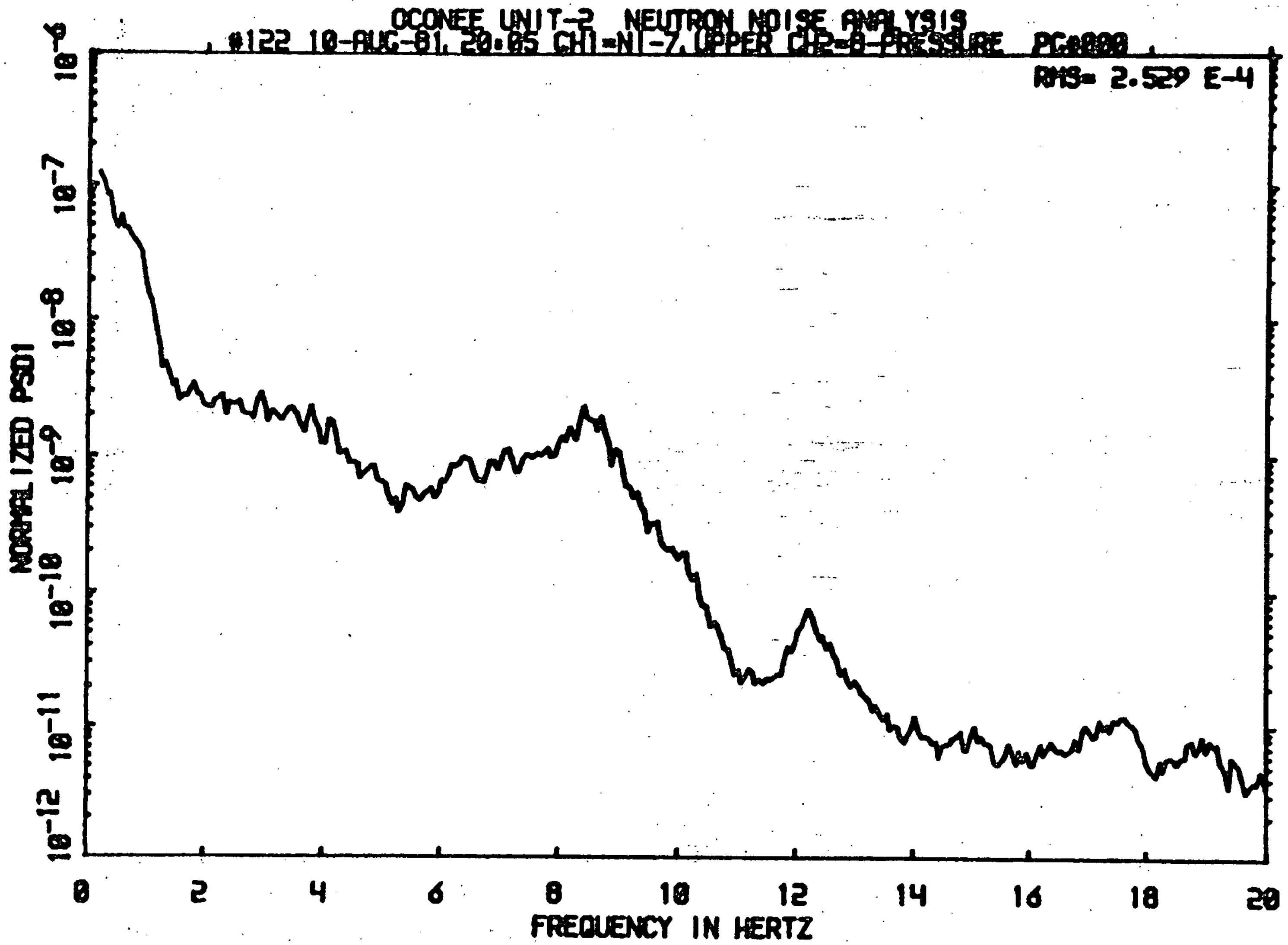

OCONEE UNIT-2 NEUTRON NOISE ANALYSIS
#121 10-AUG-81, 19:44 CH1=NI-6,UPPER CH2=B-PRESSURE
RMS= 2.241 E-4
NORMALIZED PSD1
10^-6
10^-7
10^-8
10^-9
10^-10
10^-11
10^-12
0
2
4
6
8
10
12
14
16
18
20
FREQUENCY IN HERTZ

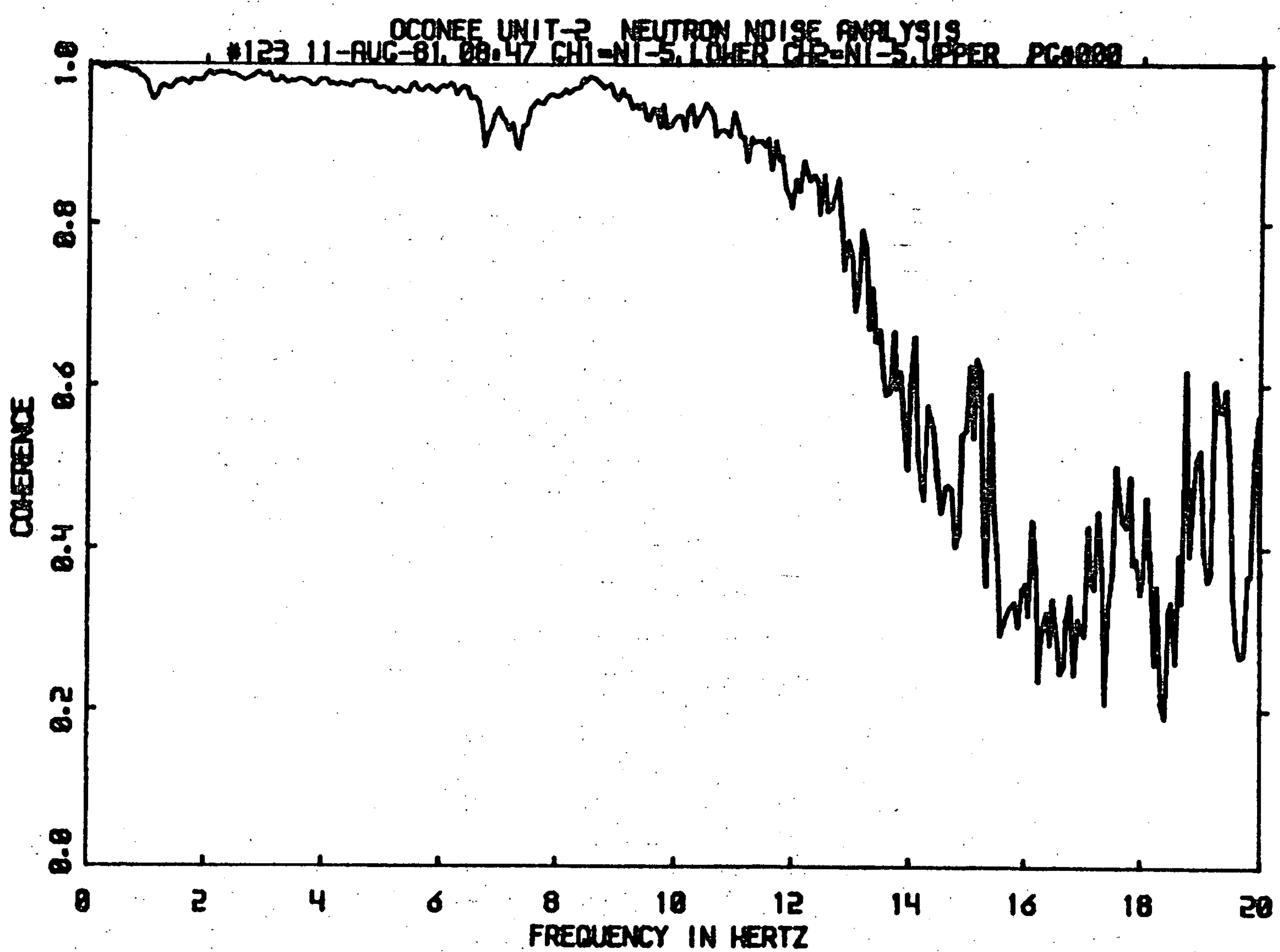

OCONEE UNIT-2 NEUTRON NOISE ANALYSIS
#122 10-AUG-81, 20:05 CH1=NI-7,UPPER CH2=B-PRESSURE PG#000
COHERENCE
0.0
0.2
0.4
0.6
0.8
1.0
0
2
4
6
8
10
12
14
16
18
20
FREQUENCY IN HERTZ

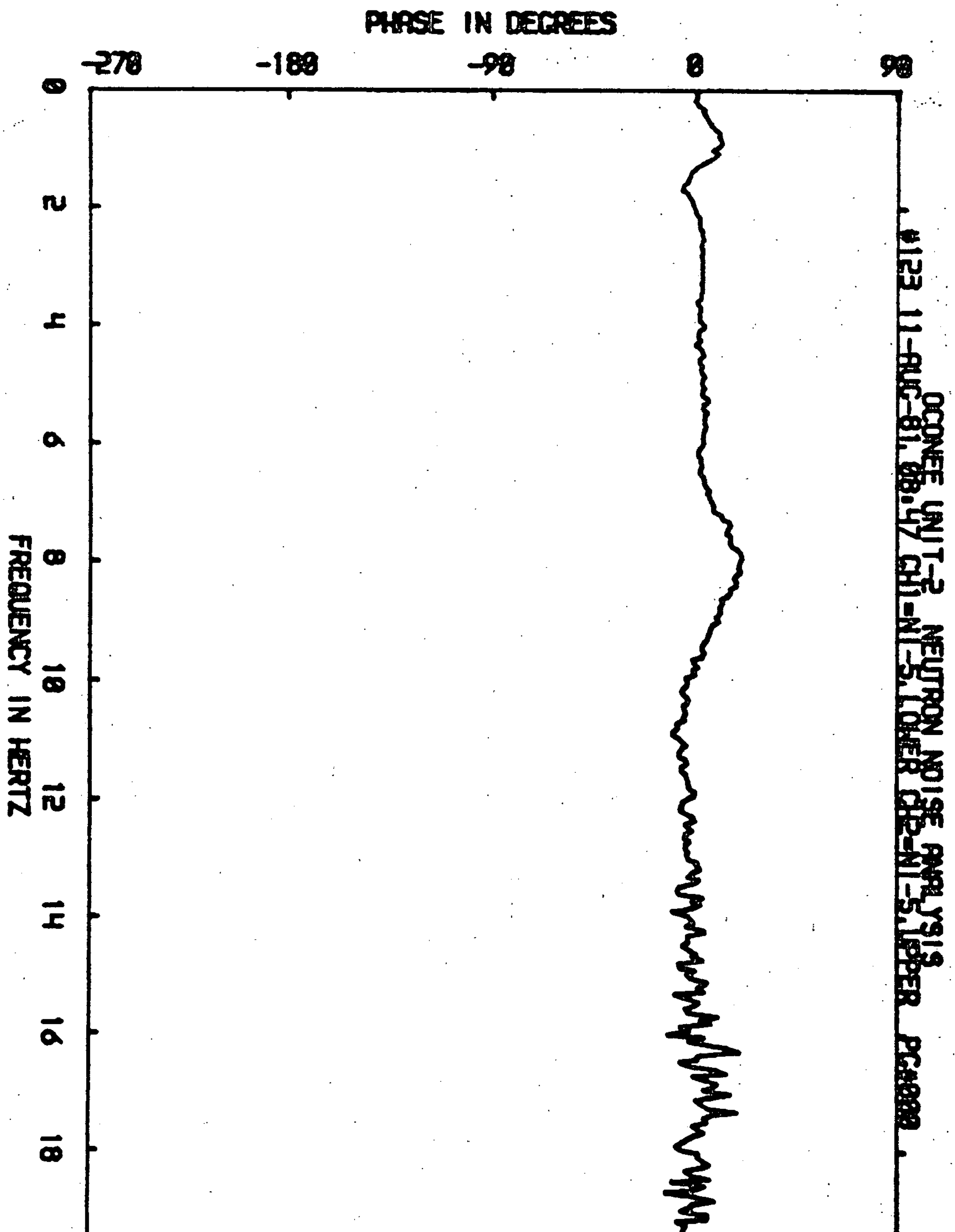

PHASE IN DEGREES
-270
-180
-90
0
90
OCONEE UNIT-3 NEUTRON NOISE ANALYSIS
#122 10-AUG-81, 20.05 CH1=NI-7 UPPER CH2=B-PRESSURE
0
2
4
6
8
10
12
14
16
18
20
FREQUENCY IN HERTZ

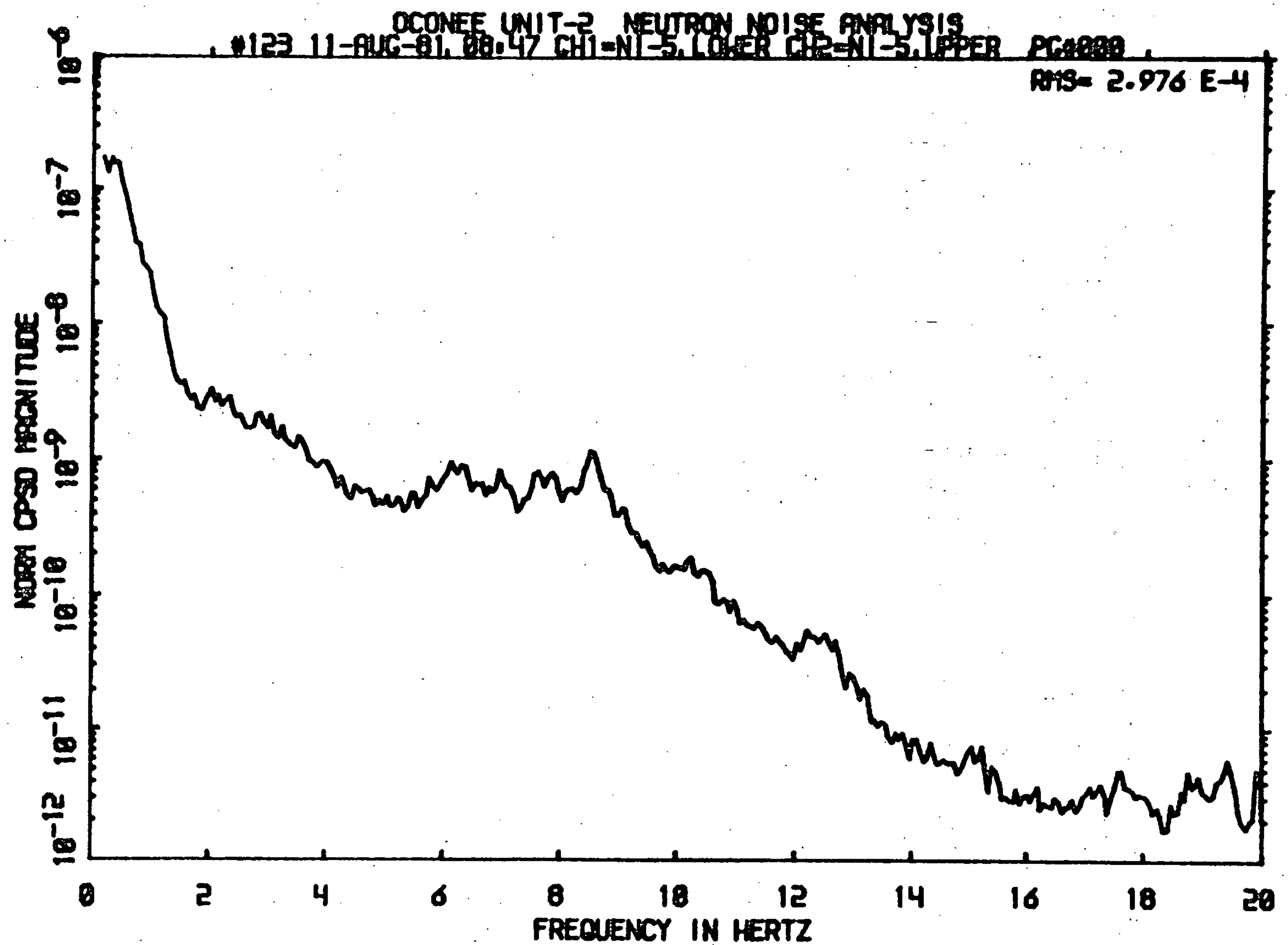

OCONEE UNIT-2 NEUTRON NOISE ANALYSIS
#122 10-AUG-81 20:05 CH1=NI-7,UPPER CH2=B-PRESSURE PG#000
RMS= 6.649 E-5
NORM CPSD MAGNITUDE
FREQUENCY IN HERTZ


OCONEE UNIT-2 NEUTRON NOISE ANALYSIS
#122 10-AUG-81 20:05 CH1=NI-7 UPPER CH2=B-PRESSURE PC#000
RMS= 1.115 E-4
NORMALIZED PSD2
10^-13 10^-12 10^-11 10^-10 10^-9 10^-8 10^-7
0 2 4 6 8 10 12 14 16 18 20
FREQUENCY IN HERTZ

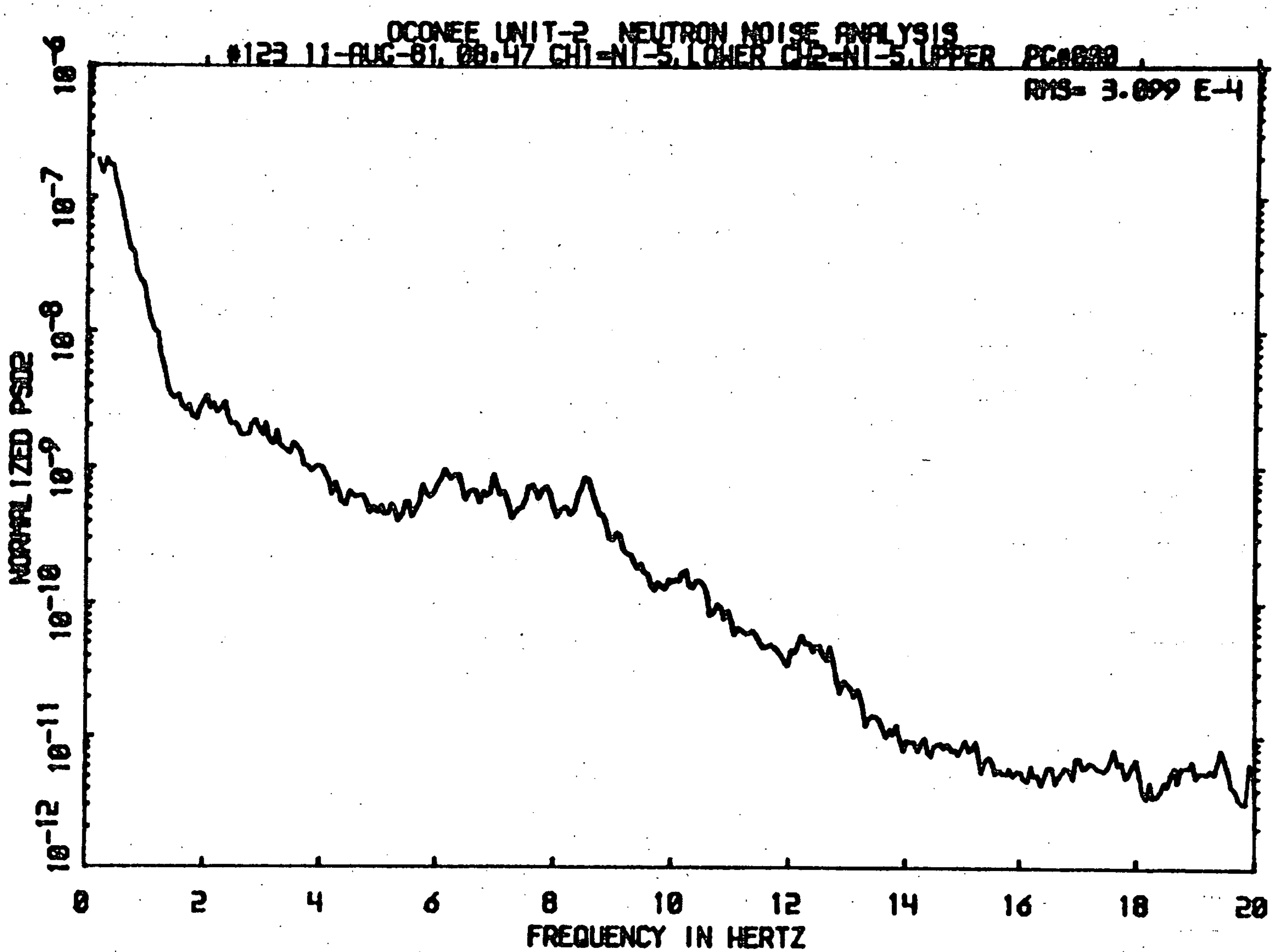

OCONEE UNIT-2 NEUTRON NOISE ANALYSIS
#122 10-AUG-81, 20:05 CH1=NI-7,UPPER CH2=B-PRESSURE PG#000
RMS= 2.529 E-4
NORMALIZED PSD1
FREQUENCY IN HERTZ

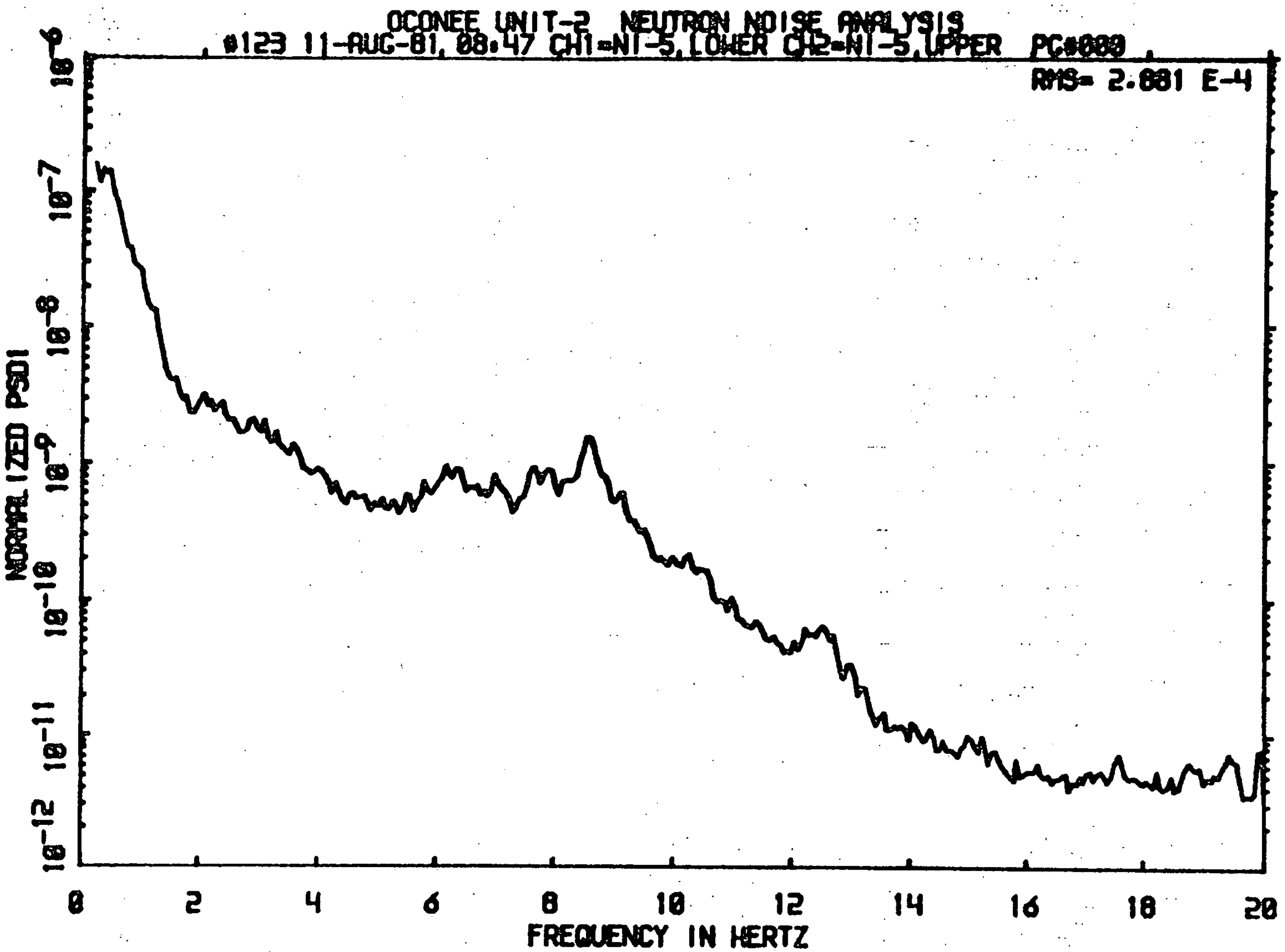

OCONEE UNIT-2 NEUTRON NOISE ANALYSIS
#123 11-AUG-81, 08:47 CH1=NI-5,LOWER CH2=NI-5,UPPER PG#000
COHERENCE
1.0
0.8
0.6
0.4
0.2
0.0
0
2
4
6
8
10
12
14
16
18
20
FREQUENCY IN HERTZ

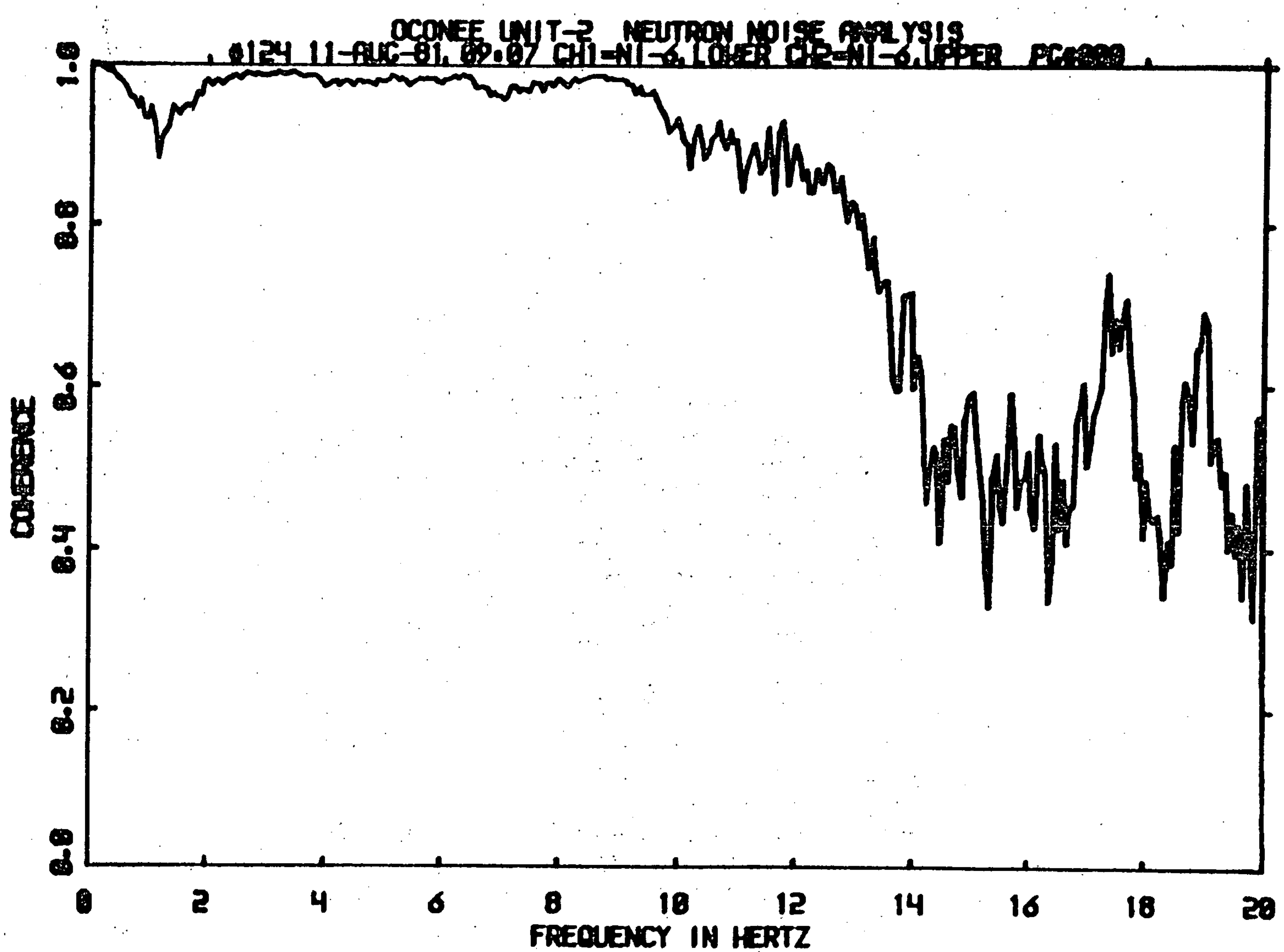

OCONEE UNIT-2 NEUTRON NOISE ANALYSIS
#123 11-AUG-81 08.47 CH1=NI-5,LOWER CH2=NI-5,UPPER PC#000
PHASE IN DEGREES
-270
-180
-90
0
90
0
2
4
6
8
10
12
14
16
18
20
FREQUENCY IN HERTZ



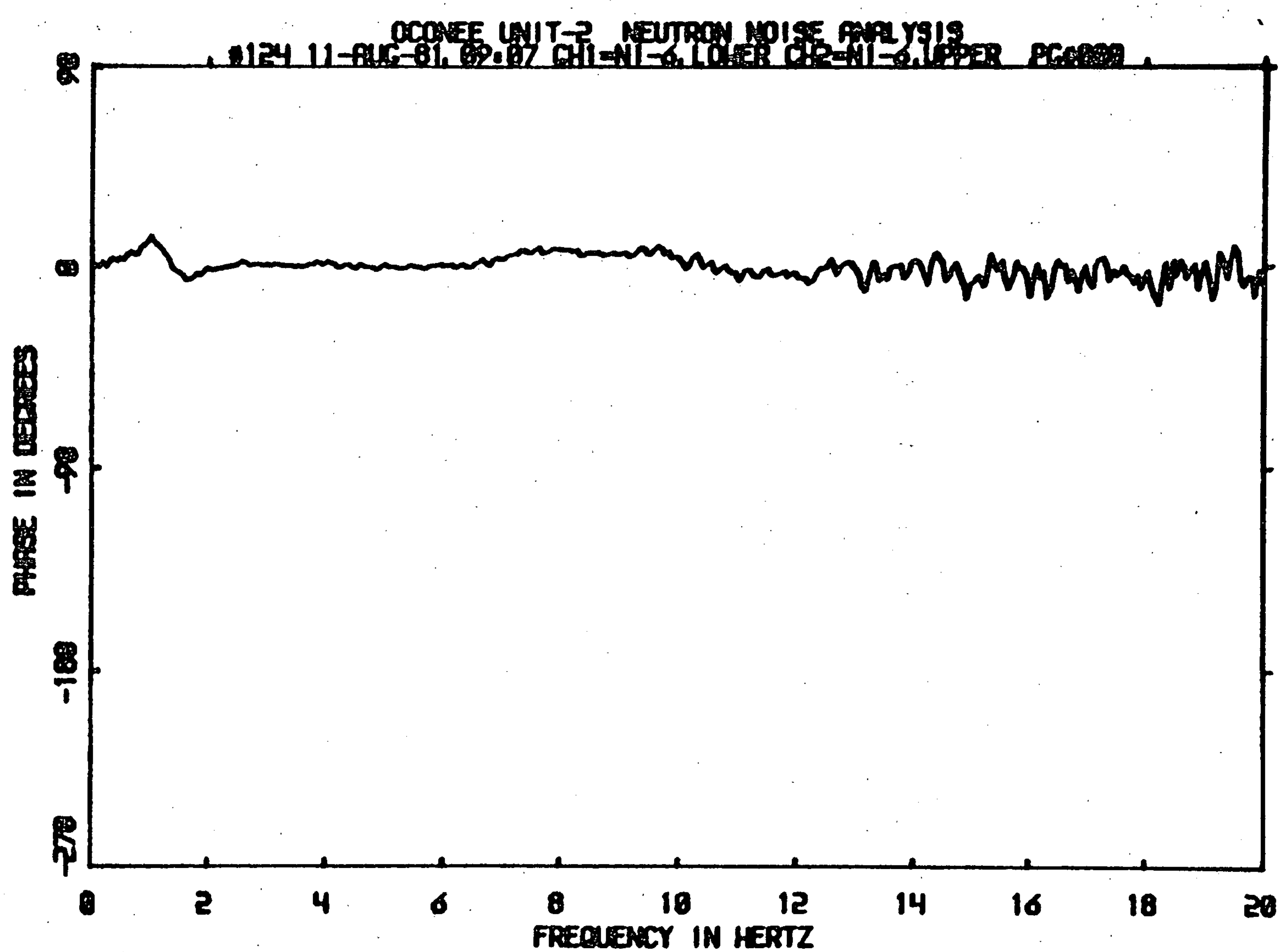
OCONEE UNIT-2 NEUTRON NOISE ANALYSIS
#123 11-AUG-81, 08:47 CH1=NI-5,LOWER CH2=NI-5,UPPER PG#000
RMS= 2.976 E-4
NORM CPSD MAGNITUDE
10^-6
10^-7
10^-8
10^-9
10^-10
10^-11
10^-12
0
2
4
6
8
10
12
14
16
18
20
FREQUENCY IN HERTZ

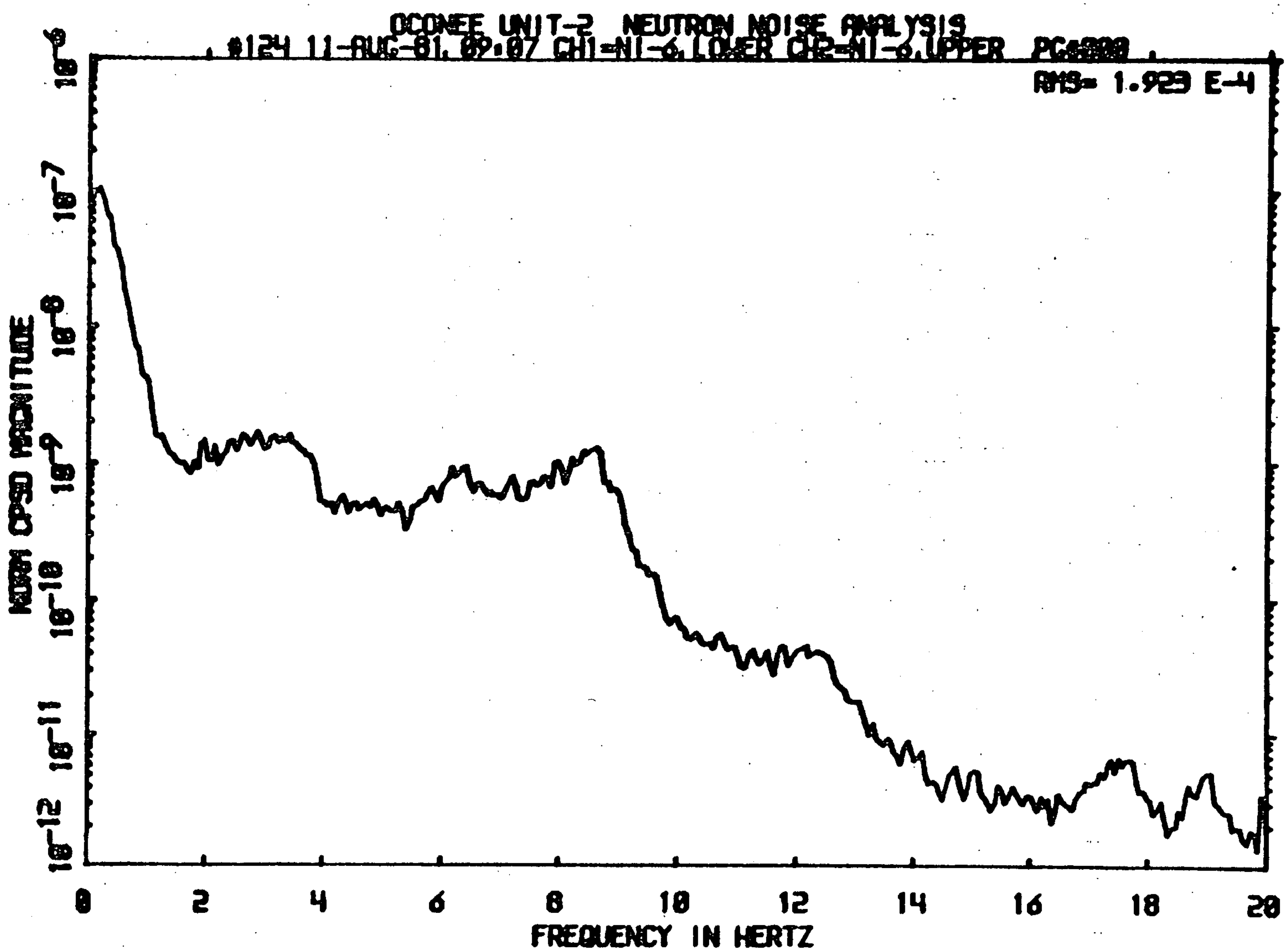

OCONEE UNIT-2 NEUTRON NOISE ANALYSIS
#123 11-AUG-81, 08:47 CH1=NI-5,LOWER CH2=NI-5,UPPER PC=090
RMS= 3.099 E-4
NORMALIZED PSD2
10^-12
10^-11
10^-10
10^-9
10^-8
10^-7
10^-6
0
2
4
6
8
10
12
14
16
18
20
FREQUENCY IN HERTZ

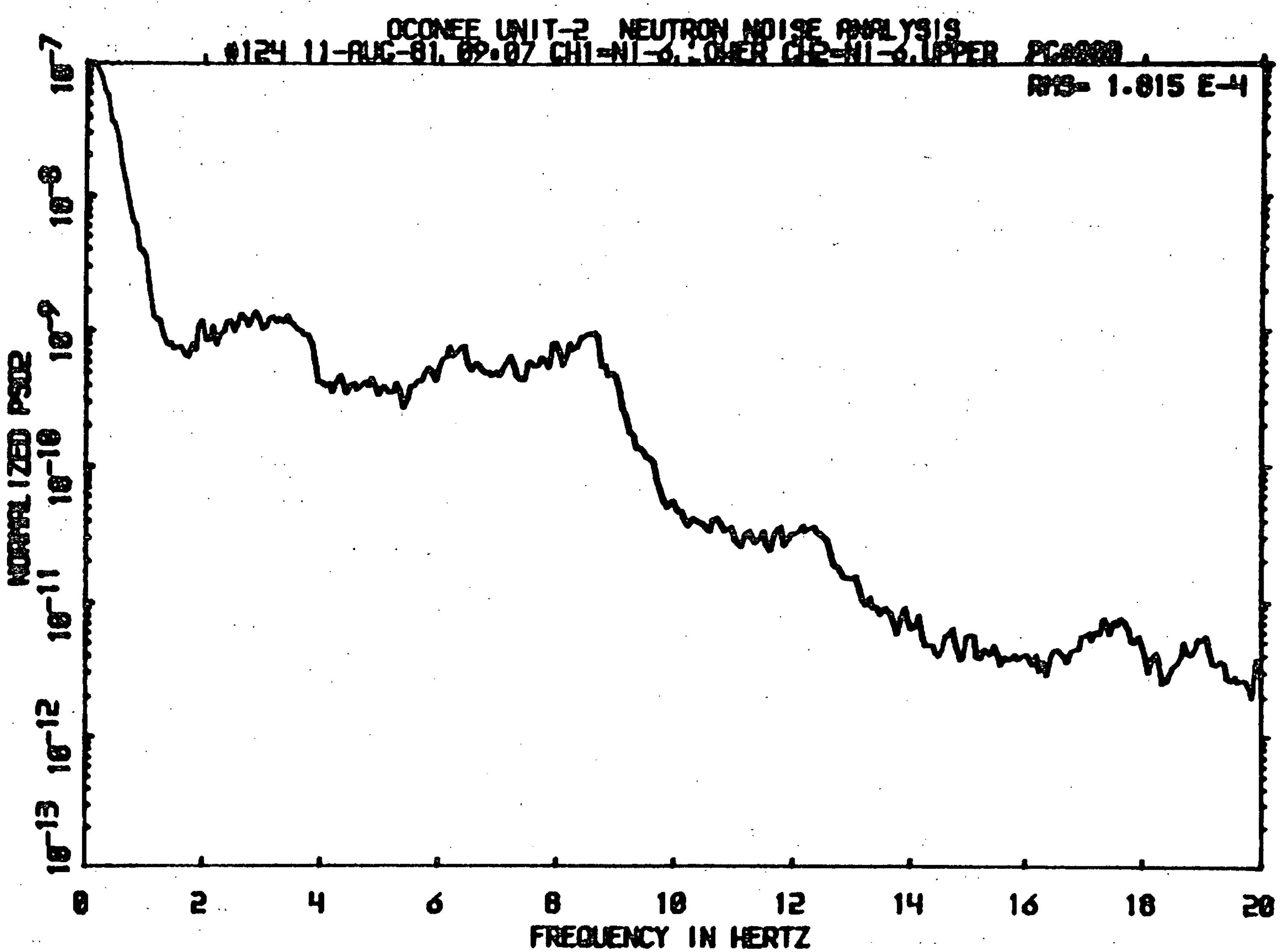

OCONEE UNIT-2 NEUTRON NOISE ANALYSIS
#123 11-AUG-81, 08:47 CH1=NI-5,LOWER CH2=NI-5,UPPER PC#000
RMS= 2.081 E-4
NORMALIZED PSD1
10^-12
10^-11
10^-10
10^-9
10^-8
10^-7
10^-6
0
2
4
6
8
10
12
14
16
18
20
FREQUENCY IN HERTZ



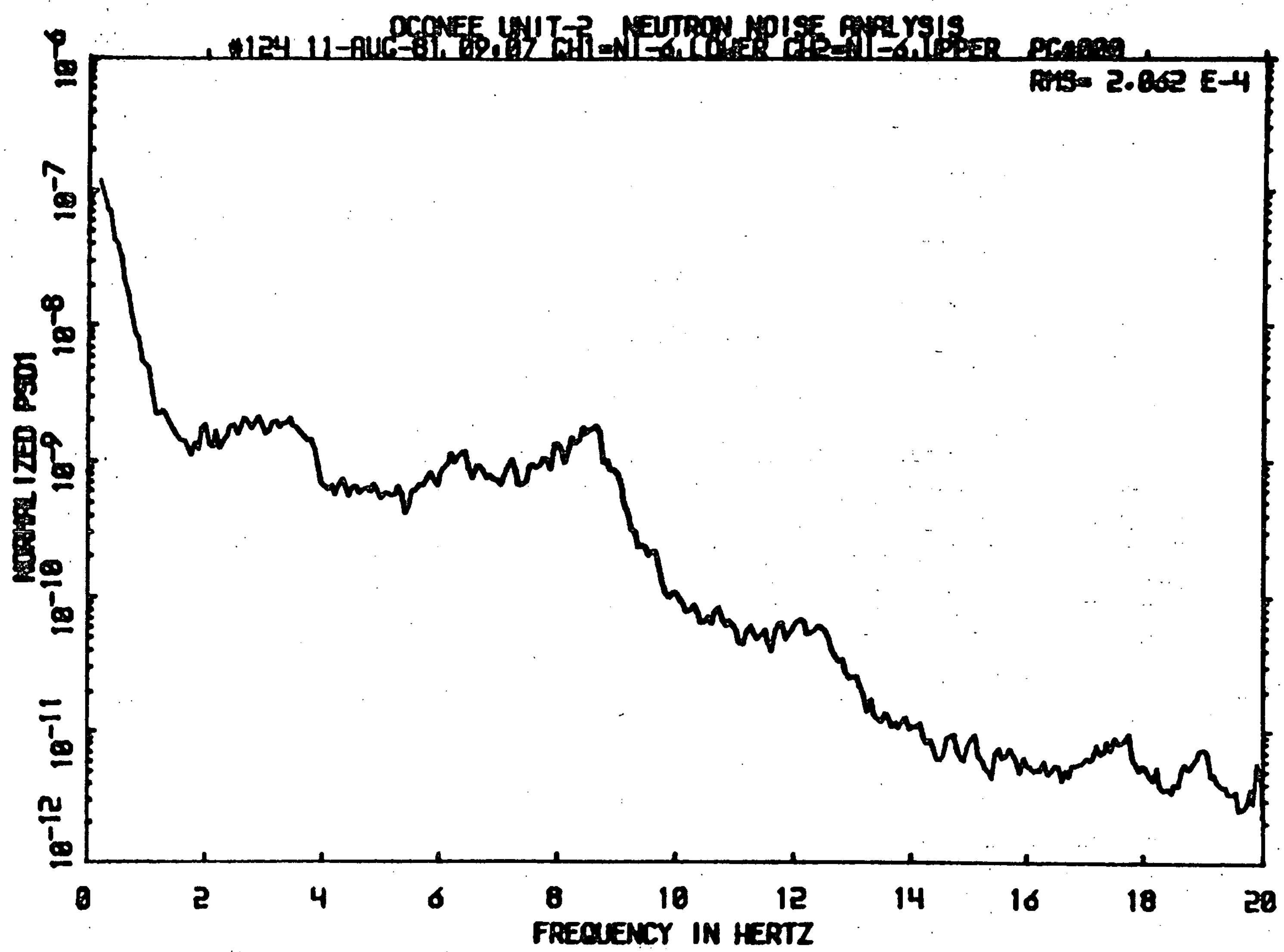
OCONEE UNIT-2 NEUTRON NOISE ANALYSIS
#124 11-AUG-81, 09:07 CH1=NI-6,LOWER CH2=NI-6,UPPER PG#000
COHERENCE
0.0
0.2
0.4
0.6
0.8
1.0
0
2
4
6
8
10
12
14
16
18
20
FREQUENCY IN HERTZ


OCONEE UNIT-2 NEUTRON NOISE ANALYSIS
#124 11-AUG-81, 09:07 CH1=NI-6,LOWER CH2=NI-6,UPPER PG:000
PHASE IN DEGREES
90
0
-90
-180
-270
0
2
4
6
8
10
12
14
16
18
20
FREQUENCY IN HERTZ

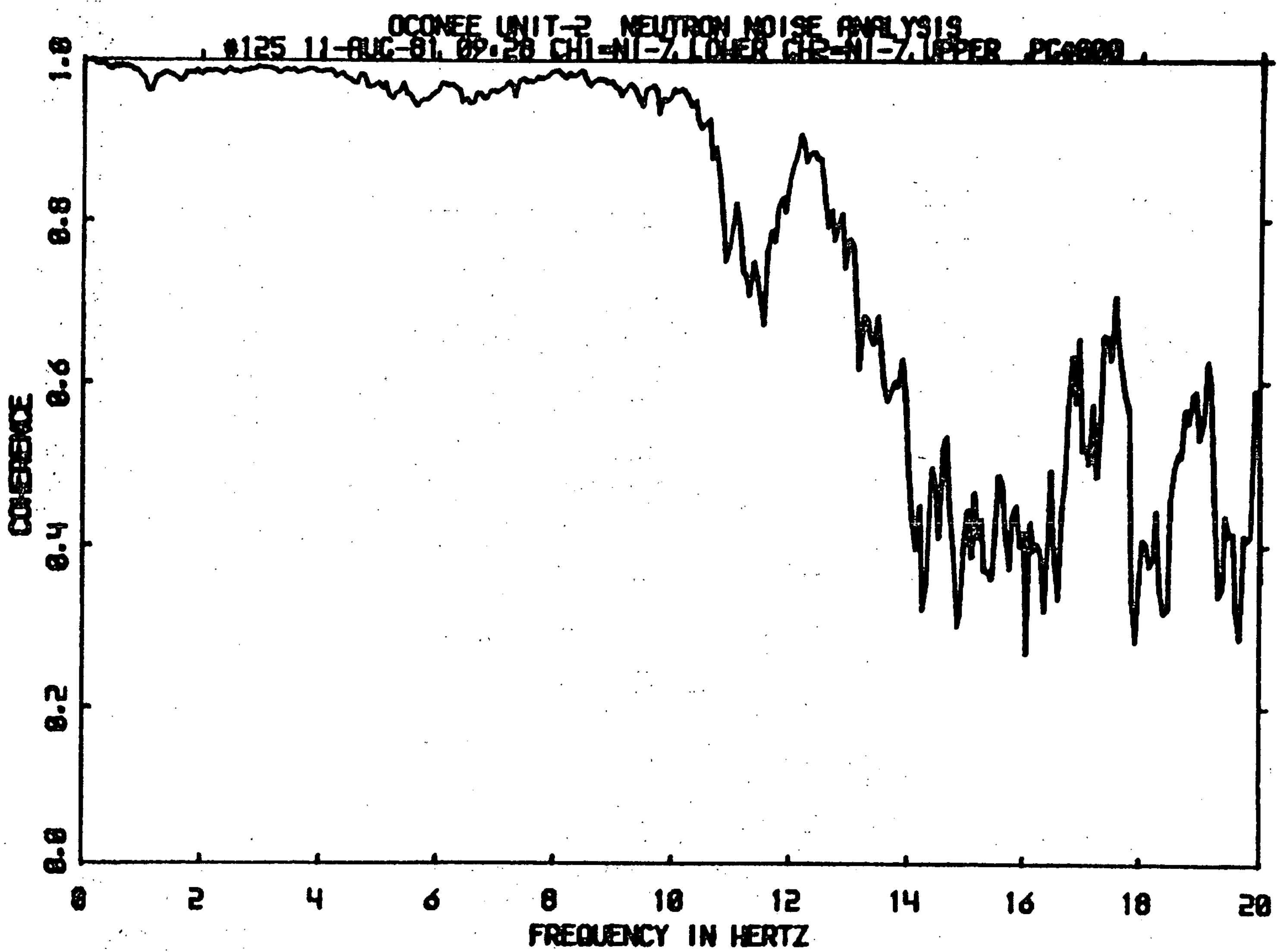

OCONEE UNIT-2 NEUTRON NOISE ANALYSIS
#124 11-AUG-81, 09:07 CH1=NI-6,LOWER CH2=NI-6,UPPER PC#900
RMS= 1.923 E-4
NORM CPSD MAGNITUDE
10^-6
10^-7
10^-8
10^-9
10^-10
10^-11
10^-12
0
2
4
6
8
10
12
14
16
18
20
FREQUENCY IN HERTZ

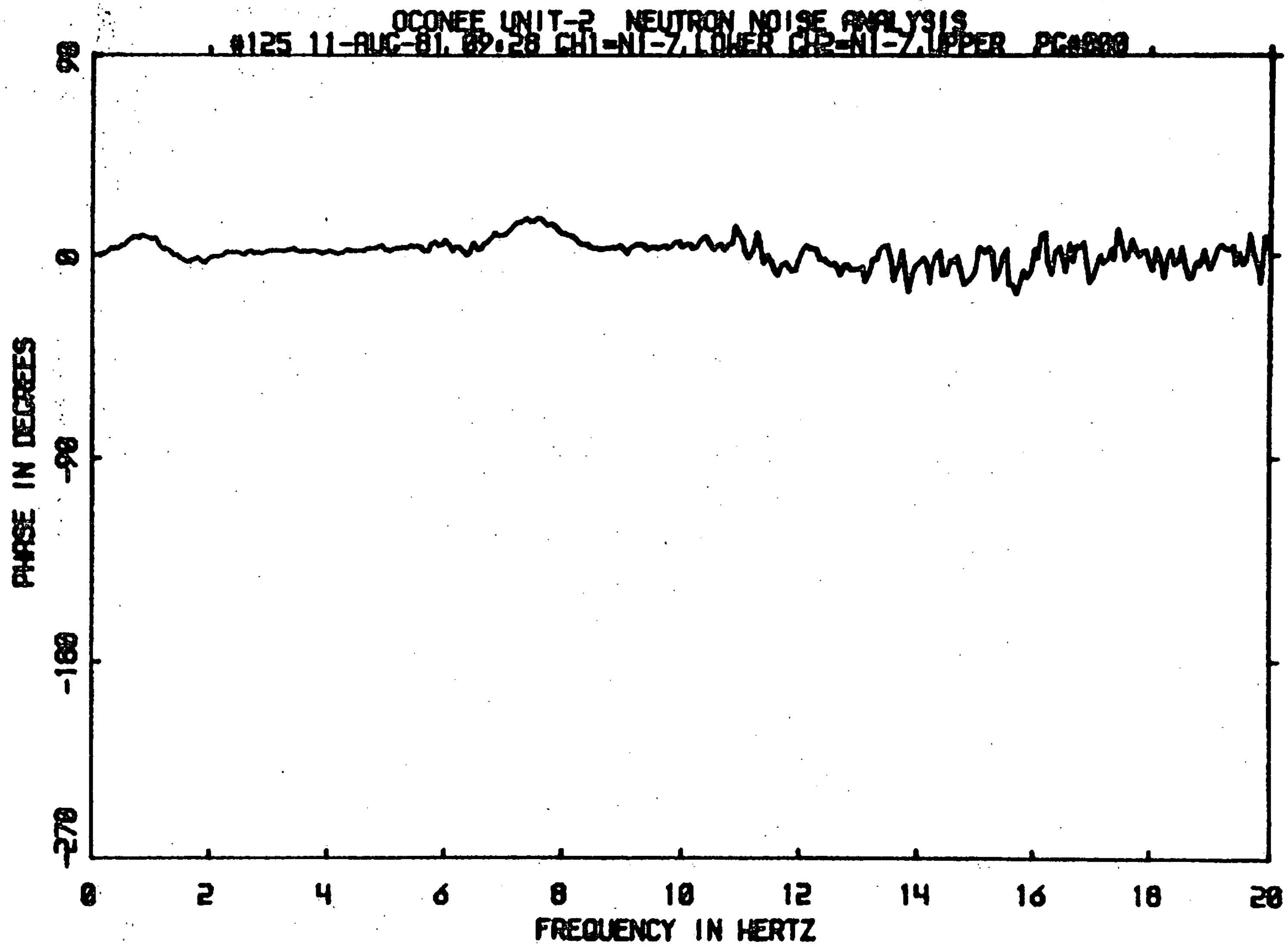


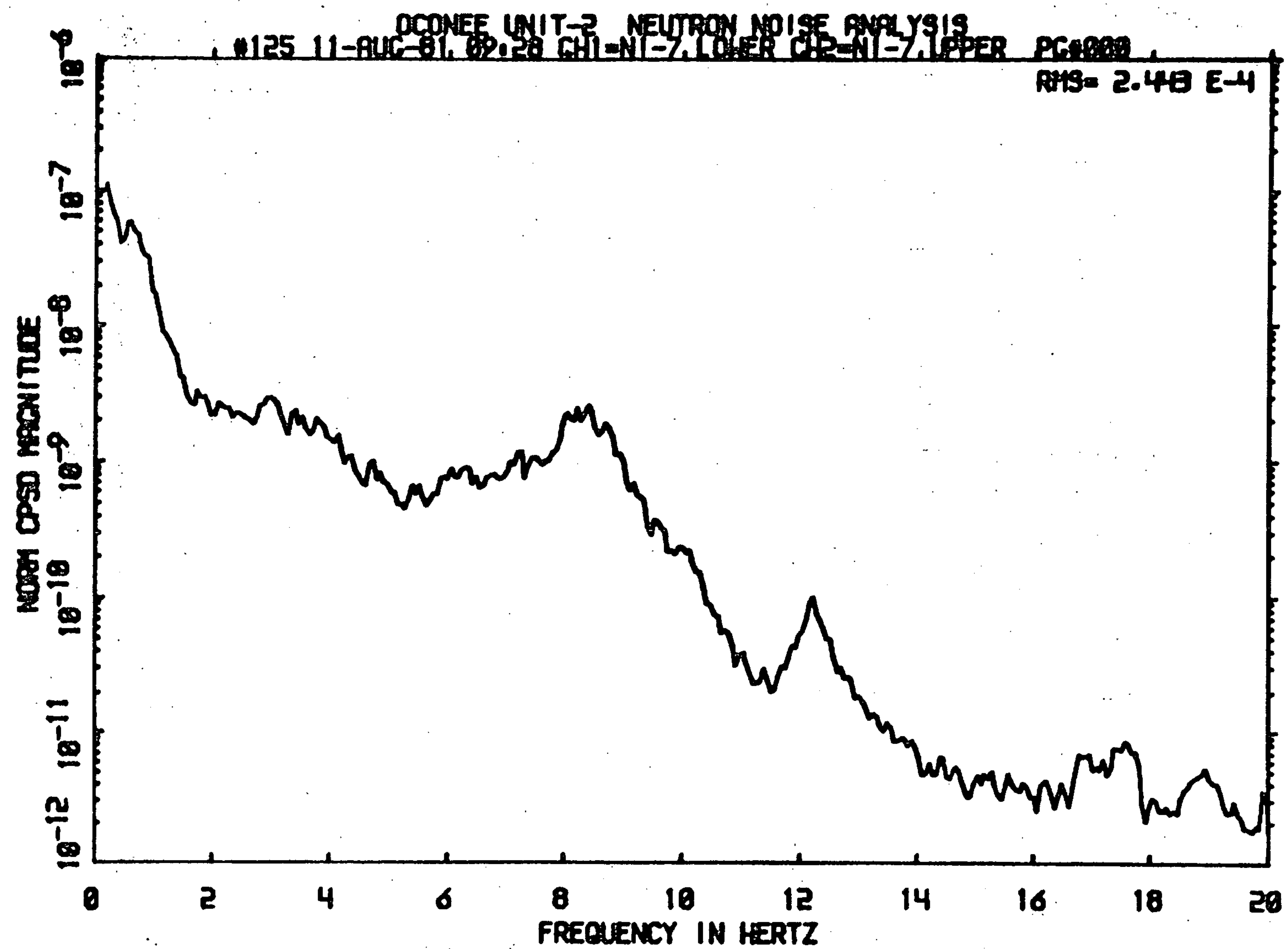
OCONEE UNIT-2 NEUTRON NOISE ANALYSIS
#124 11-AUG-81 09:07 CH1=NI-6,LOWER CH2=NI-6,UPPER PG=000
RMS= 1.015 E-4
NORMALIZED PSD2
10^{-7}
10^{-8}
10^{-9}
10^{-10}
10^{-11}
10^{-12}
10^{-13}
0
2
4
6
8
10
12
14
16
18
20
FREQUENCY IN HERTZ

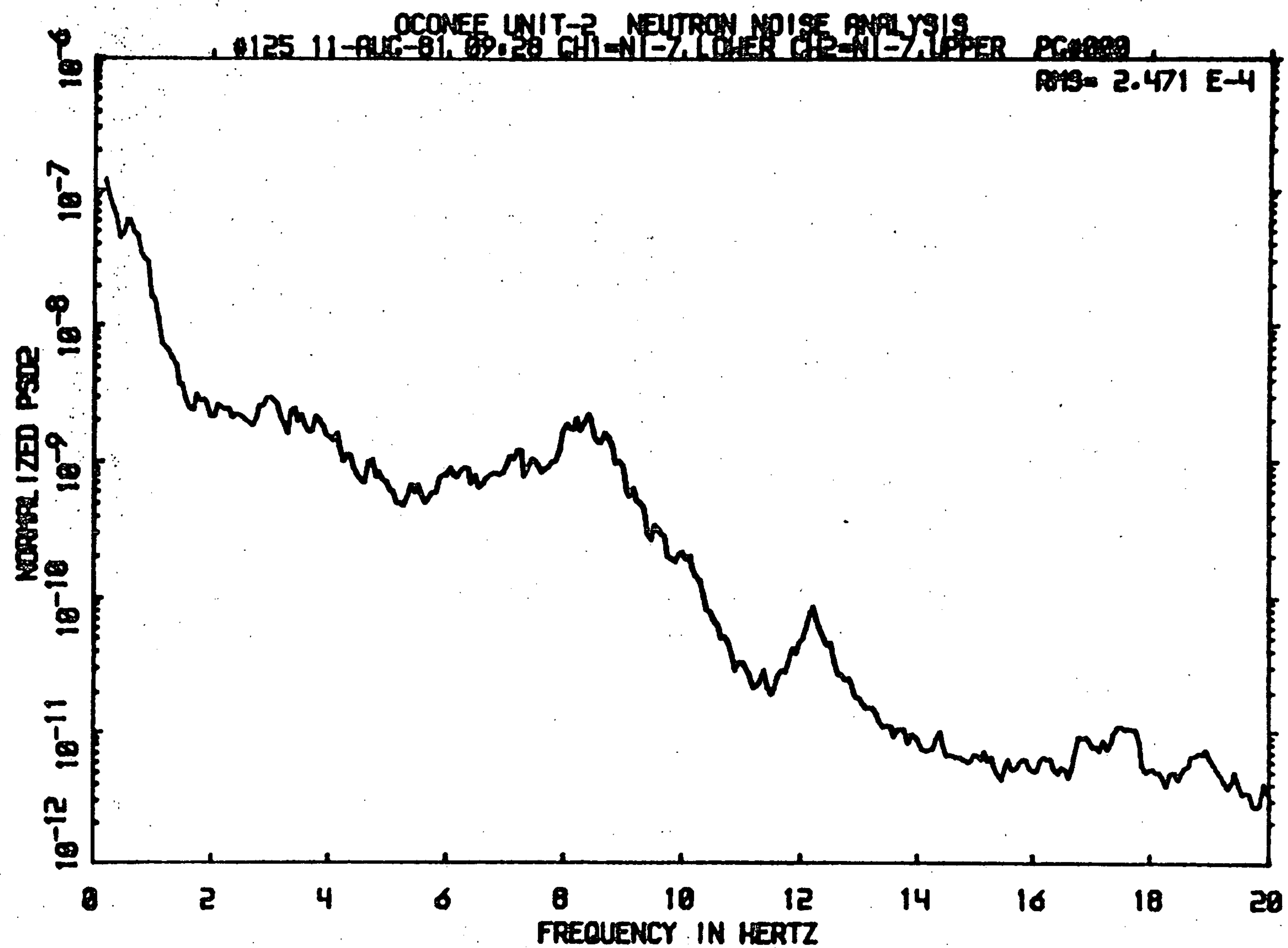


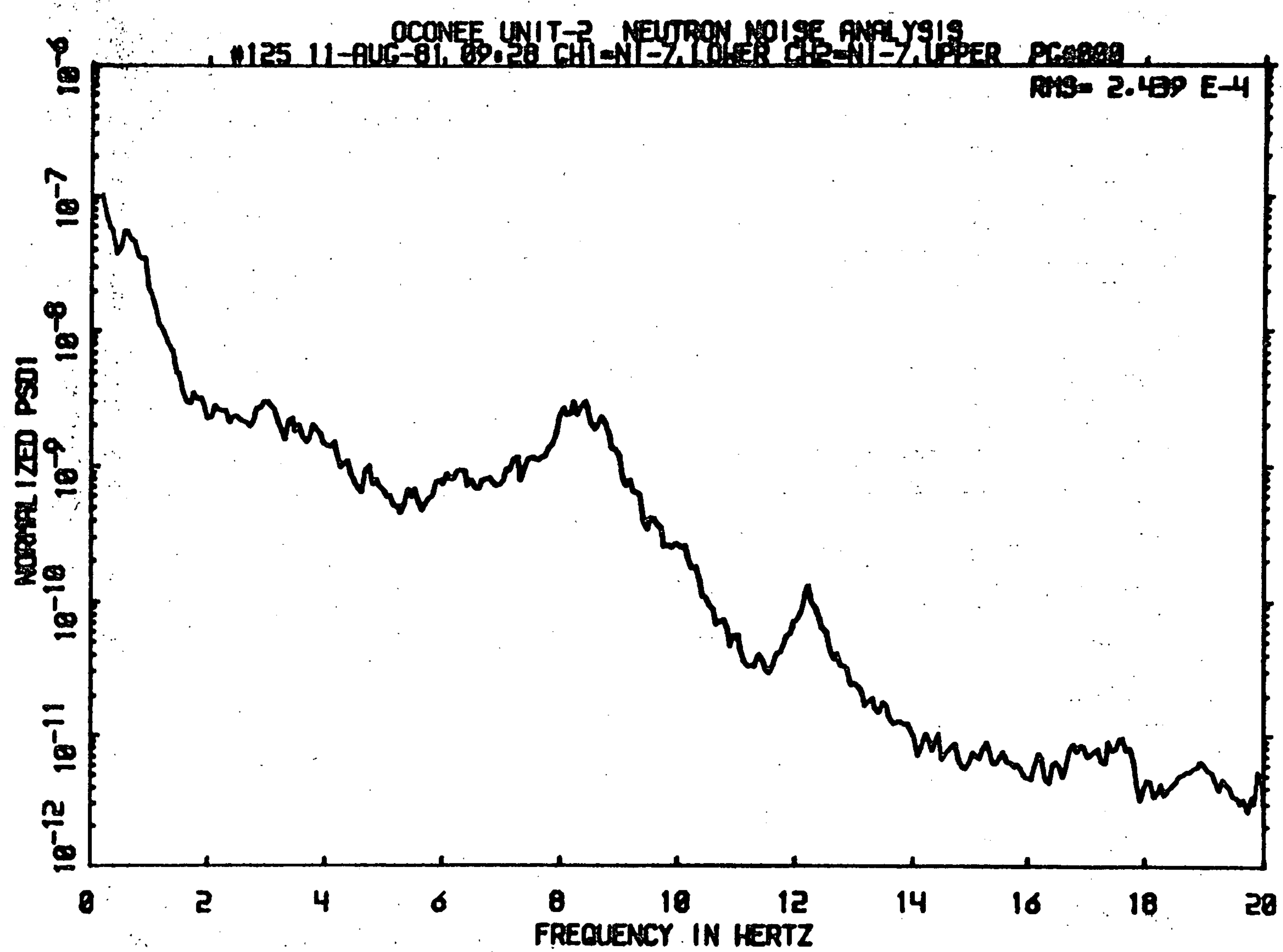
OCONEE UNIT-2 NEUTRON NOISE ANALYSIS
#124 11-AUG-81 09:07 CH1=NI-6 LOWER CH2=NI-6 UPPER PC#000
RMS= 2.062 E-4
NORMALIZED PSD1
10^-12
10^-11
10^-10
10^-9
10^-8
10^-7
10^-6
0
2
4
6
8
10
12
14
16
18
20
FREQUENCY IN HERTZ

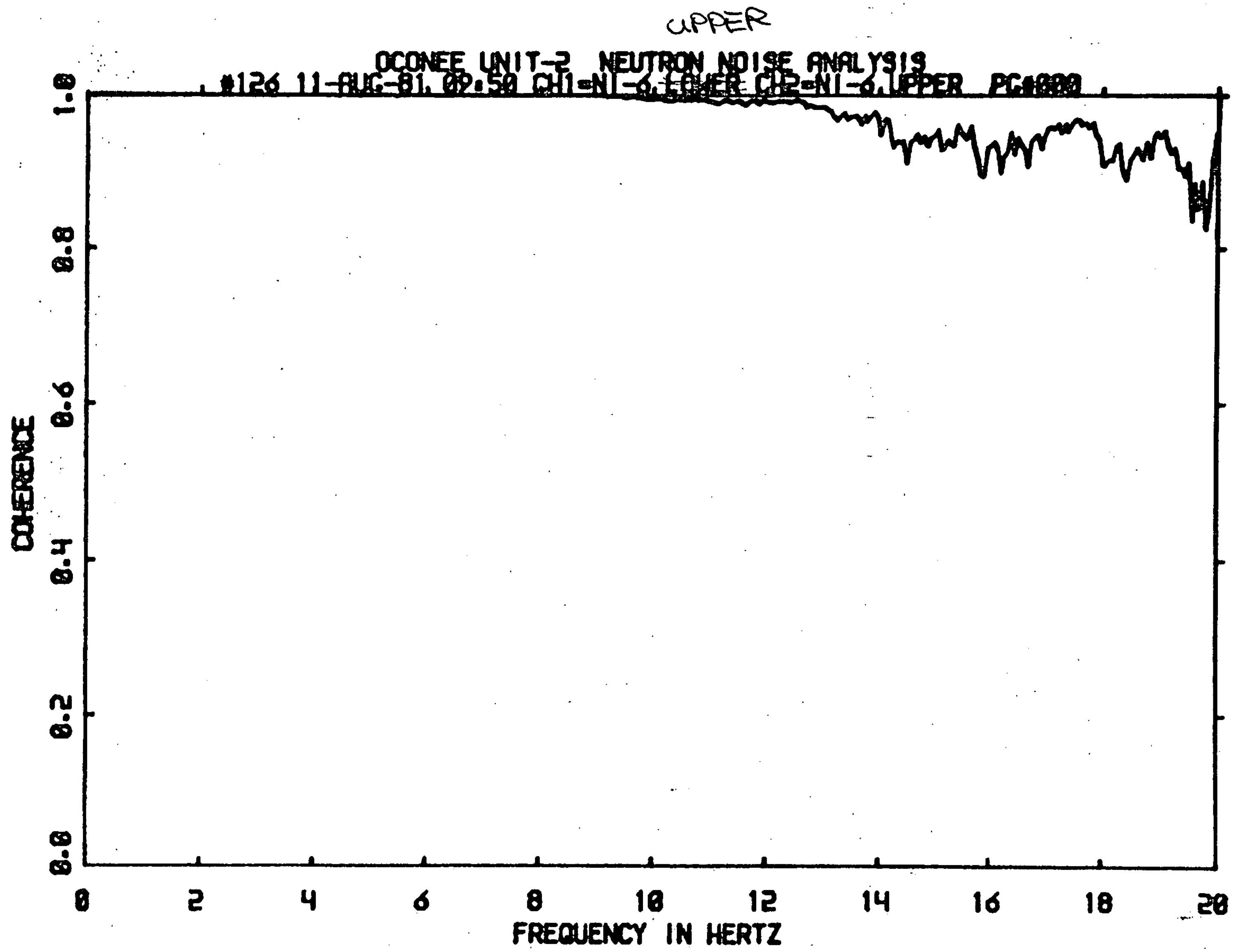

OCONEE UNIT-2 NEUTRON NOISE ANALYSIS
#125 11-AUG-81 09:28 CH1=NI-7 LOWER CH2=NI-7 UPPER PG=000
COHERENCE
0.0
0.2
0.4
0.6
0.8
1.0
0
2
4
6
8
10
12
14
16
18
20
FREQUENCY IN HERTZ

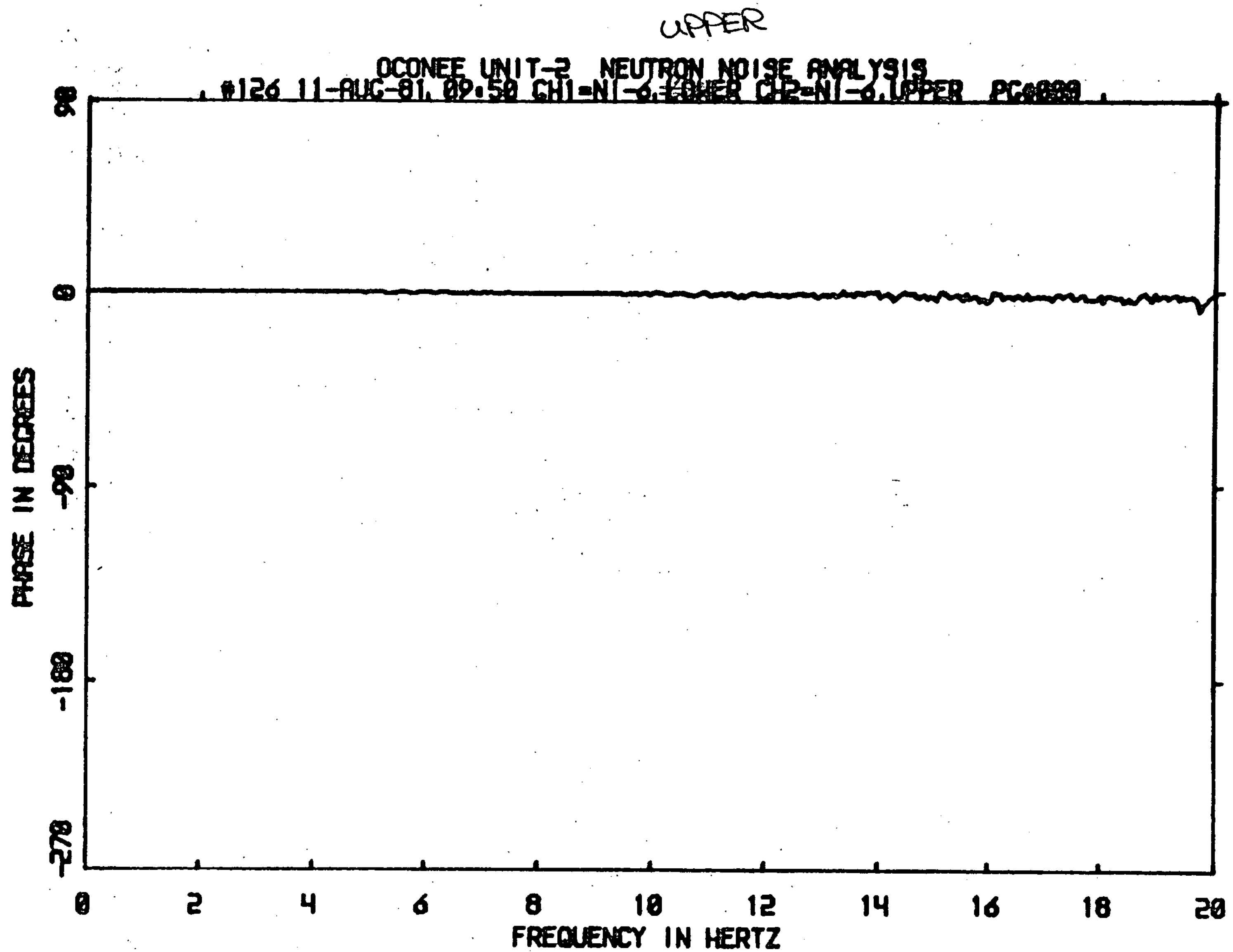

OCONEE UNIT-2 NEUTRON NOISE ANALYSIS
#125 11-AUG-81 09:28 CH1=NI-7,LOWER CH2=NI-7,UPPER PG#000
PHASE IN DEGREES
90
0
-90
-180
-270
0
2
4
6
8
10
12
14
16
18
20
FREQUENCY IN HERTZ


OCONEE UNIT-2 NEUTRON NOISE ANALYSIS
#125 11-AUG-81 09:28 CH1=NI-7,LOWER CH2=NI-7,UPPER PG#000
RMS= 2.443 E-4
NORM CPSD MAGNITUDE
10^-12
10^-11
10^-10
10^-9
10^-8
10^-7
10^-6
0
2
4
6
8
10
12
14
16
18
20
FREQUENCY IN HERTZ


OCONEE UNIT-2 NEUTRON NOISE ANALYSIS
#125 11-AUG-81 09:28 CH1=NI-7,LOWER CH2=NI-7,UPPER PG#000
RMS= 2.471 E-4
NORMALIZED PSD2
10^-12
10^-11
10^-10
10^-9
10^-8
10^-7
10^-6
0
2
4
6
8
10
12
14
16
18
20
FREQUENCY IN HERTZ


OCONEE UNIT-2 NEUTRON NOISE ANALYSIS
#125 11-AUG-81, 09:28 CH1=NI-7,LOWER CH2=NI-7,UPPER PC=000
RMS= 2.439 E-4
NORMALIZED PSD1
10^-12 10^-11 10^-10 10^-9 10^-8 10^-7 10^-6
0 2 4 6 8 10 12 14 16 18 20
FREQUENCY IN HERTZ

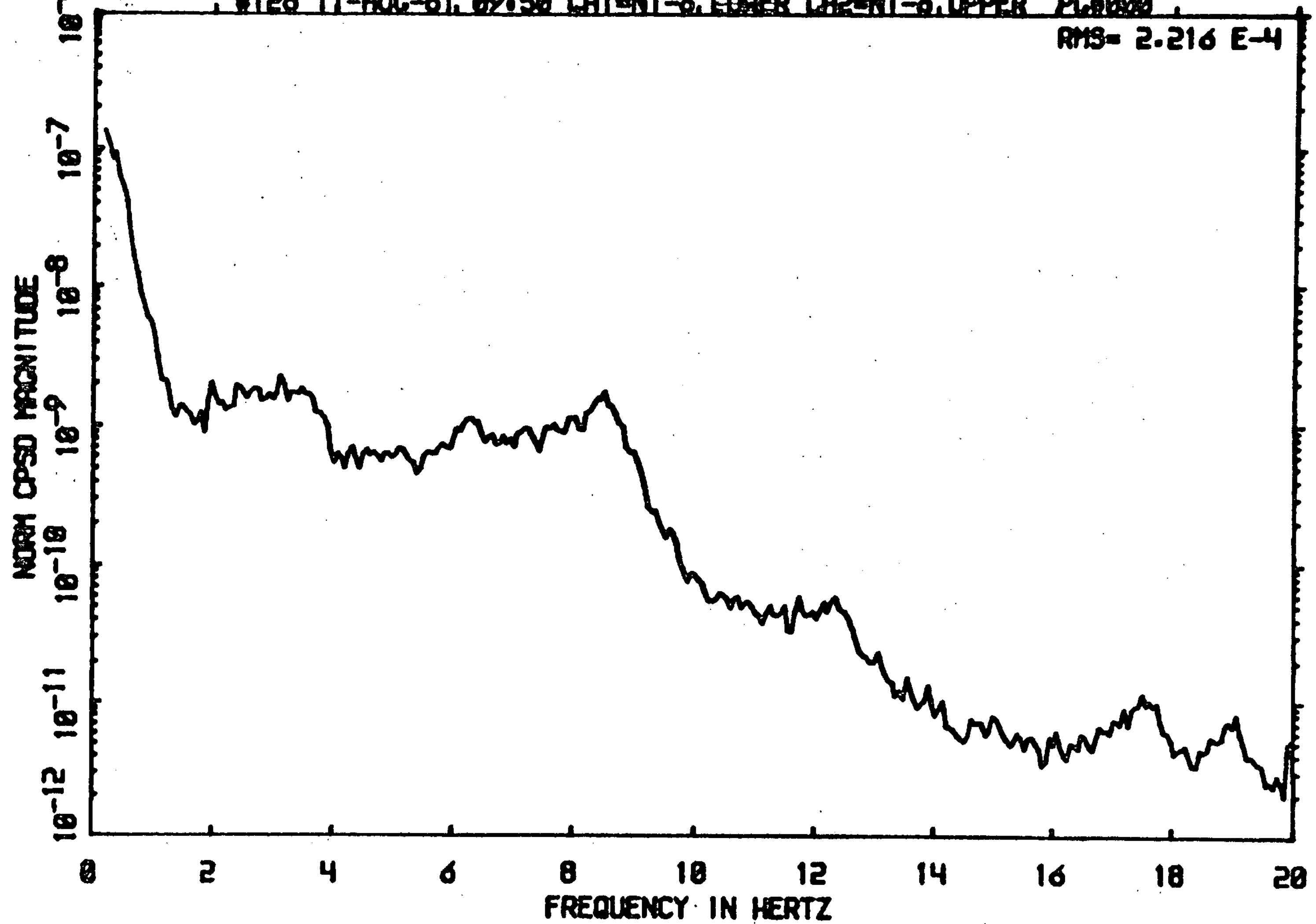

UPPER
OCONEE UNIT-2 NEUTRON NOISE ANALYSIS
#126 11-AUG-81 09:50 CH1=NI-6 LOWER CH2=NI-6 UPPER PG#000
COHERENCE
0.0
0.2
0.4
0.6
0.8
1.0
0
2
4
6
8
10
12
14
16
18
20
FREQUENCY IN HERTZ

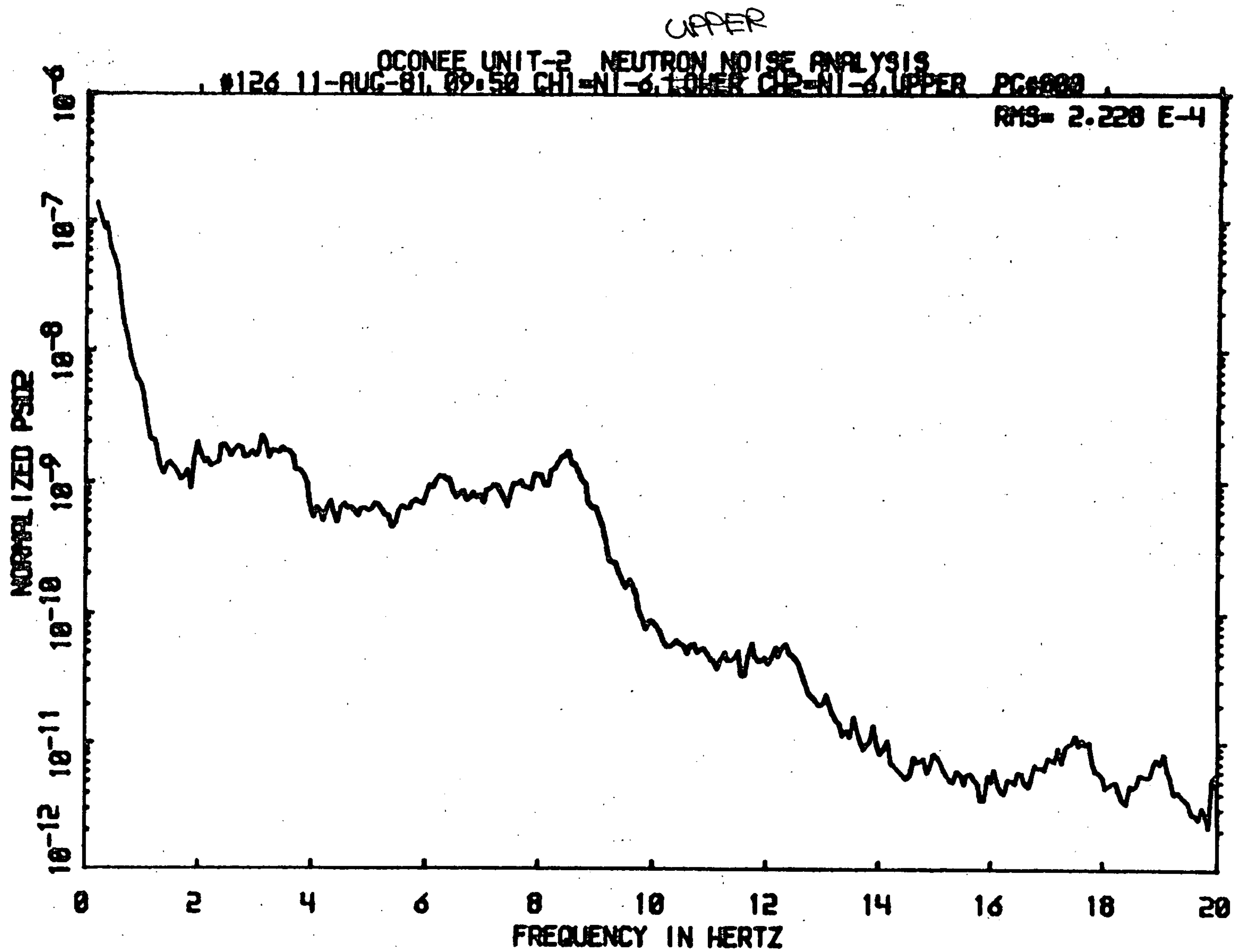

UPPER
OCONEE UNIT-2 NEUTRON NOISE ANALYSIS
#126 11-AUG-81 09:50 CH1=NI-6,LOWER CH2=NI-6,UPPER PC#000
90
0
-90
-180
-270
PHASE IN DEGREES
0
2
4
6
8
10
12
14
16
18
20
FREQUENCY IN HERTZ

UPPER

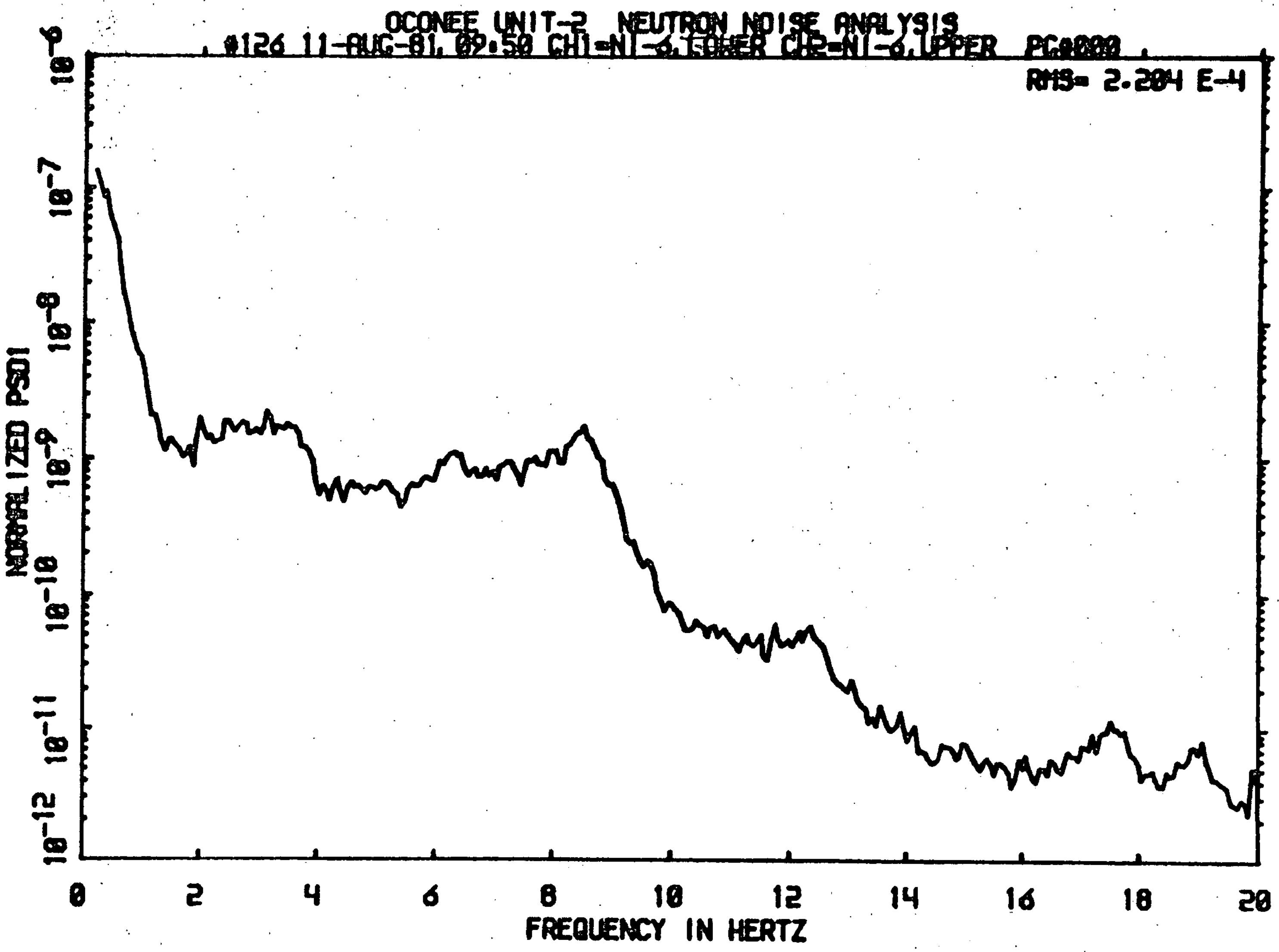
OCONEE UNIT-2 NEUTRON NOISE ANALYSIS

#126 11-AUG-81 02:50 CH1=NI-6,LOWER CH2=NI-6,UPPER PG#000




UPPER
OCONEE UNIT-2 NEUTRON NOISE ANALYSIS
#126 11-AUG-81, 09:50 CH1=NI-6,LOWER CH2=NI-6,UPPER PG#000
RMS= 2.220 E-4
NORMALIZED PSD2
10^{-6}
10^{-7}
10^{-8}
10^{-9}
10^{-10}
10^{-11}
10^{-12}
0
2
4
6
8
10
12
14
16
18
20
FREQUENCY IN HERTZ

UPPER



OCONEE UNIT-2 NEUTRON NOISE ANALYSIS
#126 11-AUG-81, 09:50 CH1=NI-6,LOWER CH2=NI-6,UPPER PG#000
RMS= 2.204 E-4
NORMALIZED PSD1
10^{-12}
10^{-11}
10^{-10}
10^{-9}
10^{-8}
10^{-7}
10^{-6}
0
2
4
6
8
10
12
14
16
18
20
FREQUENCY IN HERTZ

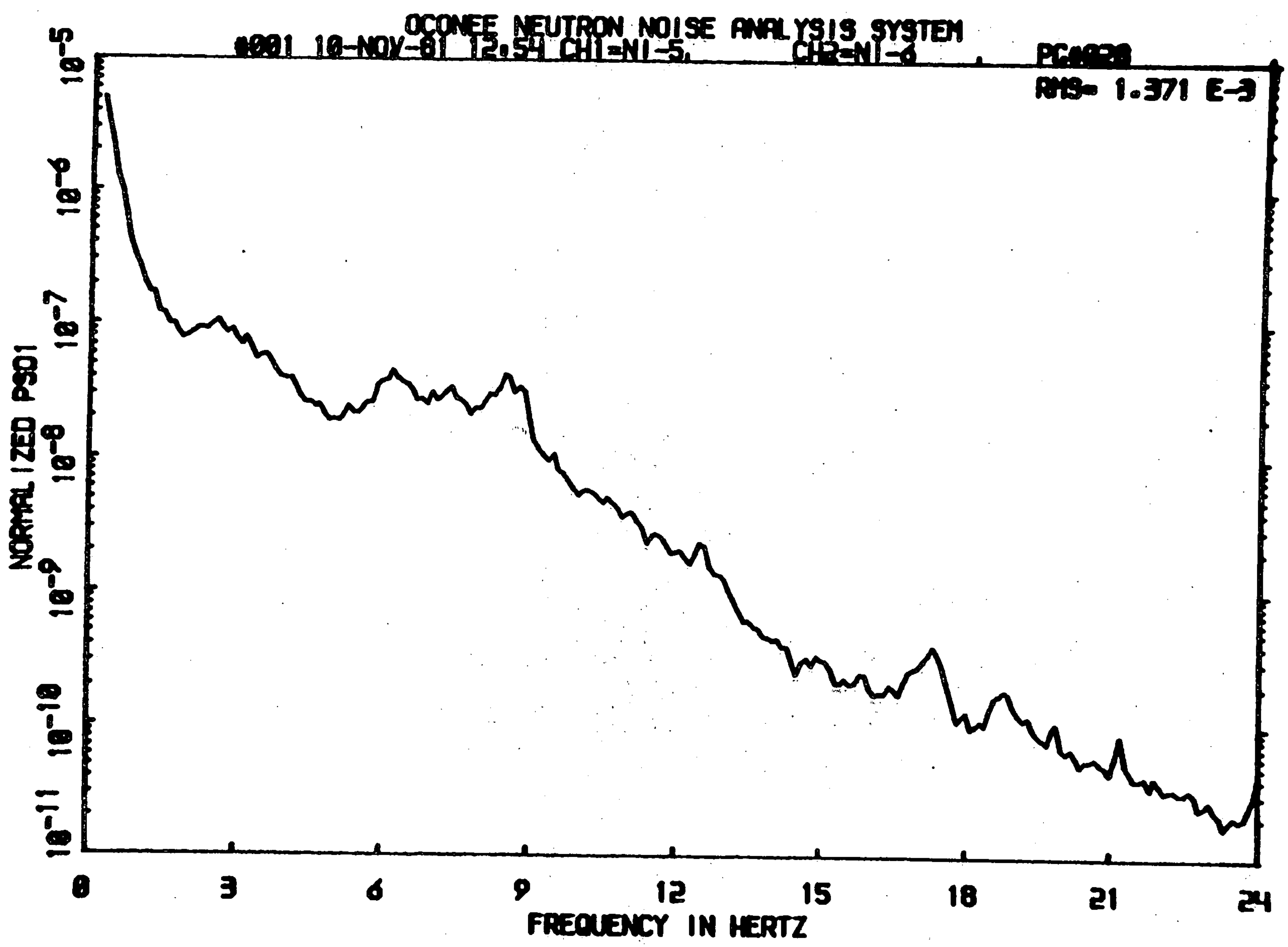
CONTENTS

Neutron Noise Data for EOC 5
Unit 2, taken November 10, 1981

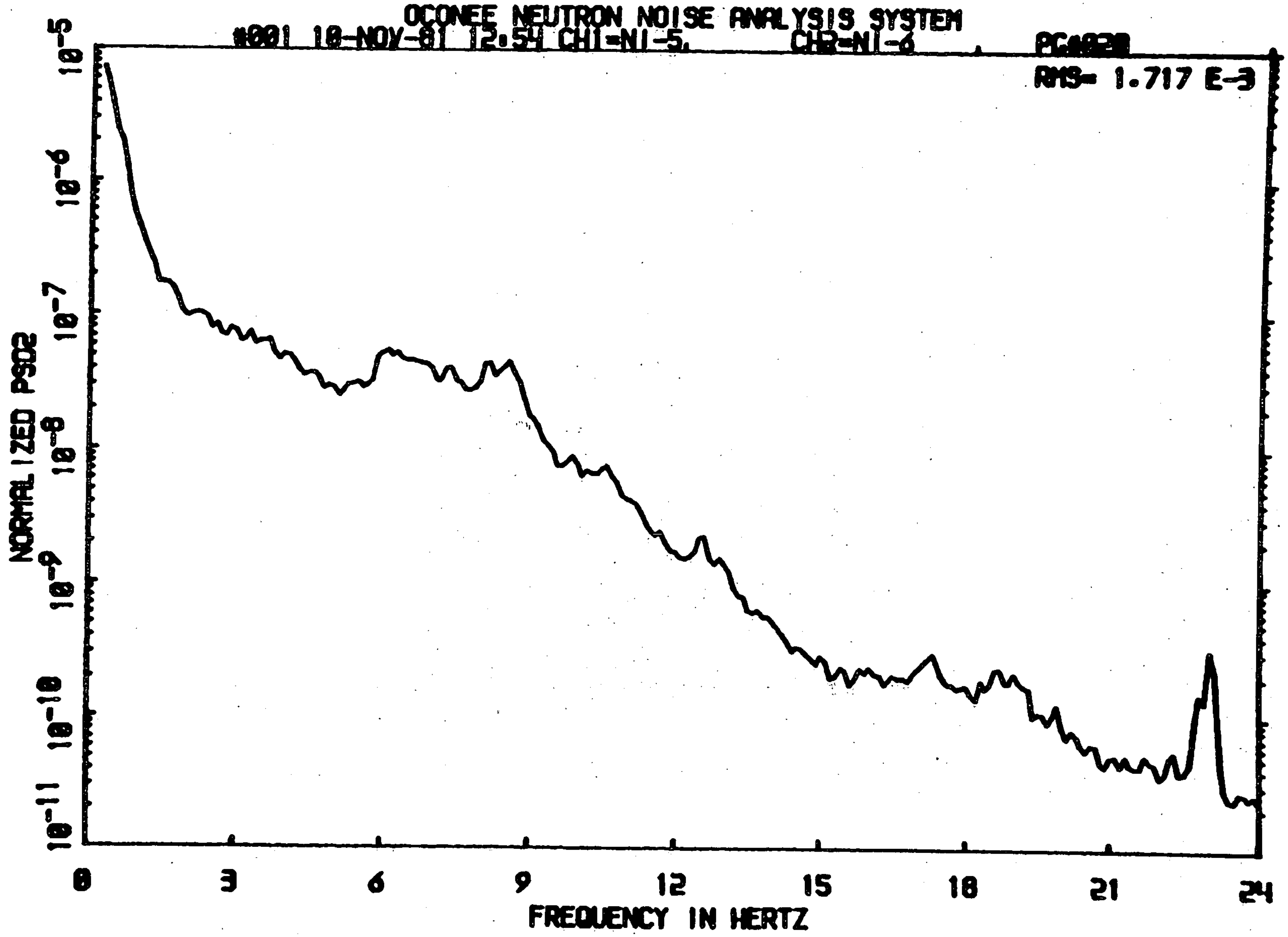
Test #	Detector pairs *
001	NI5 x NI6
002	NI5 x NI7
003	NI5 x NI8
004	NI6 x NI7
005	NI6 x NI8
006	NI7 x NI8

summed from upper & lower chambers

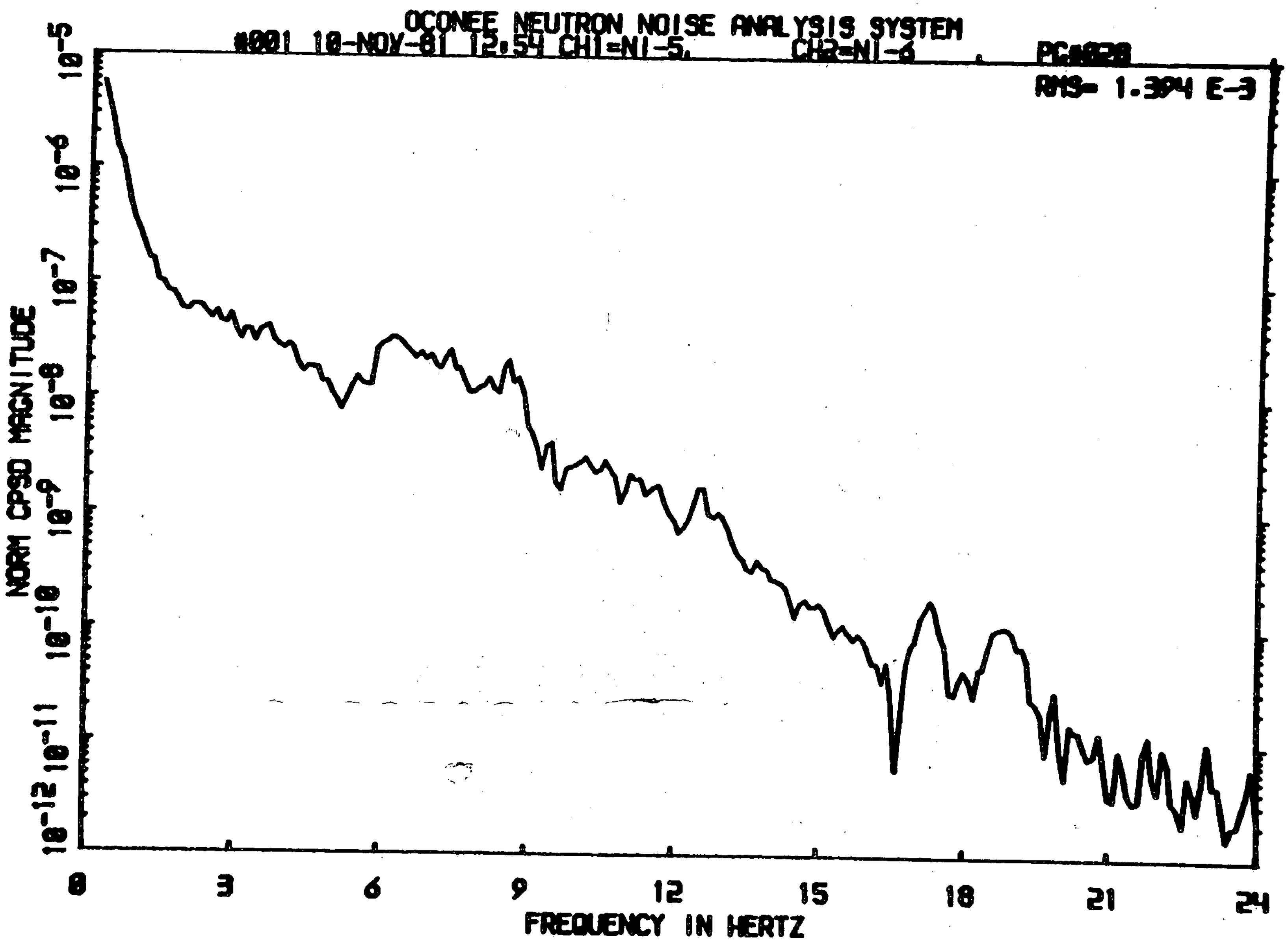
O2C5 EOC



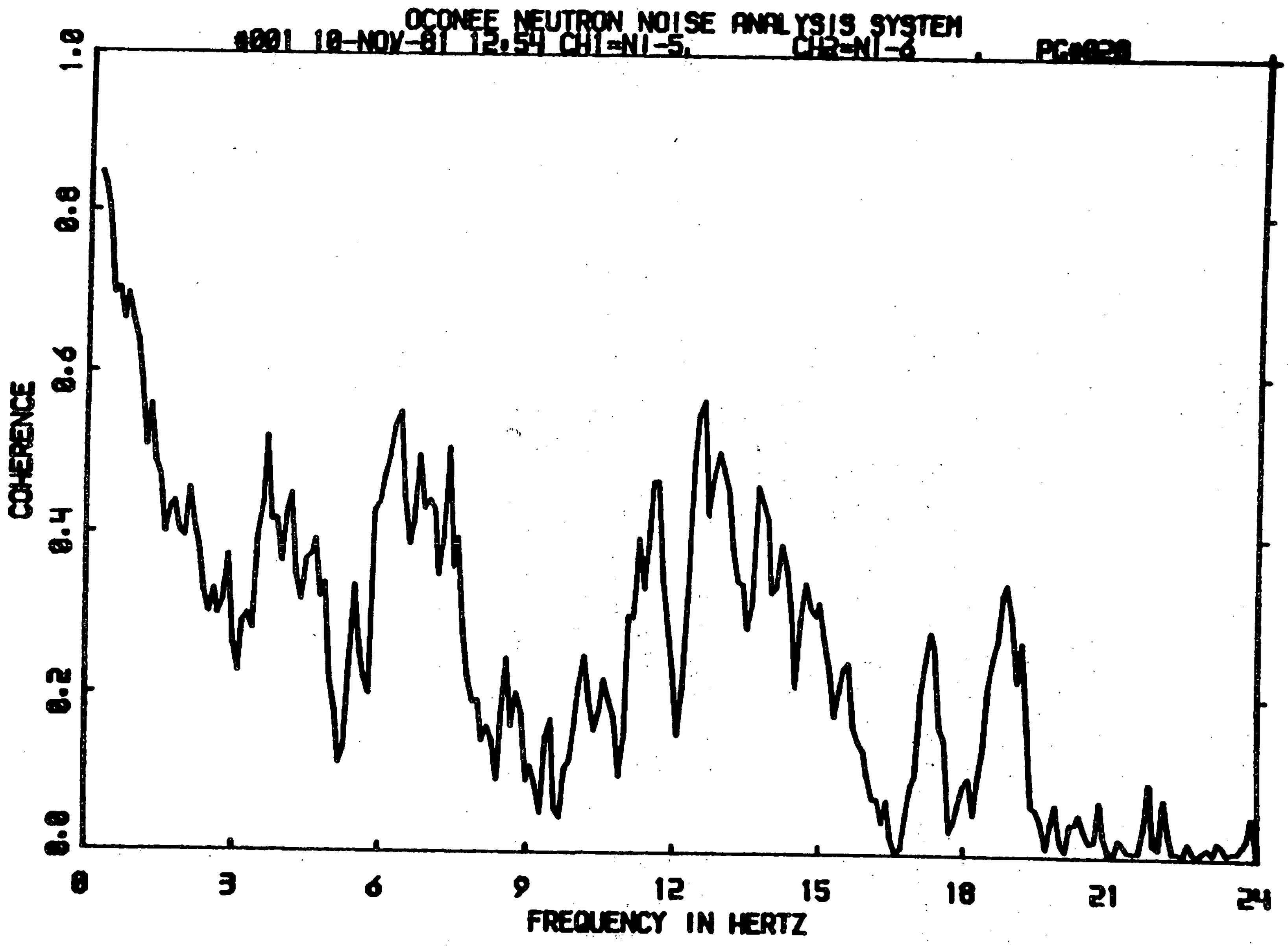
OCONEE NEUTRON NOISE ANALYSIS SYSTEM
#001 10-NOV-81 12:54 CH1=NI-5, CH2=NI-6
PG#020
RMS= 1.371 E-3
NORMALIZED PSD1
10^-11
10^-10
10^-9
10^-8
10^-7
10^-6
10^-5
0
3
6
9
12
15
18
21
24
FREQUENCY IN HERTZ

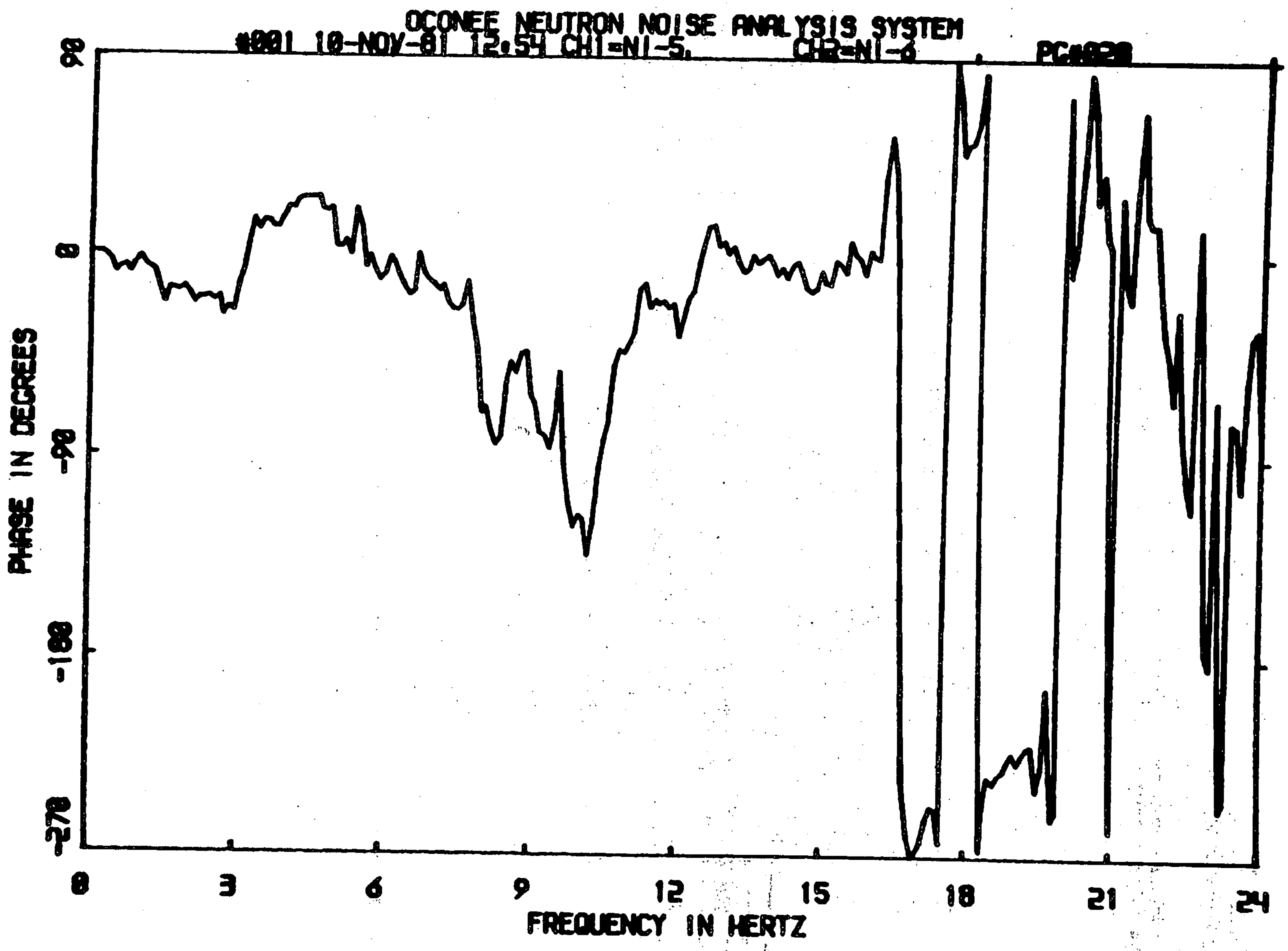


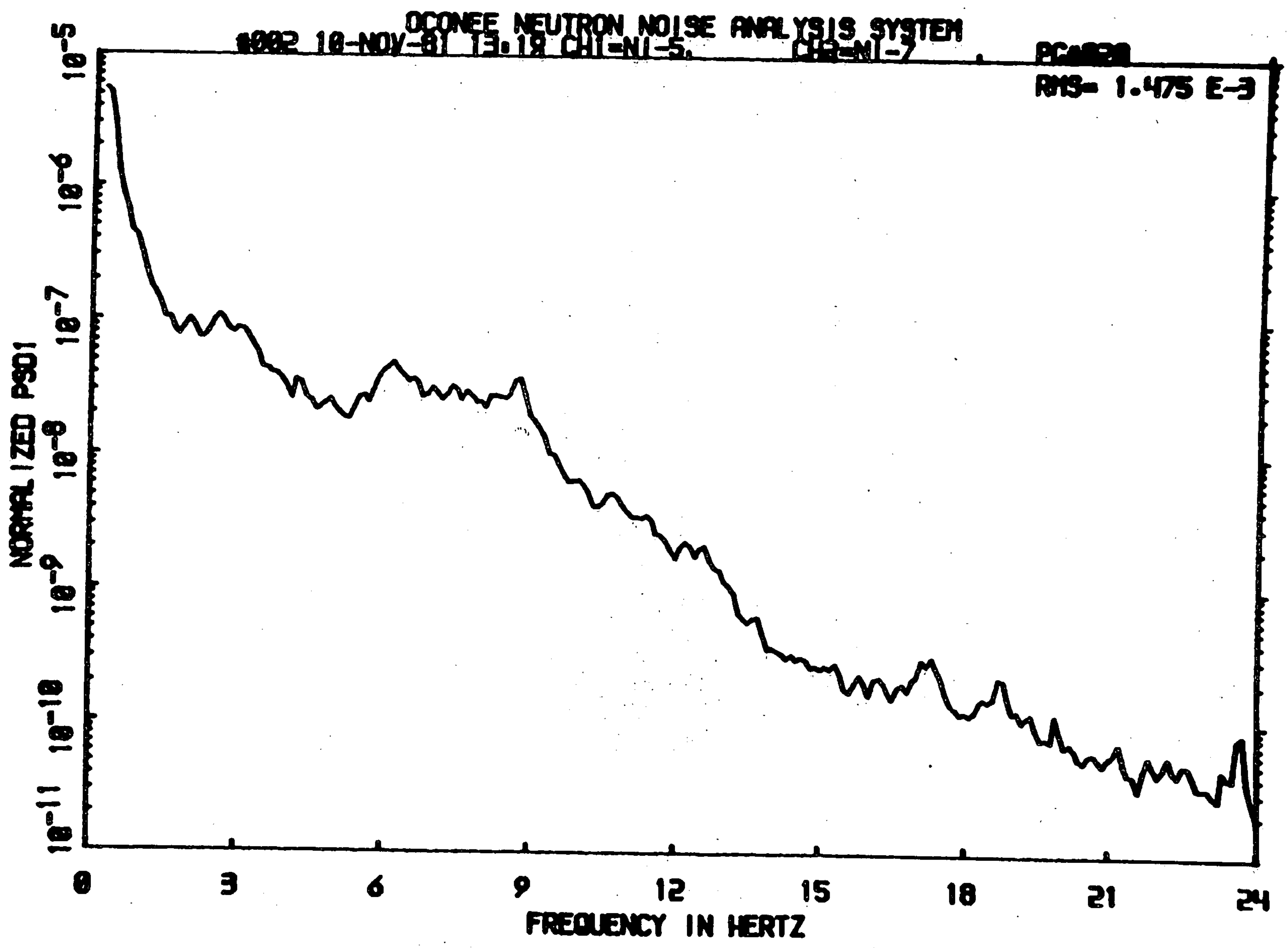
OCONEE NEUTRON NOISE ANALYSIS SYSTEM
#001 10-NOV-81 12.54 CH1=NI-5, CH2=NI-6 , PG#020
RMS= 1.717 E-3
NORMALIZED PSD2
10-5
10-6
10-7
10-8
10-9
10-10
10-11
0
3
6
9
12
15
18
21
24
FREQUENCY IN HERTZ

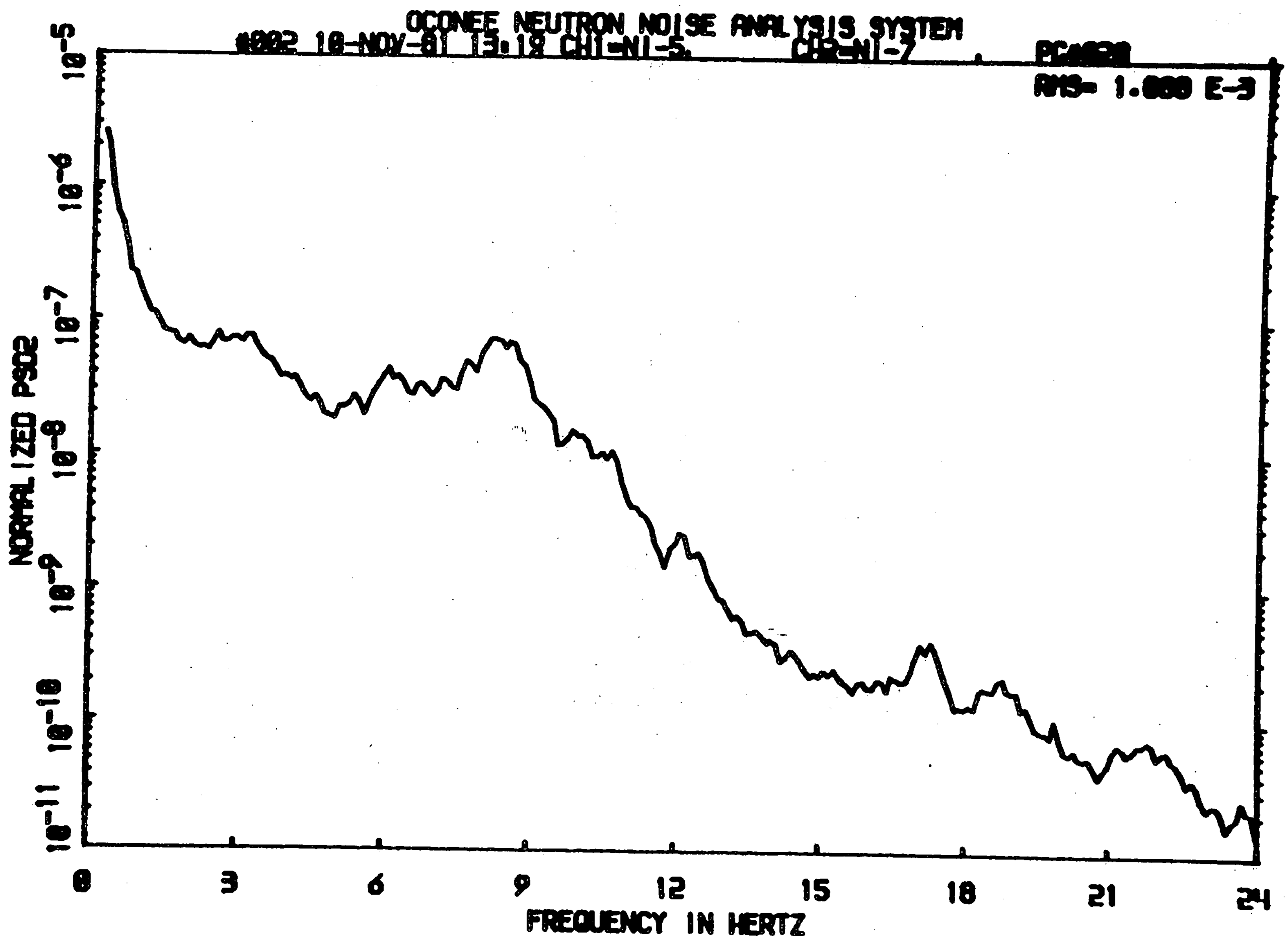


OCONEE NEUTRON NOISE ANALYSIS SYSTEM
#001 10-NOV-81 12:54 CH1=NI-5, CH2=NI-6
PC#020
RMS= 1.394 E-3
NORM CPSD MAGNITUDE
10^-5
10^-6
10^-7
10^-8
10^-9
10^-10
10^-11
10^-12
0
3
6
9
12
15
18
21
24
FREQUENCY IN HERTZ

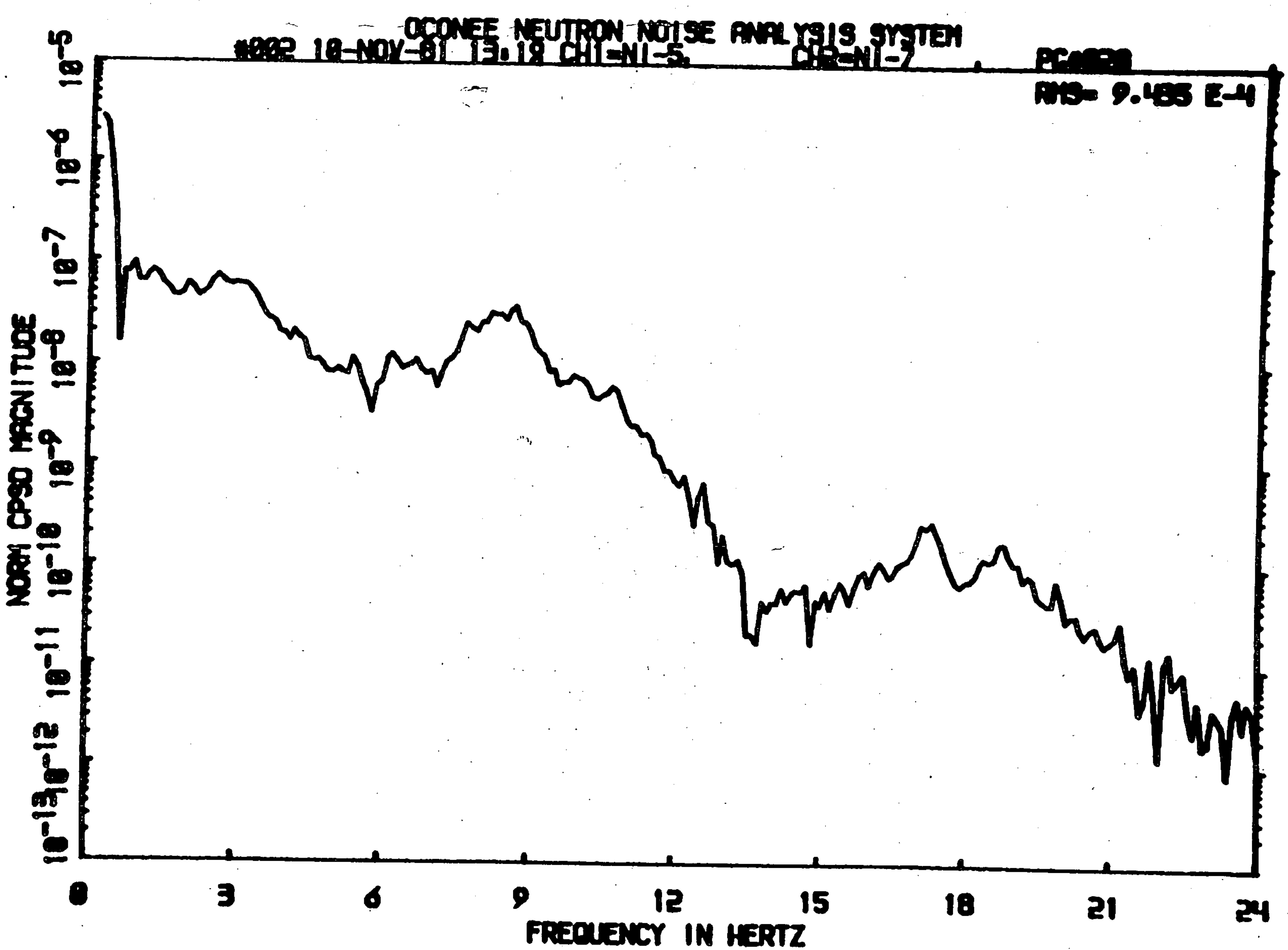

OCONEE NEUTRON NOISE ANALYSIS SYSTEM
#001 10-NOV-81 12:54 CH1=NI-5, CH2=NI-6 , PG#020
COHERENCE
0.0
0.2
0.4
0.6
0.8
1.0
0
3
6
9
12
15
18
21
24
FREQUENCY IN HERTZ


OCONEE NEUTRON NOISE ANALYSIS SYSTEM
#001 10-NOV-81 12.54 CH1=NI-5, CH2=NI-6
PC#020
PHASE IN DEGREES
90
0
-90
-180
-270
FREQUENCY IN HERTZ
0
3
6
9
12
15
18
21
24

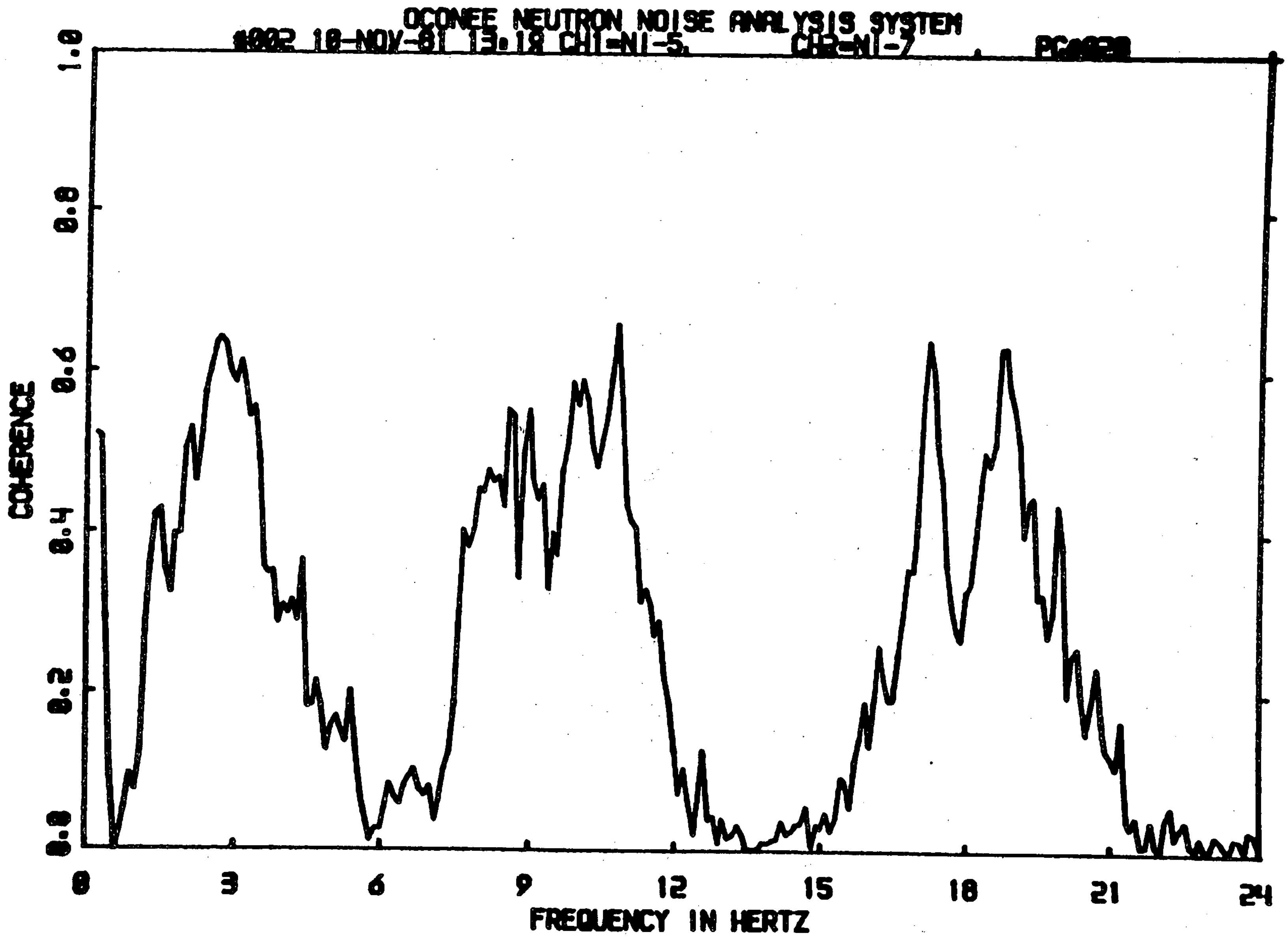

OCONEE NEUTRON NOISE ANALYSIS SYSTEM
#002 10-NOV-81 13:19 CH1=NI-5, CH2=NI-7
RMS= 1.475 E-3
NORMALIZED PSD1
10^-5
10^-6
10^-7
10^-8
10^-9
10^-10
10^-11
0
3
6
9
12
15
18
21
24
FREQUENCY IN HERTZ

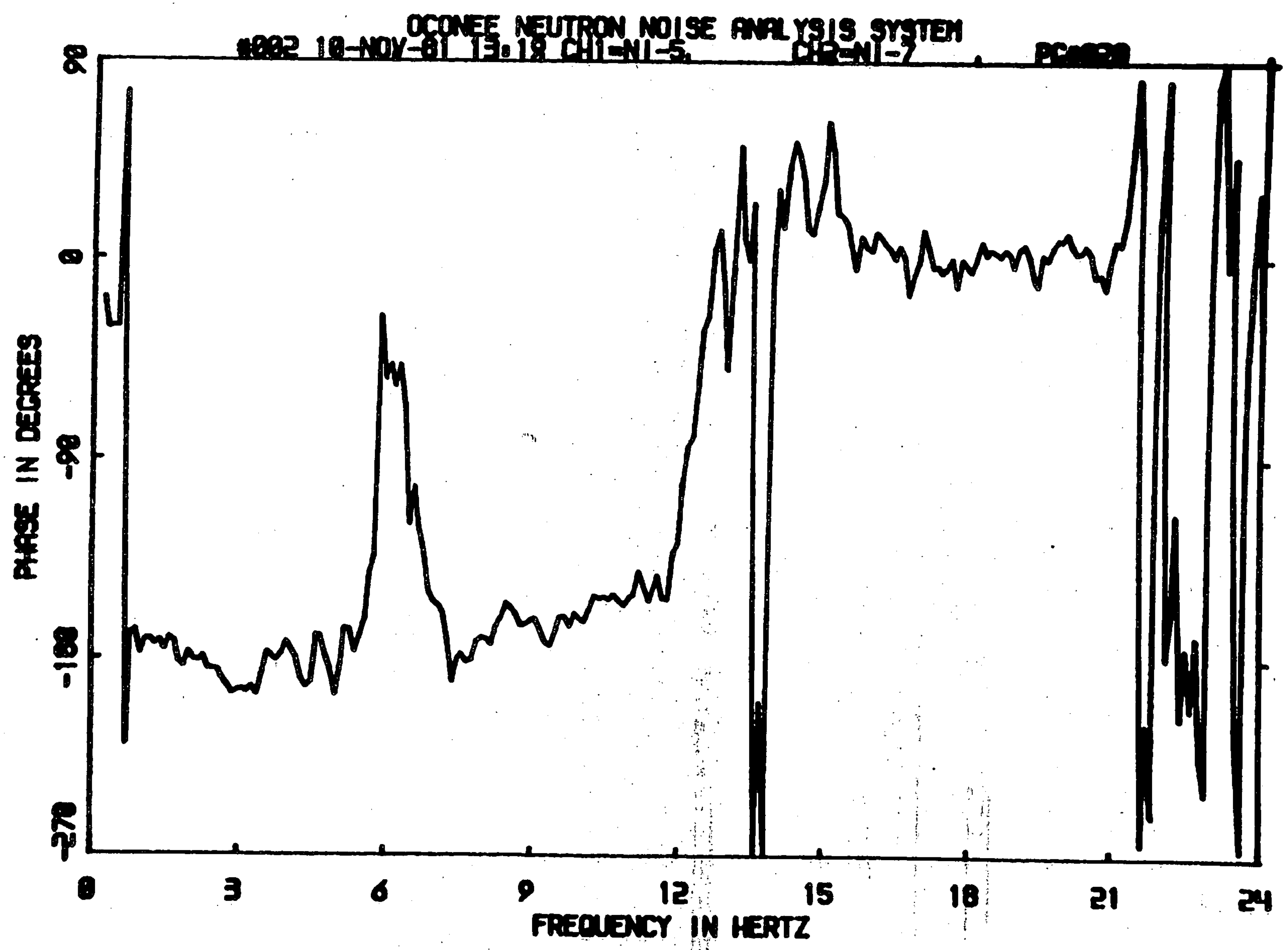


OCONEE NEUTRON NOISE ANALYSIS SYSTEM
#002 10-NOV-81 13:19 CH1=NI-5, CH2=NI-7
PC#020
RMS= 1.000 E-3
NORMALIZED PSD2
10^-5
10^-6
10^-7
10^-8
10^-9
10^-10
10^-11
0
3
6
9
12
15
18
21
24
FREQUENCY IN HERTZ

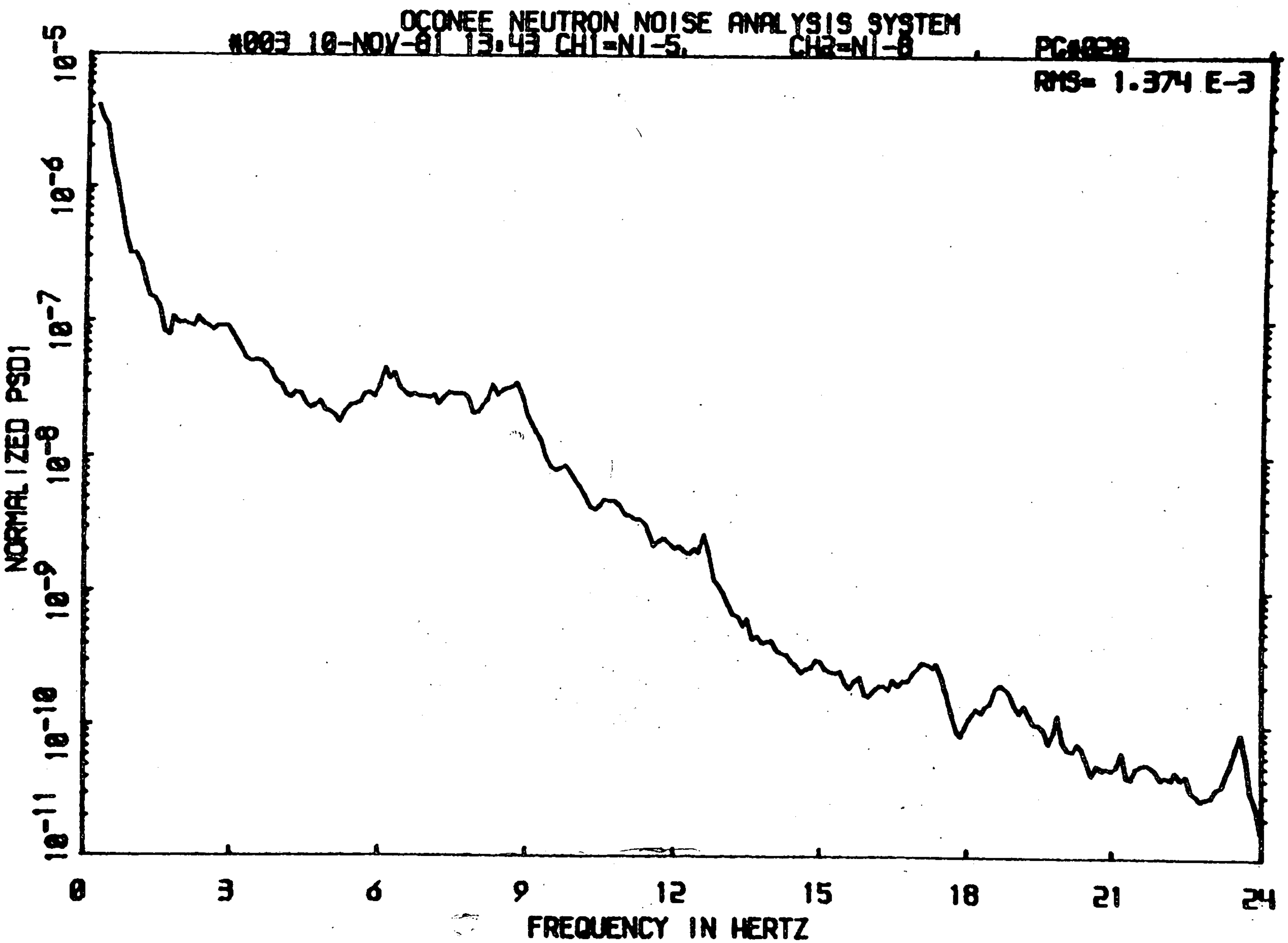


OCONEE NEUTRON NOISE ANALYSIS SYSTEM
#002 10-NOV-81 13:19 CH1=NI-5, CH2=NI-7
RMS= 9.435 E-4
NORM CPSD MAGNITUDE
10^-13 10^-12 10^-11 10^-10 10^-9 10^-8 10^-7 10^-6 10^-5
0 3 6 9 12 15 18 21 24
FREQUENCY IN HERTZ

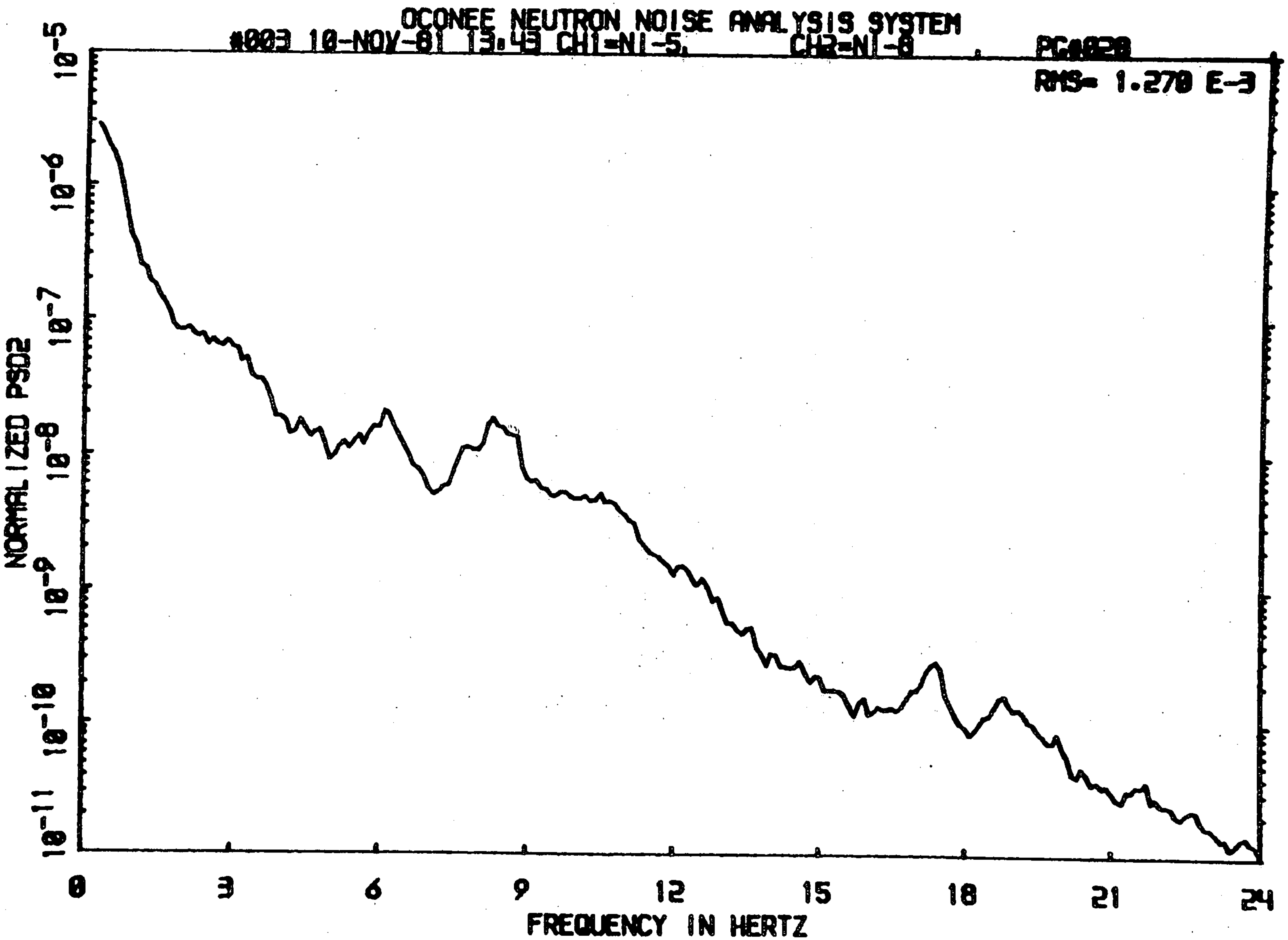

OCONEE NEUTRON NOISE ANALYSIS SYSTEM
#002 10-NOV-81 13.18 CH1=NI-5, CH2=NI-7
COHERENCE
0.0
0.2
0.4
0.6
0.8
1.0
0
3
6
9
12
15
18
21
24
FREQUENCY IN HERTZ



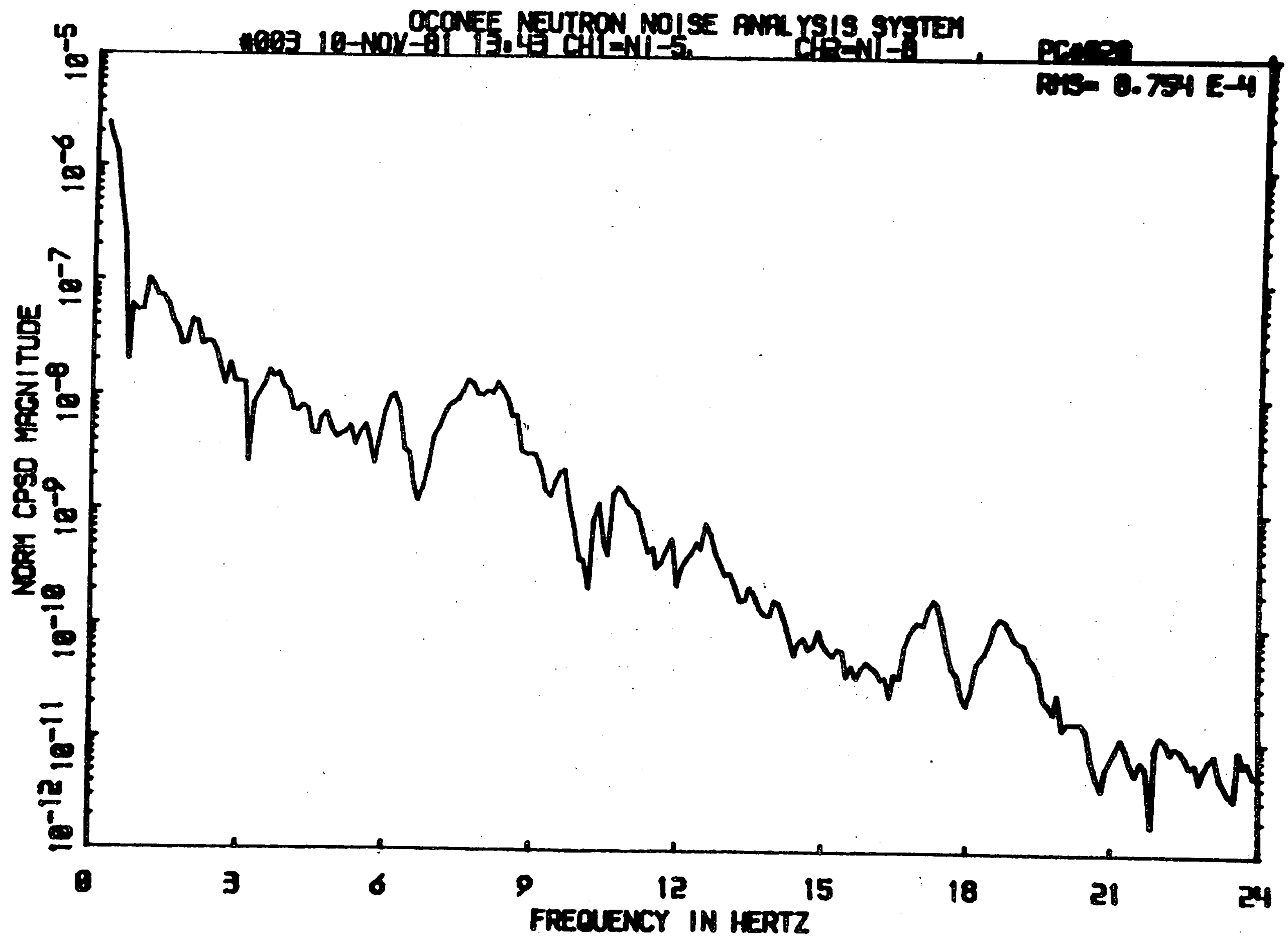
OCONEE NEUTRON NOISE ANALYSIS SYSTEM
#002 10-NOV-81 13:19 CH1=NI-5, CH2=NI-7
PHASE IN DEGREES
90
0
-90
-180
-270
0
3
6
9
12
15
18
21
24
FREQUENCY IN HERTZ



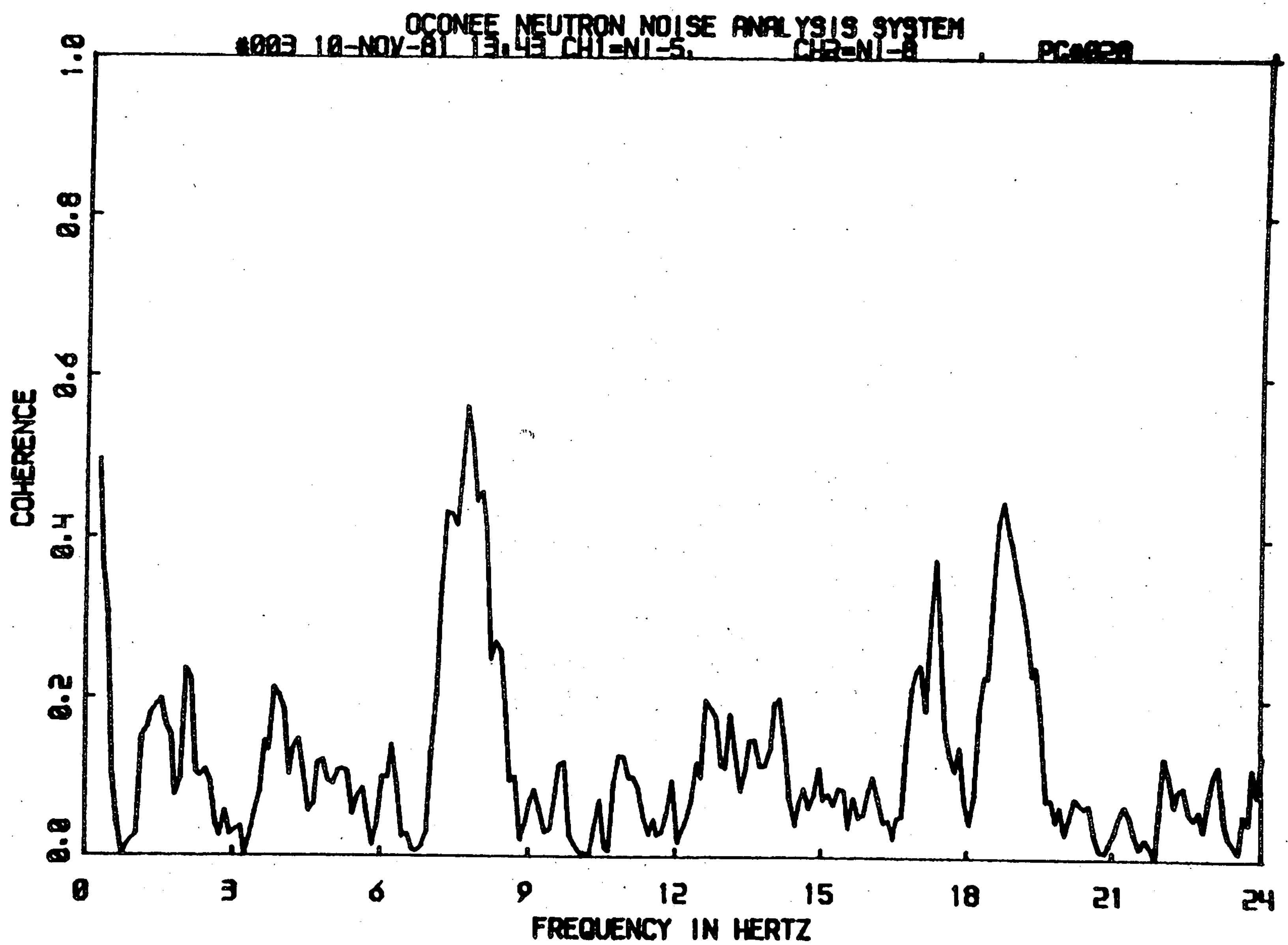
OCONEE NEUTRON NOISE ANALYSIS SYSTEM
#003 10-NOV-81 13:43 CH1=NI-5, CH2=NI-8 , PC#020
RMS= 1.374 E-3
NORMALIZED PSD1
10^-5
10^-6
10^-7
10^-8
10^-9
10^-10
10^-11
0
3
6
9
12
15
18
21
24
FREQUENCY IN HERTZ

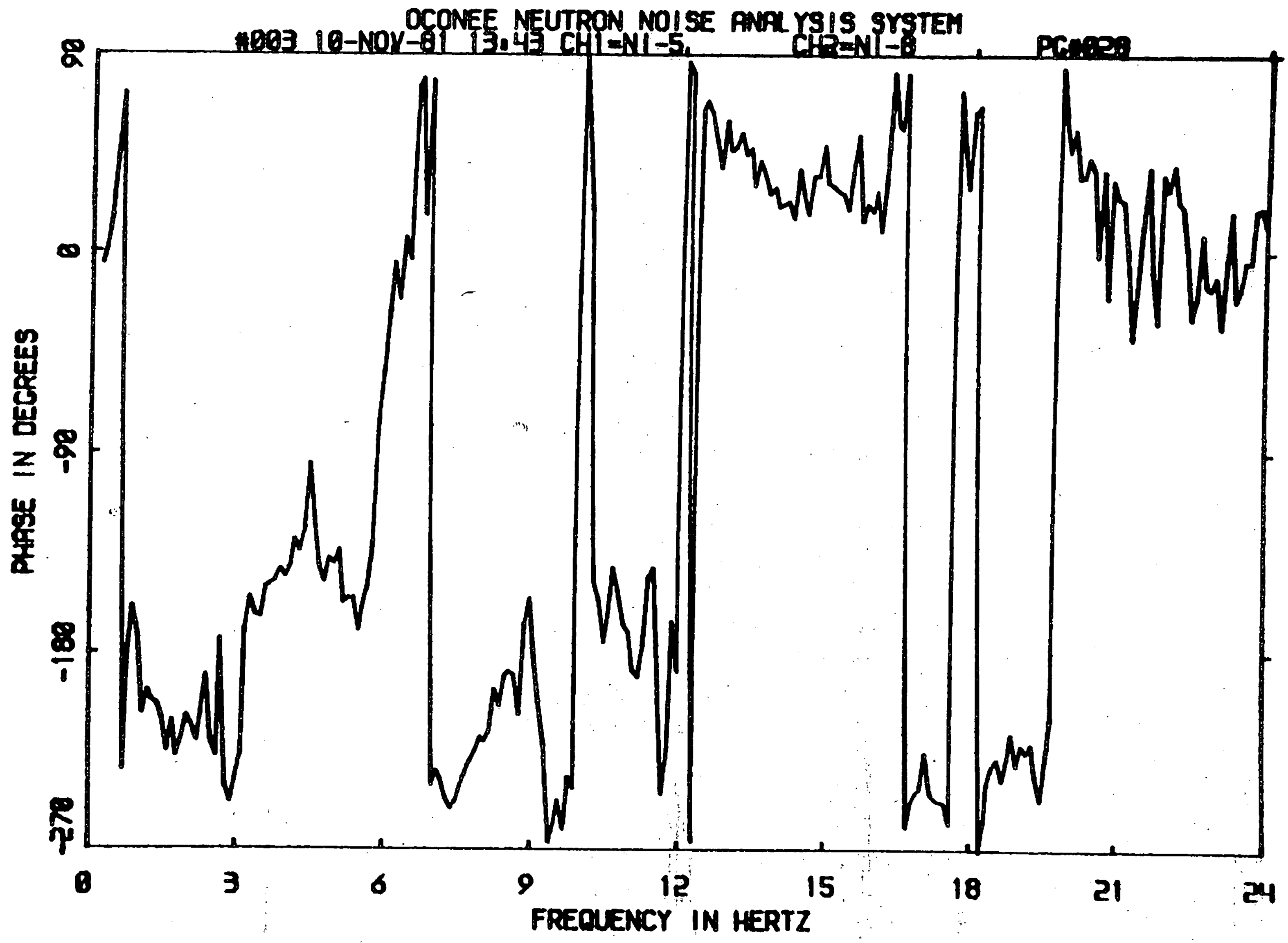


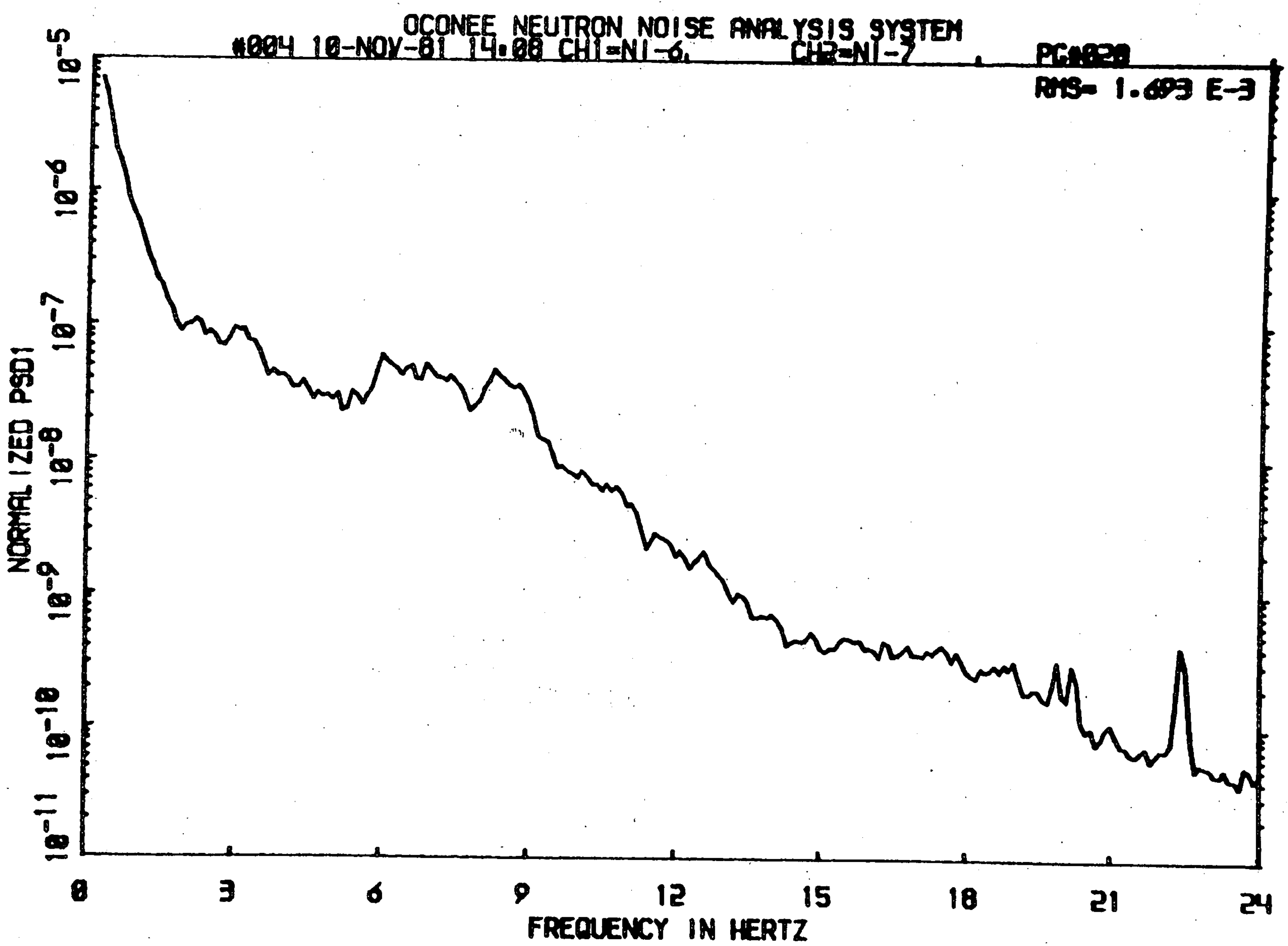
OCONEE NEUTRON NOISE ANALYSIS SYSTEM
#003 10-NOV-81 13.43 CH1=NI-5, CH2=NI-6 , PG#020
RMS= 1.270 E-3
NORMALIZED PSD2
10^-5
10^-6
10^-7
10^-8
10^-9
10^-10
10^-11
0
3
6
9
12
15
18
21
24
FREQUENCY IN HERTZ

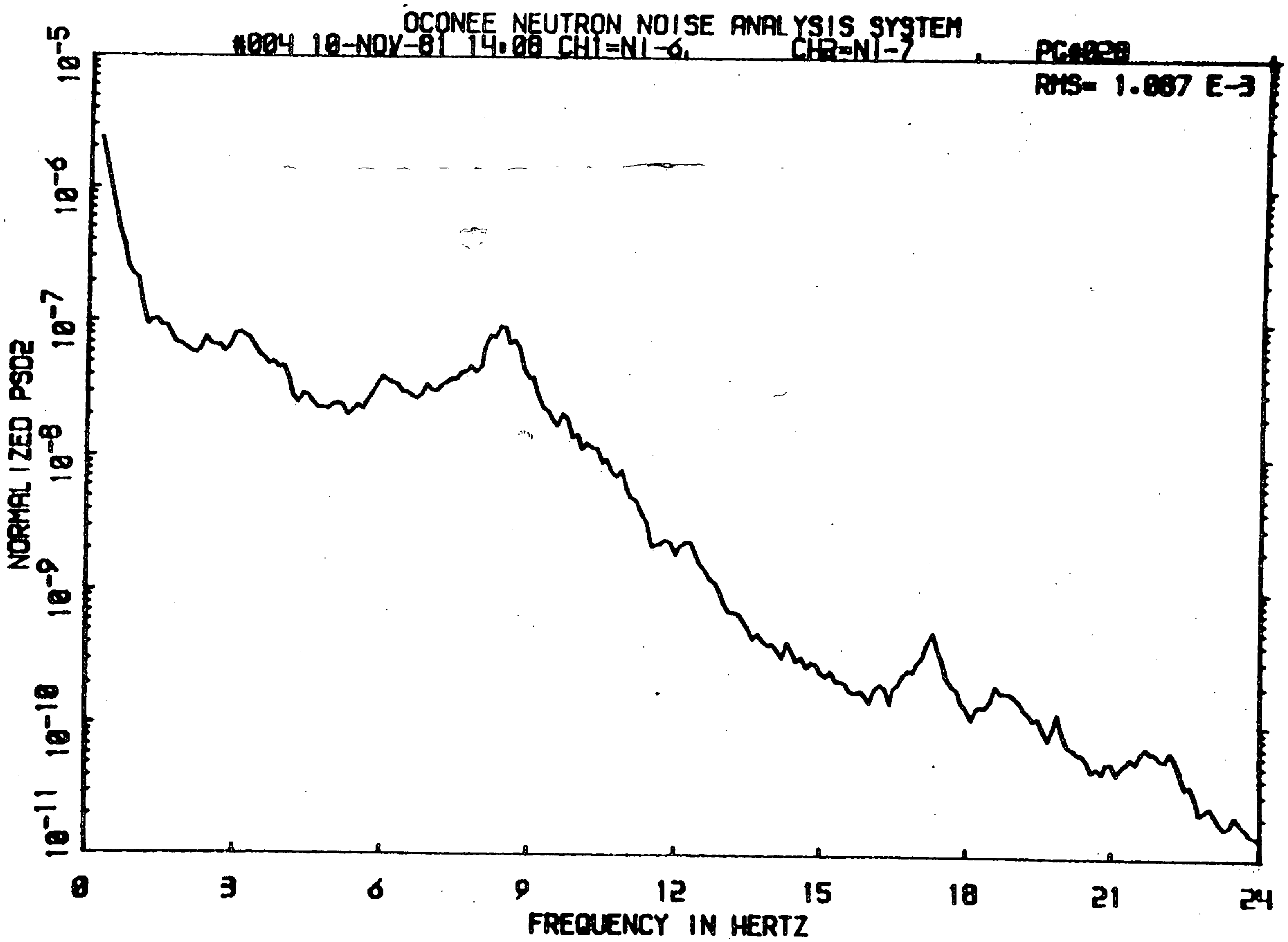


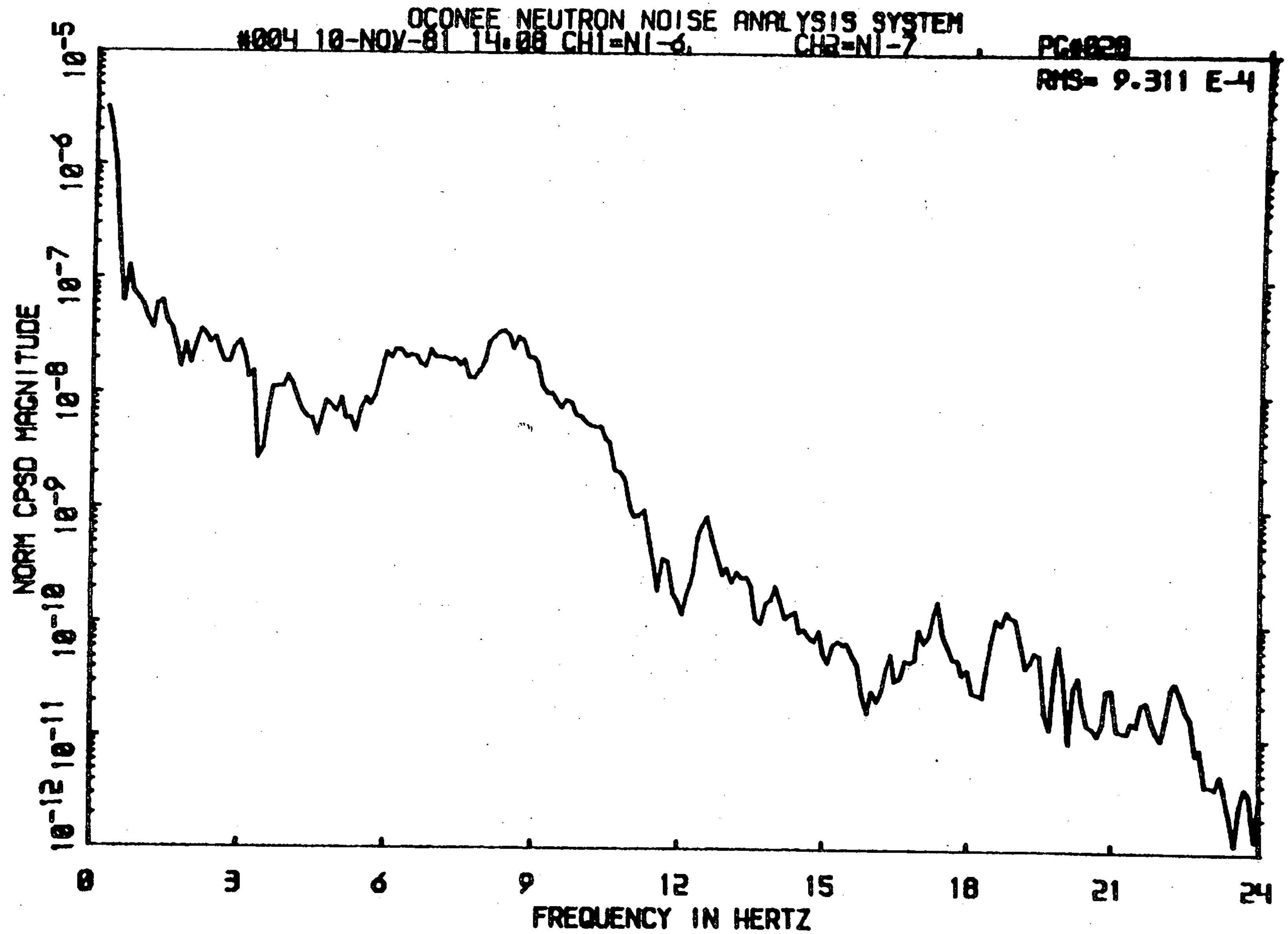
OCONEE NEUTRON NOISE ANALYSIS SYSTEM
#003 10-NOV-81 13:43 CH1=NI-5, CH2=NI-6
PC#020
RMS= 0.754 E-4
NORM CPSD MAGNITUDE
10^-12
10^-11
10^-10
10^-9
10^-8
10^-7
10^-6
10^-5
0
3
6
9
12
15
18
21
24
FREQUENCY IN HERTZ


OCONEE NEUTRON NOISE ANALYSIS SYSTEM
#003 10-NOV-81 13:43 CH1=NI-5, CH2=NI-8 , PC#020
COHERENCE
0.0
0.2
0.4
0.6
0.8
1.0
0
3
6
9
12
15
18
21
24
FREQUENCY IN HERTZ

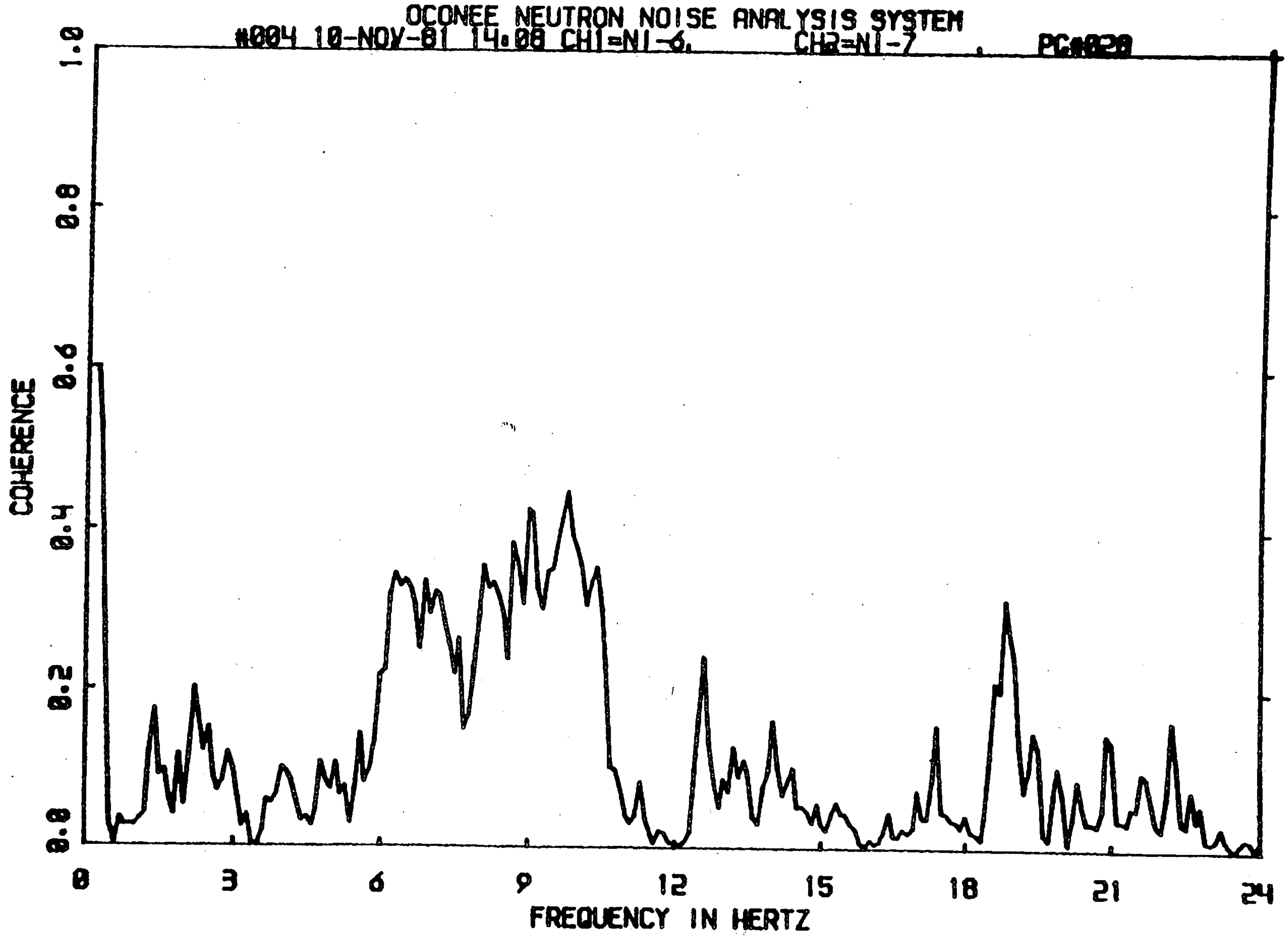

OCONEE NEUTRON NOISE ANALYSIS SYSTEM
#003 10-NOV-81 13:43 CH1=NI-5, CH2=NI-8 PG#020
PHASE IN DEGREES
90
0
-90
-180
-270
0
3
6
9
12
15
18
21
24
FREQUENCY IN HERTZ

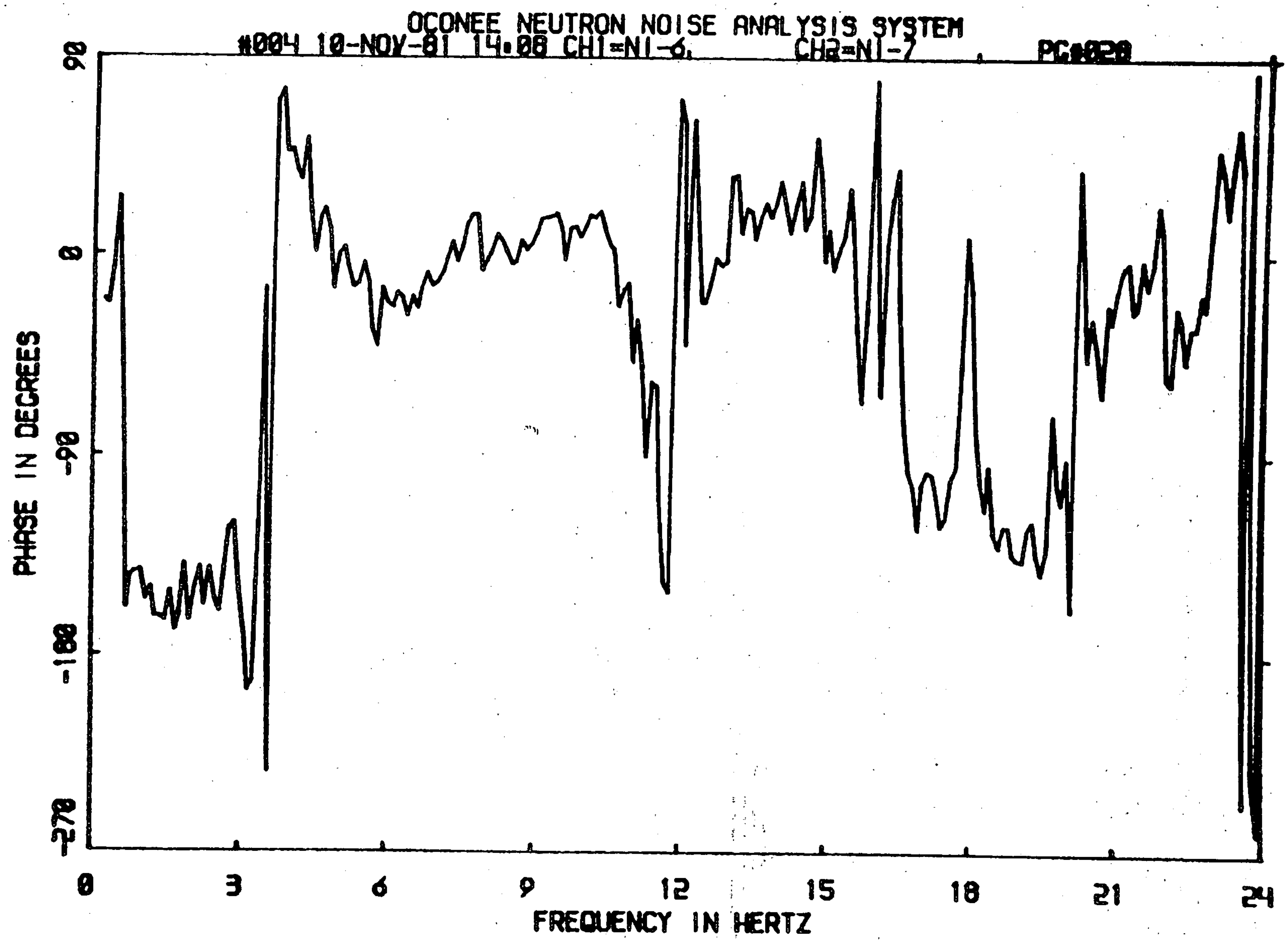

OCONEE NEUTRON NOISE ANALYSIS SYSTEM
#004 10-NOV-81 14:08 CH1=NI-6, CH2=NI-7
PG#020
RMS= 1.693 E-3
NORMALIZED PSD1
10^-5
10^-6
10^-7
10^-8
10^-9
10^-10
10^-11
0
3
6
9
12
15
18
21
24
FREQUENCY IN HERTZ


OCONEE NEUTRON NOISE ANALYSIS SYSTEM
#004 10-NOV-81 14:08 CH1=NI-6, CH2=NI-7 , PG#020
RMS= 1.007 E-3
NORMALIZED PSD2
10^-5
10^-6
10^-7
10^-8
10^-9
10^-10
10^-11
0
3
6
9
12
15
18
21
24
FREQUENCY IN HERTZ

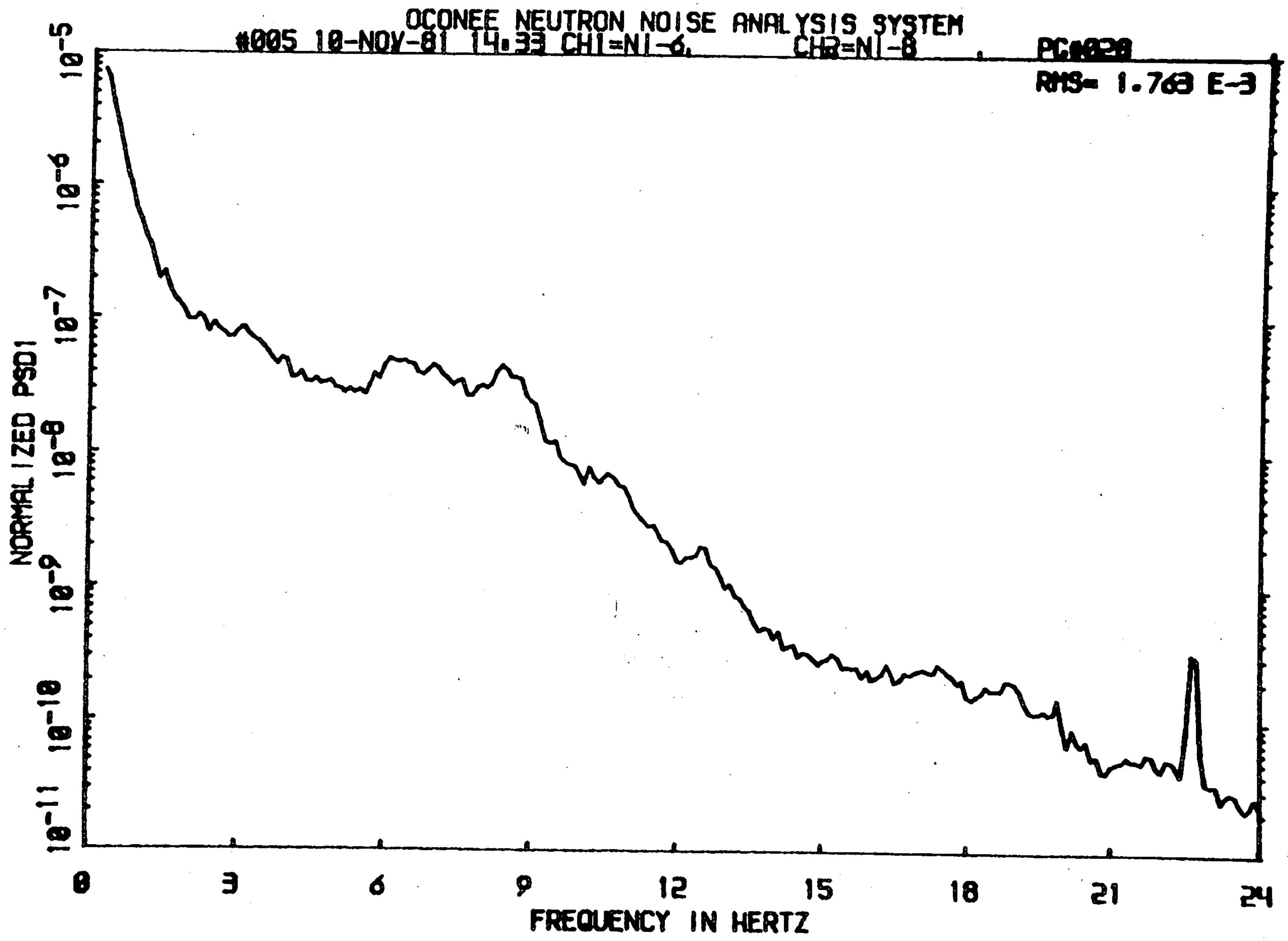


OCONEE NEUTRON NOISE ANALYSIS SYSTEM
#004 10-NOV-81 14:08 CH1=NI-6, CH2=NI-7
PG#020
RMS= 9.311 E-4
NORM CPSD MAGNITUDE
10^-5
10^-6
10^-7
10^-8
10^-9
10^-10
10^-11
10^-12
0
3
6
9
12
15
18
21
24
FREQUENCY IN HERTZ


OCONEE NEUTRON NOISE ANALYSIS SYSTEM
#004 10-NOV-81 14:08 CH1=NI-6, CH2=NI-7 , PG#020
COHERENCE
0.0
0.2
0.4
0.6
0.8
1.0
0
3
6
9
12
15
18
21
24
FREQUENCY IN HERTZ

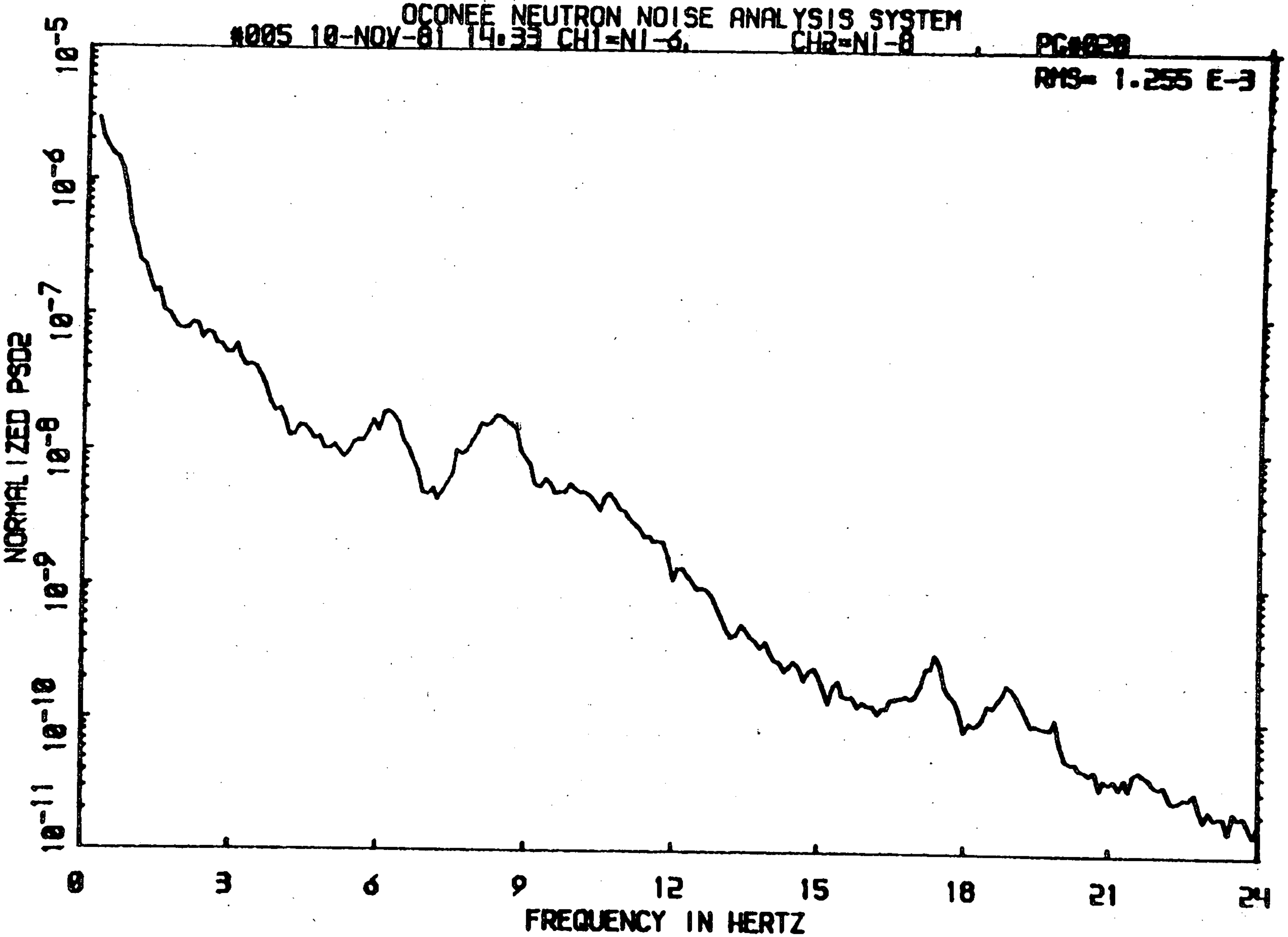


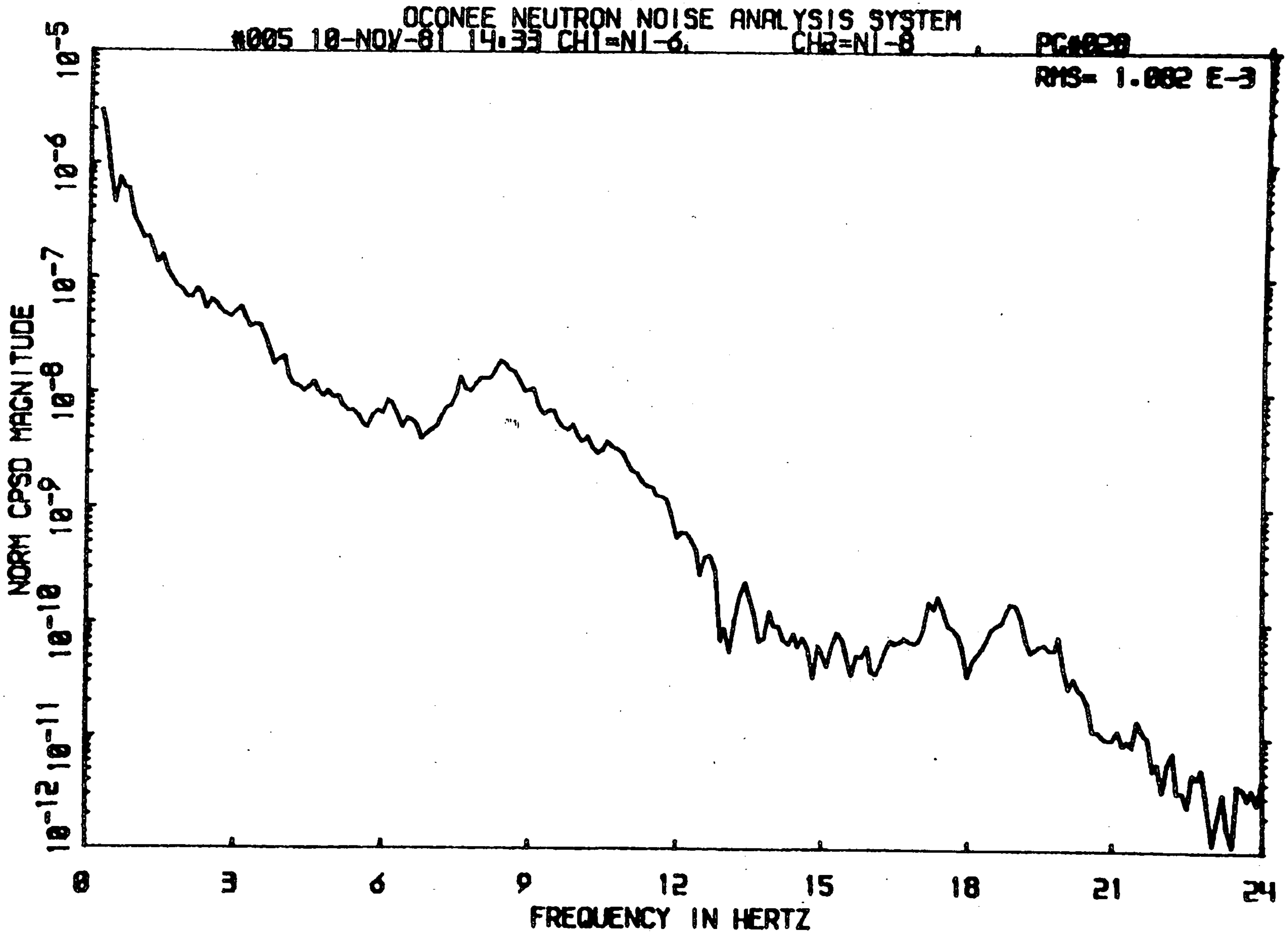
OCONEE NEUTRON NOISE ANALYSIS SYSTEM
#004 10-NOV-81 14:08 CH1=NI-6, CH2=NI-7
PG#020
PHASE IN DEGREES
90
0
-90
-180
-270
0
3
6
9
12
15
18
21
24
FREQUENCY IN HERTZ


OCONEE NEUTRON NOISE ANALYSIS SYSTEM
#005 10-NOV-81 14:33 CH1=NI-6, CH2=NI-8
RMS= 1.763 E-3
NORMALIZED PSD1
10^-5
10^-6
10^-7
10^-8
10^-9
10^-10
10^-11
0
3
6
9
12
15
18
21
24
FREQUENCY IN HERTZ

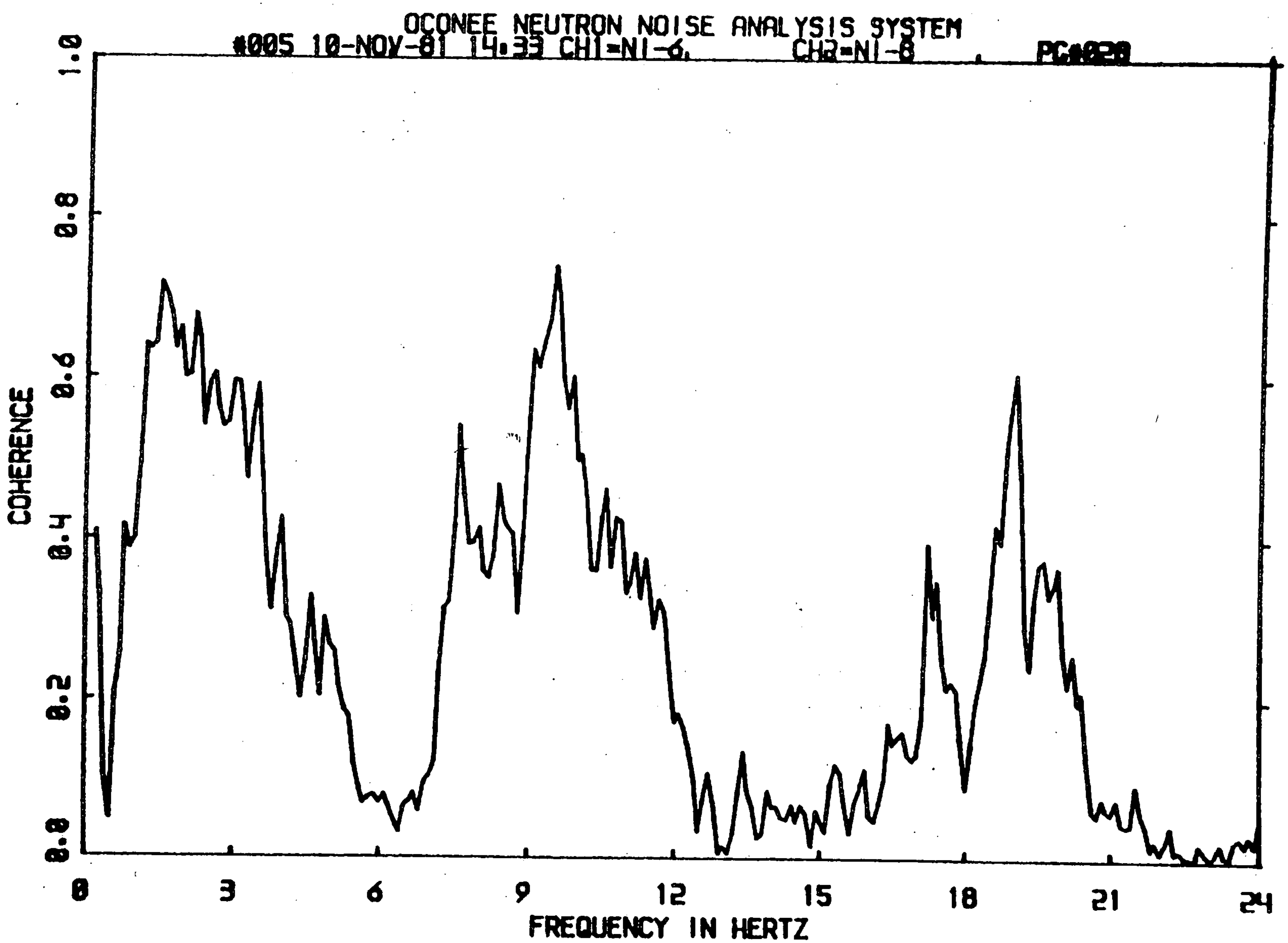
OCONEE NEUTRON NOISE ANALYSIS SYSTEM

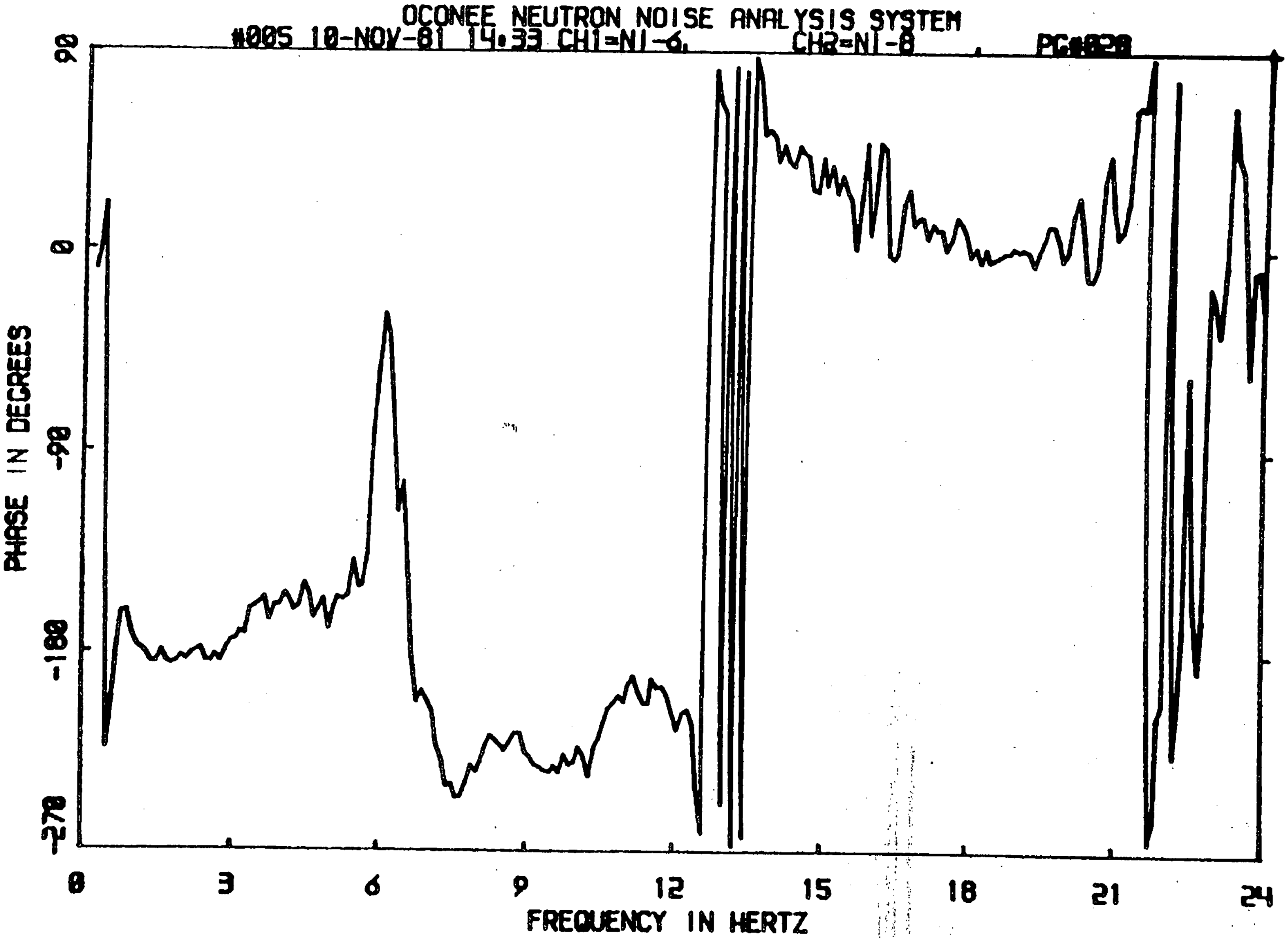
#005 10-NOV-81 14:33 CH1=NI-6, CH2=NI-8 PG#020

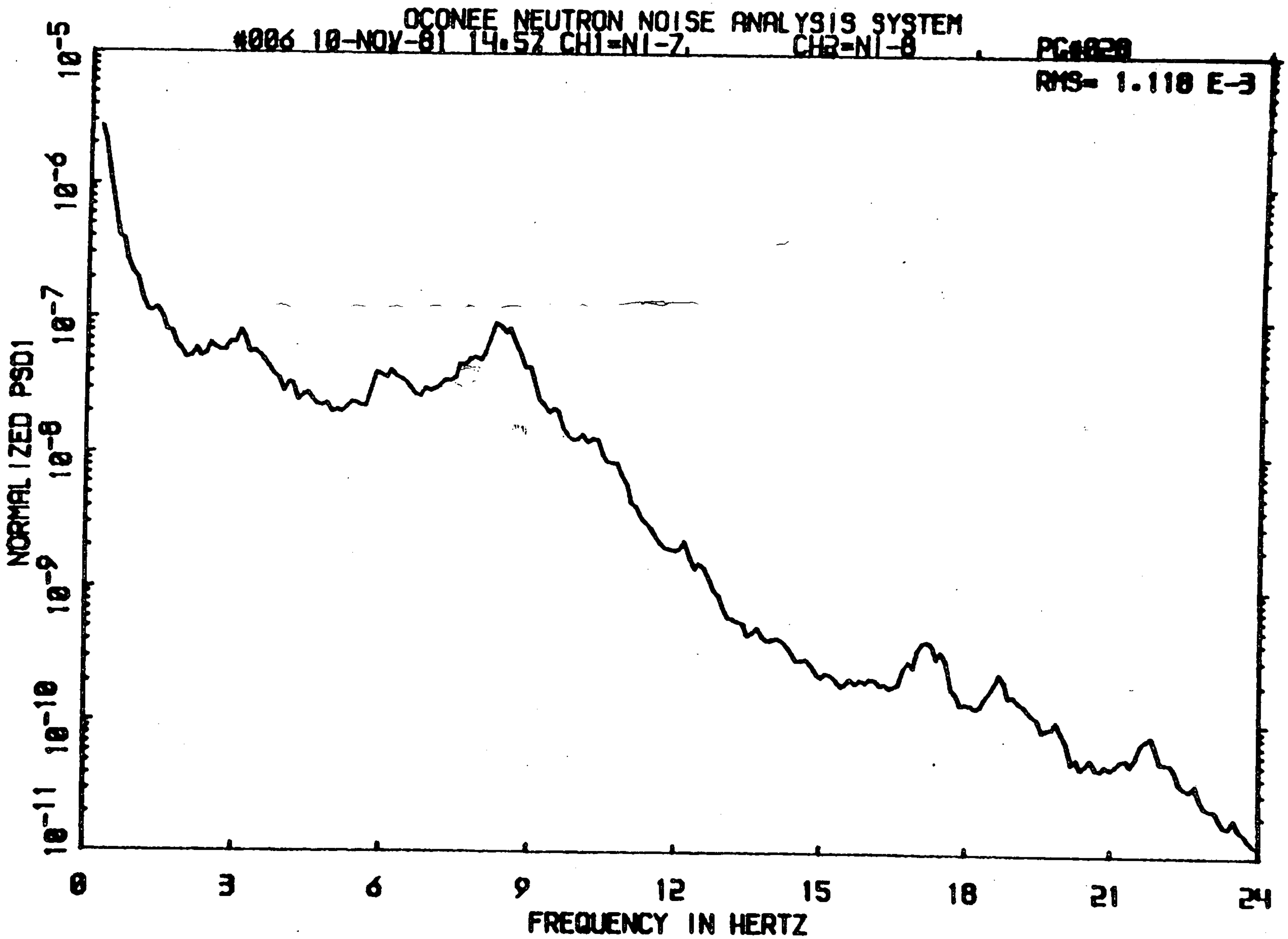




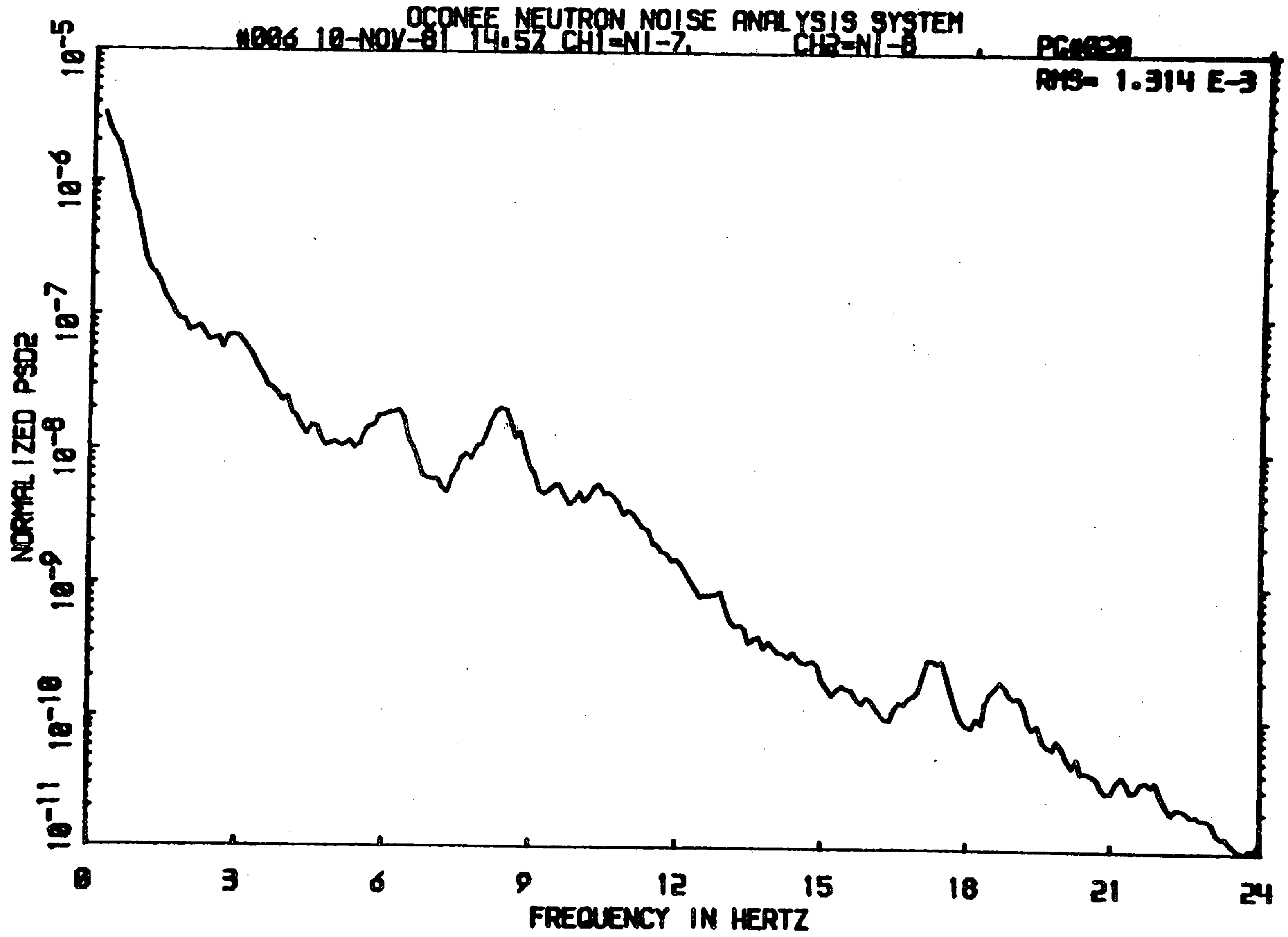
OCONEE NEUTRON NOISE ANALYSIS SYSTEM
#005 10-NOV-81 14:33 CH1=NI-6, CH2=NI-8
PG#020
RMS= 1.082 E-3
NORM CPSD MAGNITUDE
FREQUENCY IN HERTZ

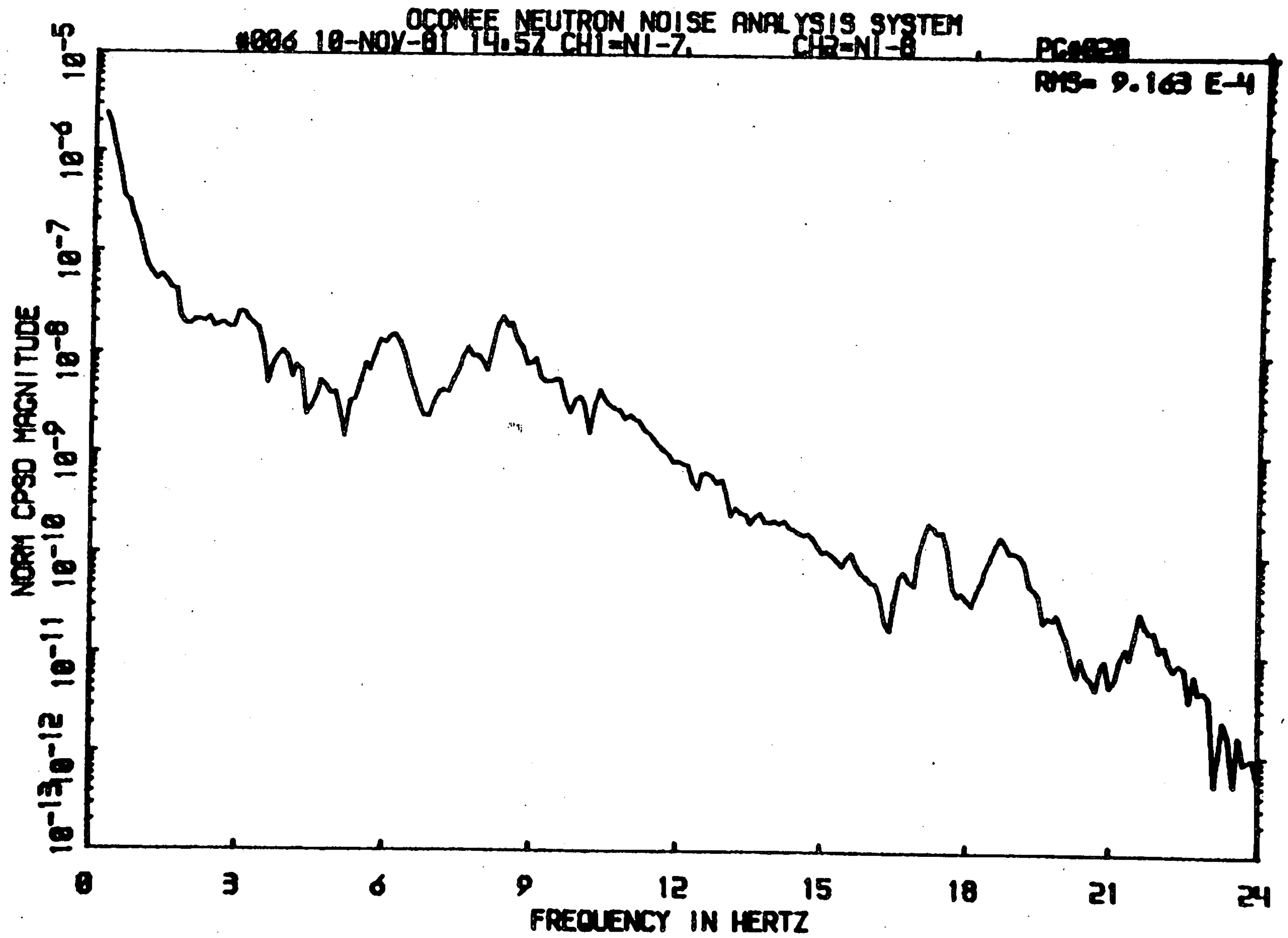

OCONEE NEUTRON NOISE ANALYSIS SYSTEM
#005 10-NOV-81 14:33 CH1=NI-6, CH2=NI-8 PG#020
COHERENCE
0.0
0.2
0.4
0.6
0.8
1.0
0
3
6
9
12
15
18
21
24
FREQUENCY IN HERTZ


OCONEE NEUTRON NOISE ANALYSIS SYSTEM
#005 10-NOV-81 14:33 CH1=NI-6, CH2=NI-8
PG#
PHASE IN DEGREES
90
0
-90
-180
-270
0
3
6
9
12
15
18
21
24
FREQUENCY IN HERTZ

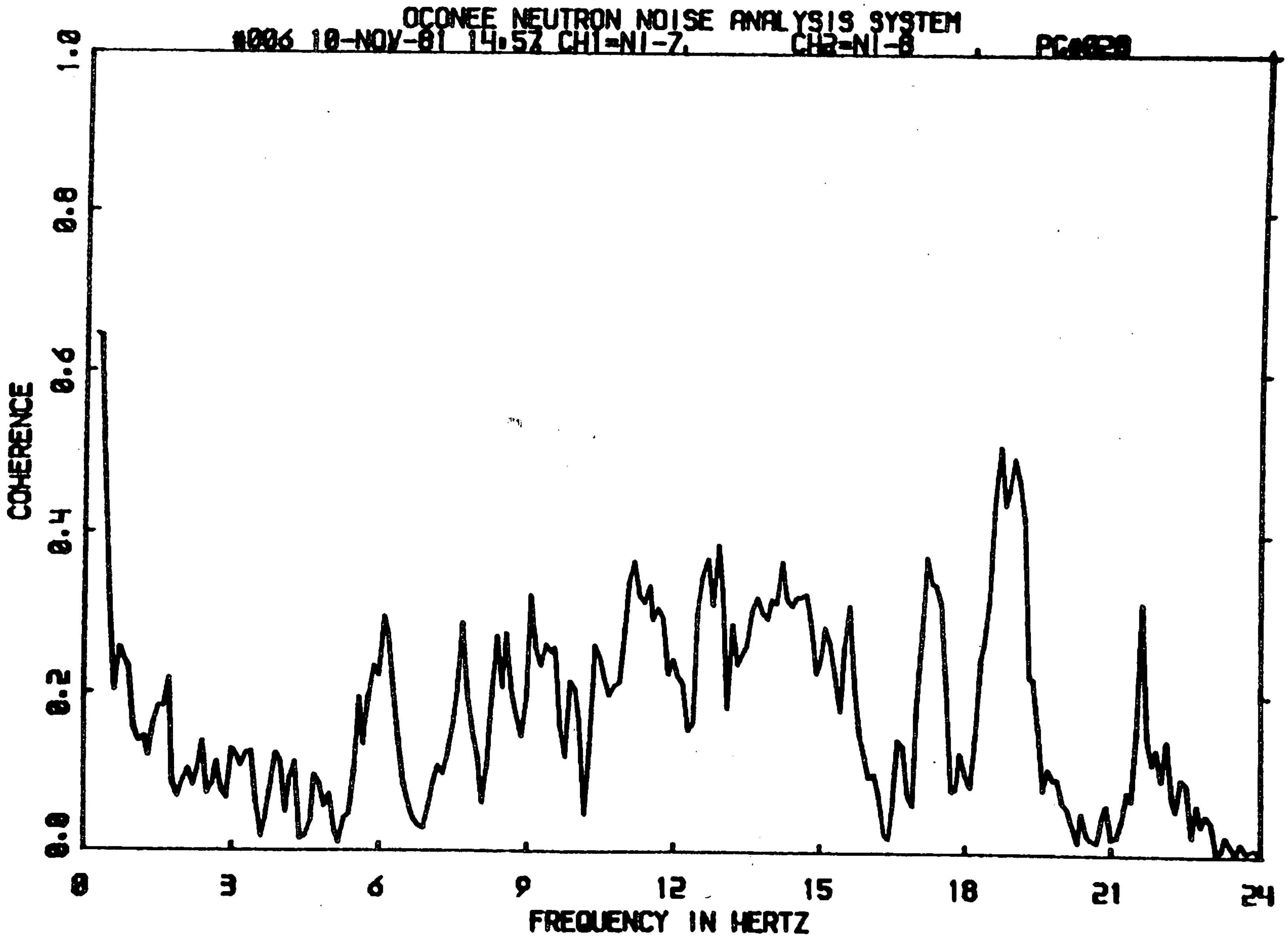


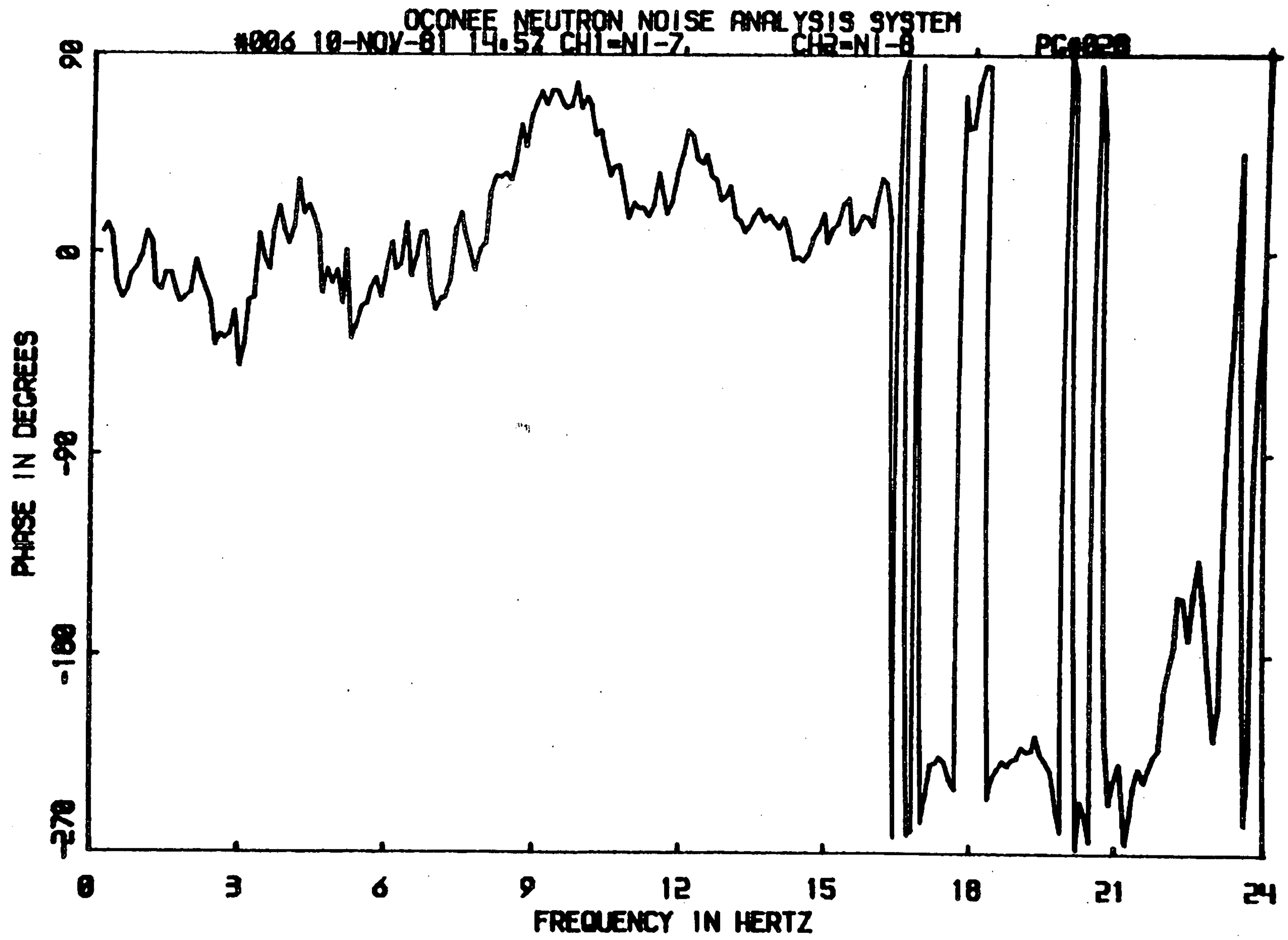
OCONEE NEUTRON NOISE ANALYSIS SYSTEM
#006 10-NOV-81 14:57 CH1=NI-7, CH2=NI-8
PG#020
RMS= 1.118 E-3
NORMALIZED PSD1
10^-5
10^-6
10^-7
10^-8
10^-9
10^-10
10^-11
0
3
6
9
12
15
18
21
24
FREQUENCY IN HERTZ


OCONEE NEUTRON NOISE ANALYSIS SYSTEM
#006 10-NOV-81 14:57 CH1=NI-7, CH2=NI-8
PG#020
RMS= 1.314 E-3
NORMALIZED PSD2
10^-11 10^-10 10^-9 10^-8 10^-7 10^-6 10^-5
0 3 6 9 12 15 18 21 24
FREQUENCY IN HERTZ



OCONEE NEUTRON NOISE ANALYSIS SYSTEM
#006 10-NOV-81 14.57 CH1=NI-7, CH2=NI-8
PG#020
RMS= 9.163 E-4
NORM CPSD MAGNITUDE
10^-13 10^-12 10^-11 10^-10 10^-9 10^-8 10^-7 10^-6 10^-5
0 3 6 9 12 15 18 21 24
FREQUENCY IN HERTZ


OCONEE NEUTRON NOISE ANALYSIS SYSTEM
#006 10-NOV-81 14:57 CH1=NI-7, CH2=NI-8 , PG#020
COHERENCE
0.0
0.2
0.4
0.6
0.8
1.0
0
3
6
9
12
15
18
21
24
FREQUENCY IN HERTZ


OCONEE NEUTRON NOISE ANALYSIS SYSTEM
#006 10-NOV-81 14:52 CH1=NI-7, CH2=NI-8
PG#028
PHASE IN DEGREES
90
0
-90
-180
-270
0
3
6
9
12
15
18
21
24
FREQUENCY IN HERTZ

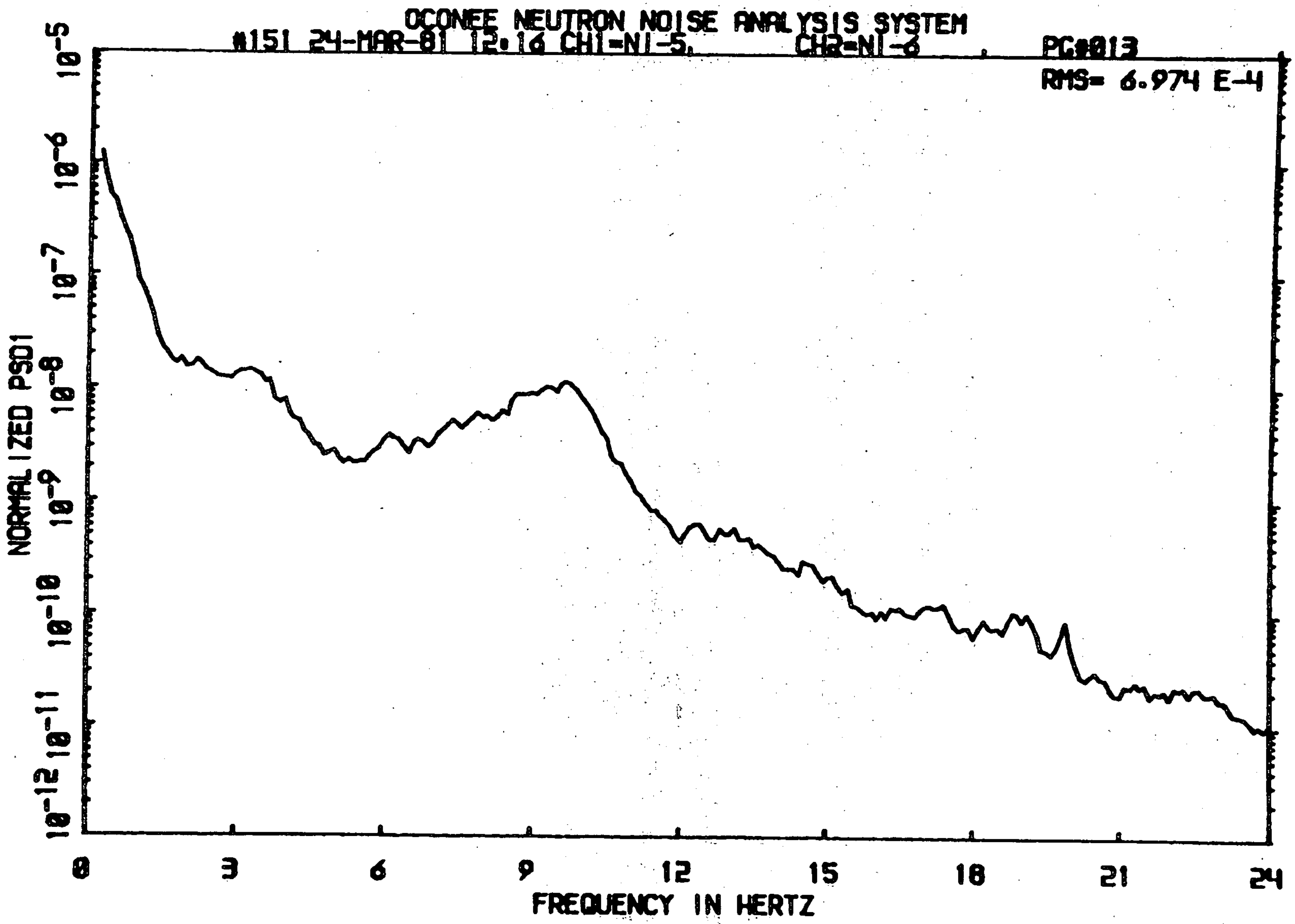
CONTENTS

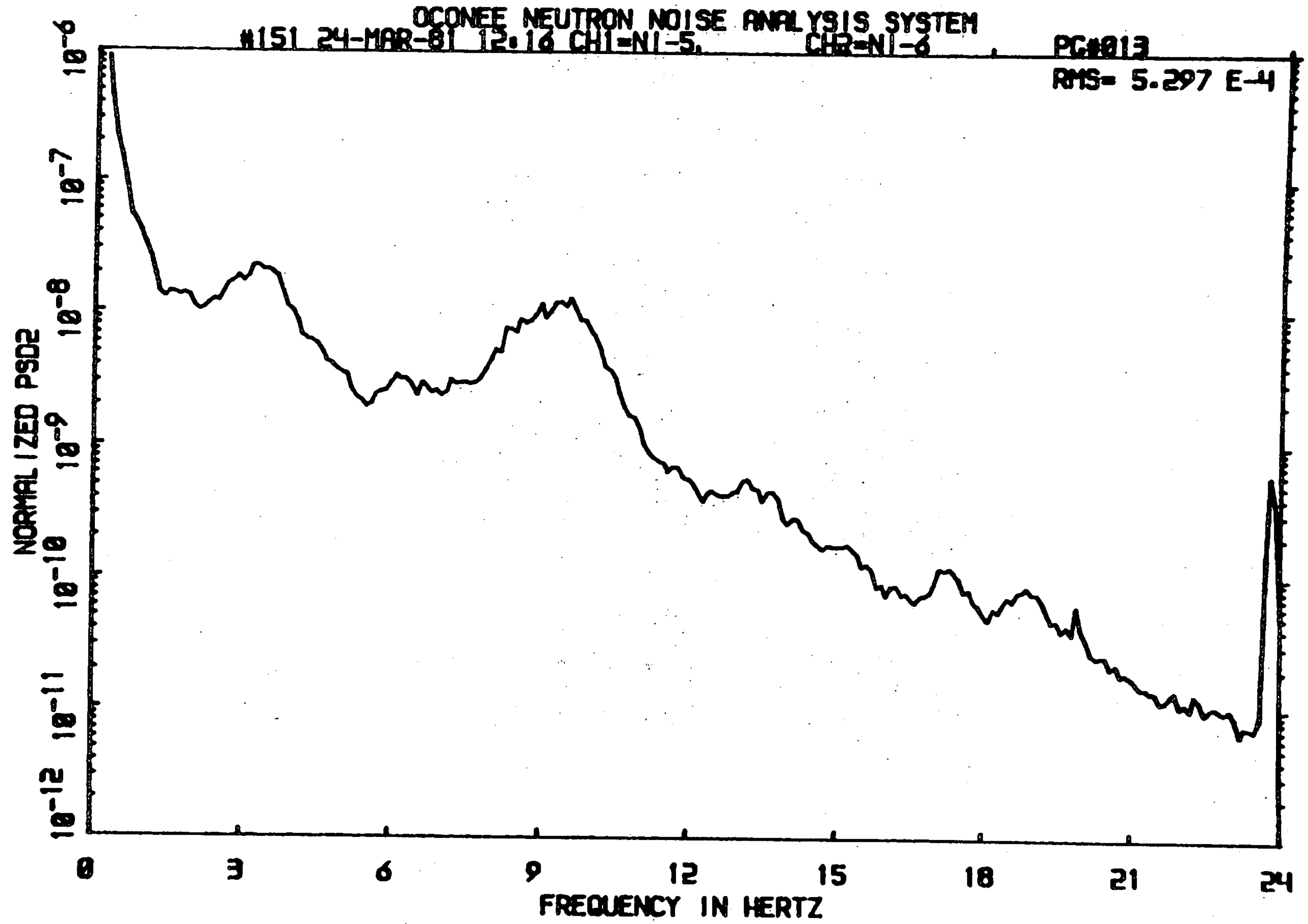
Neutron Noise Data for BOC 6
Unit 3, taken March 24, 1981

Test #	Detector pairs *
151	NI5 x NI6
152	NI5 x NI7
153	NI5 x NI8
154	NI6 x NI7
155	NI6 x NI8
156	NI7 x NI8

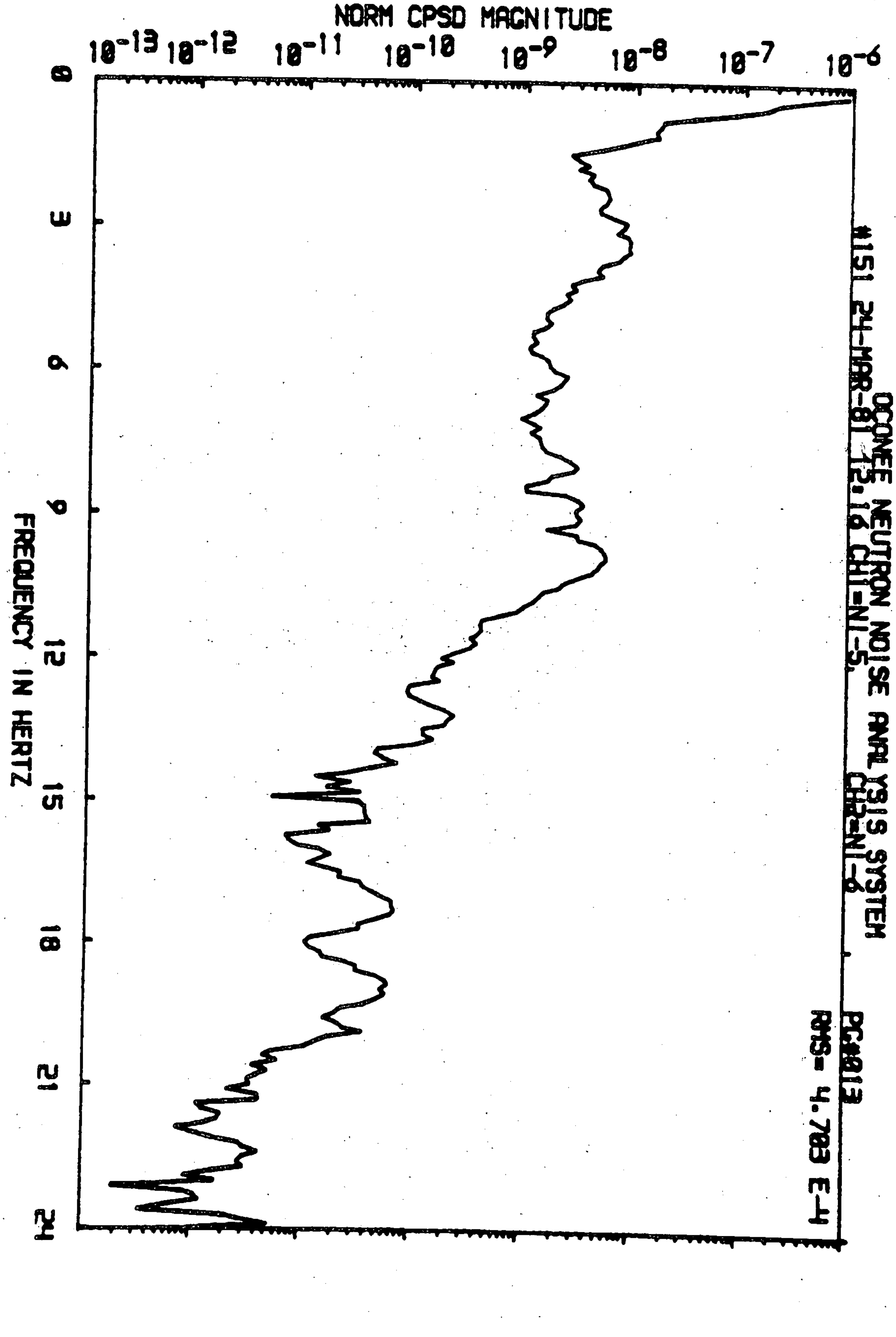
* summed from upper & lower chambers

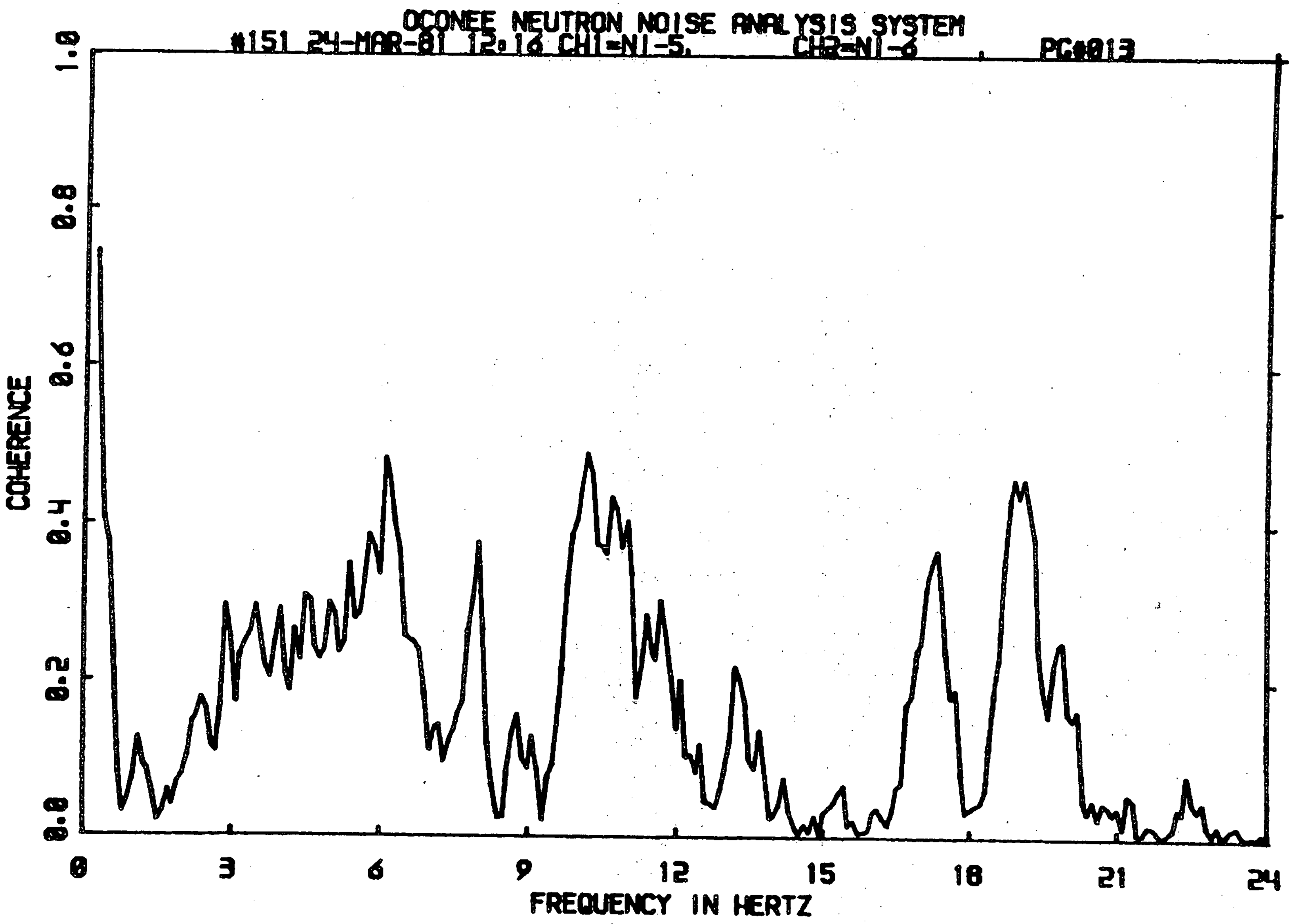
03C6 BOC

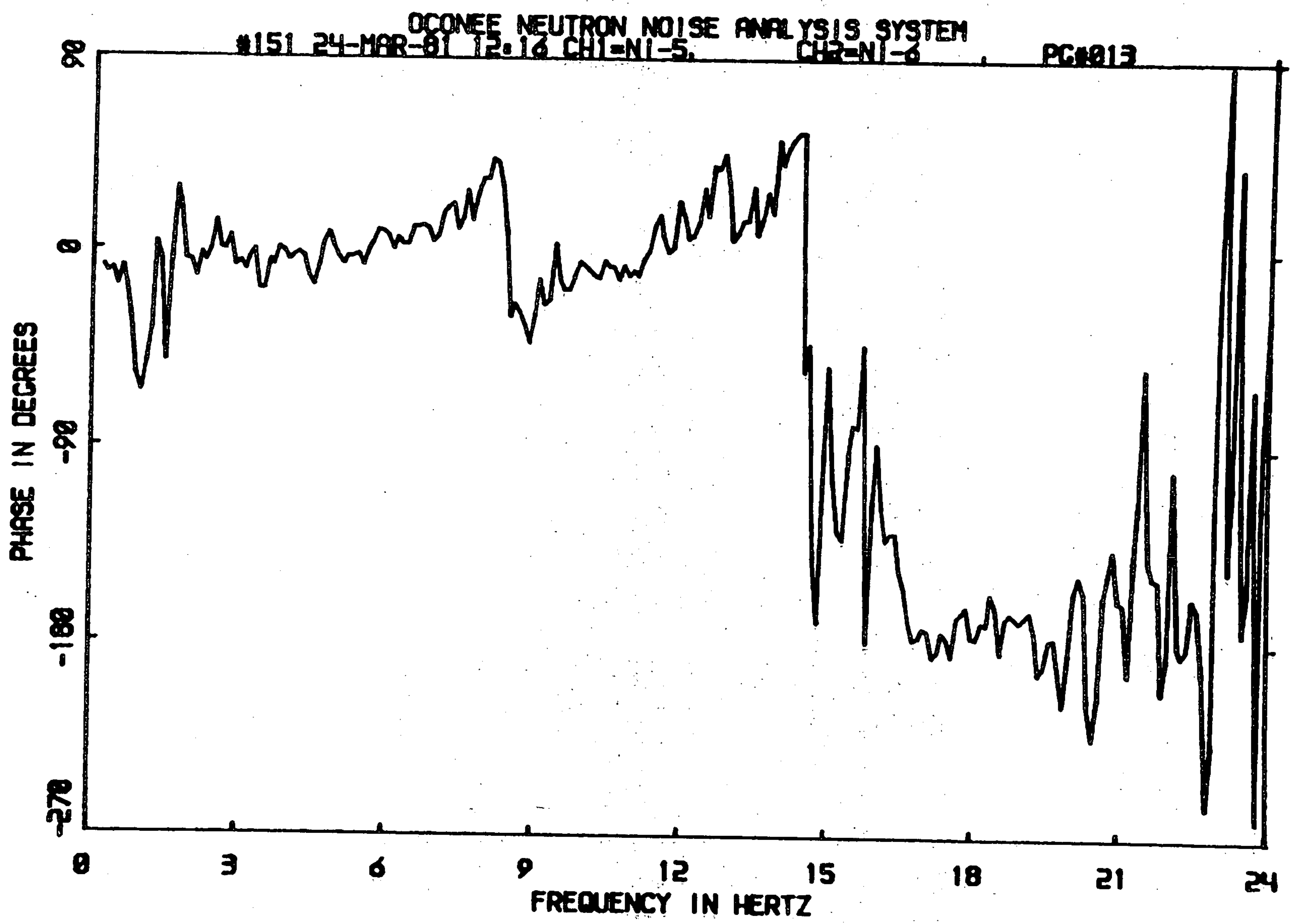

OCONEE NEUTRON NOISE ANALYSIS SYSTEM
#151 24-MAR-81 12:16 CH1=NI-5, CH2=NI-6 , PG#013
RMS= 6.974 E-4
NORMALIZED PSD1
10^-12 10^-11 10^-10 10^-9 10^-8 10^-7 10^-6 10^-5
0 3 6 9 12 15 18 21 24
FREQUENCY IN HERTZ

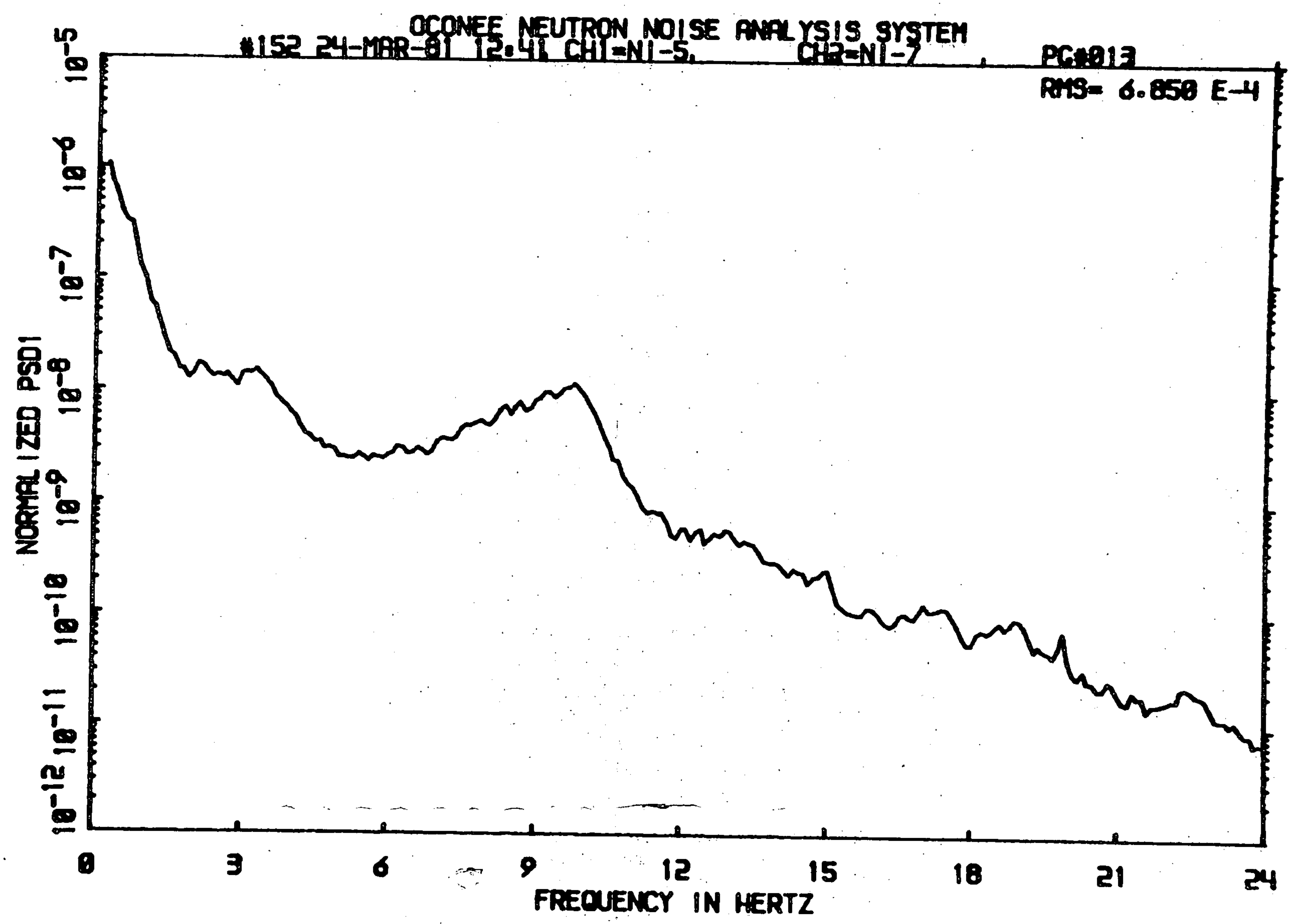


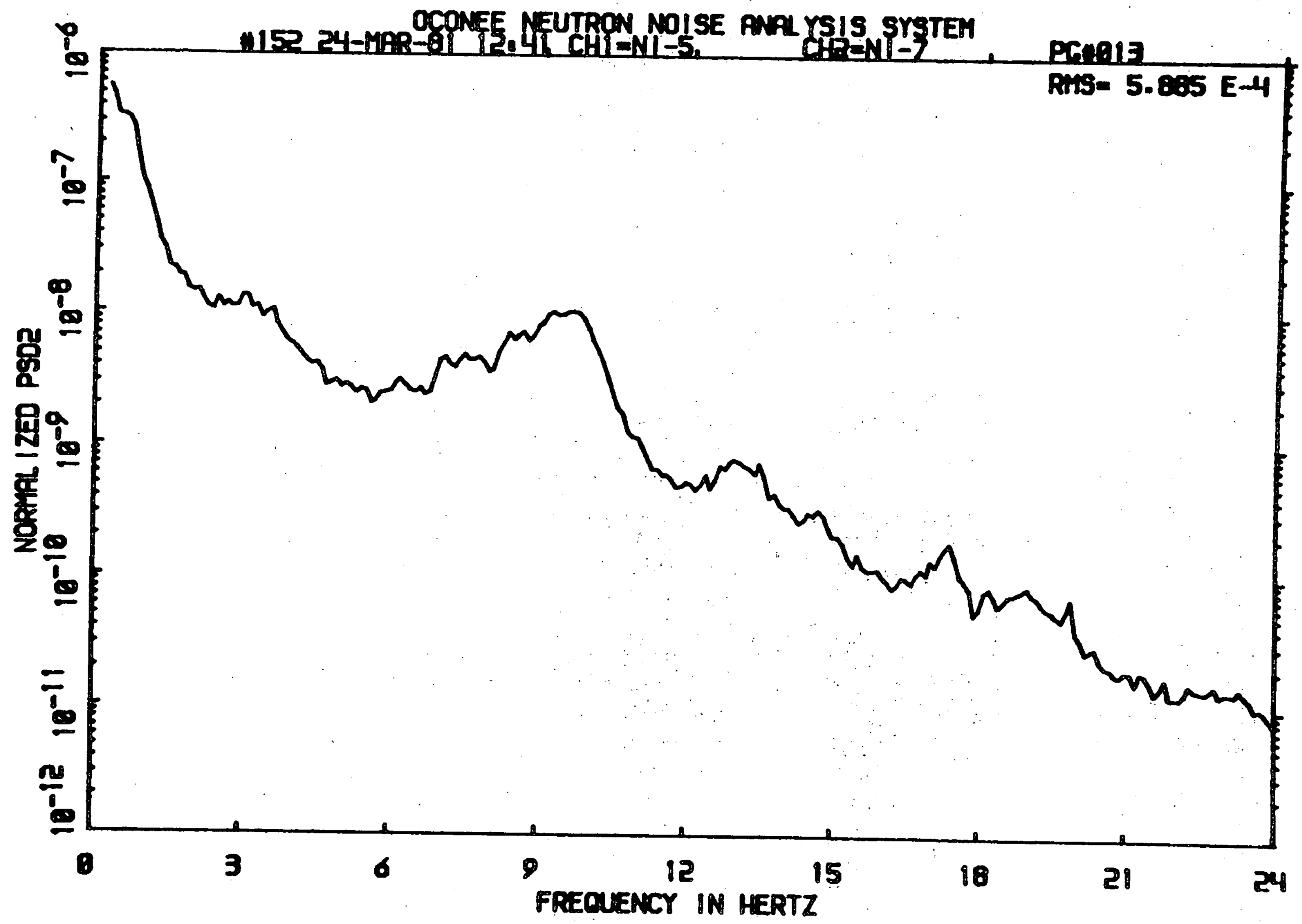
OCONEE NEUTRON NOISE ANALYSIS SYSTEM
#151 24-MAR-81 12:16 CH1=NI-5, CH2=NI-6 , PG#013
RMS= 5.297 E-4
NORMALIZED PSD2
10^-6
10^-7
10^-8
10^-9
10^-10
10^-11
10^-12
0
3
6
9
12
15
18
21
24
FREQUENCY IN HERTZ

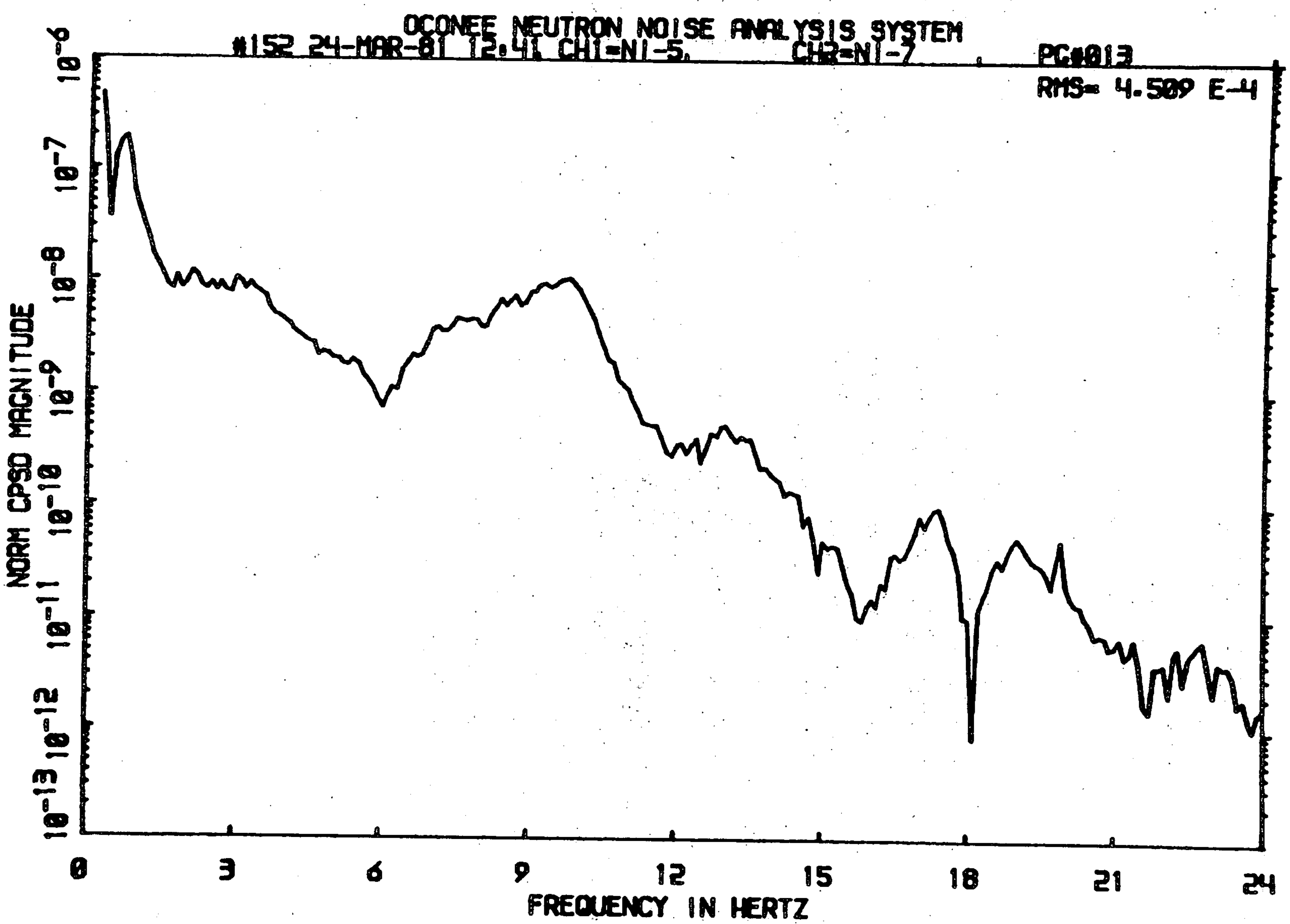

OCONEE NEUTRON NOISE ANALYSIS SYSTEM
#151 24-MAR-81 12.16 CH1=NI-5, CH2=NI-6
PG#013
RMS= 4.703 E-4
NORM CPSD MAGNITUDE
10^-13 10^-12 10^-11 10^-10 10^-9 10^-8 10^-7 10^-6
0 3 6 9 12 15 18 21 24
FREQUENCY IN HERTZ

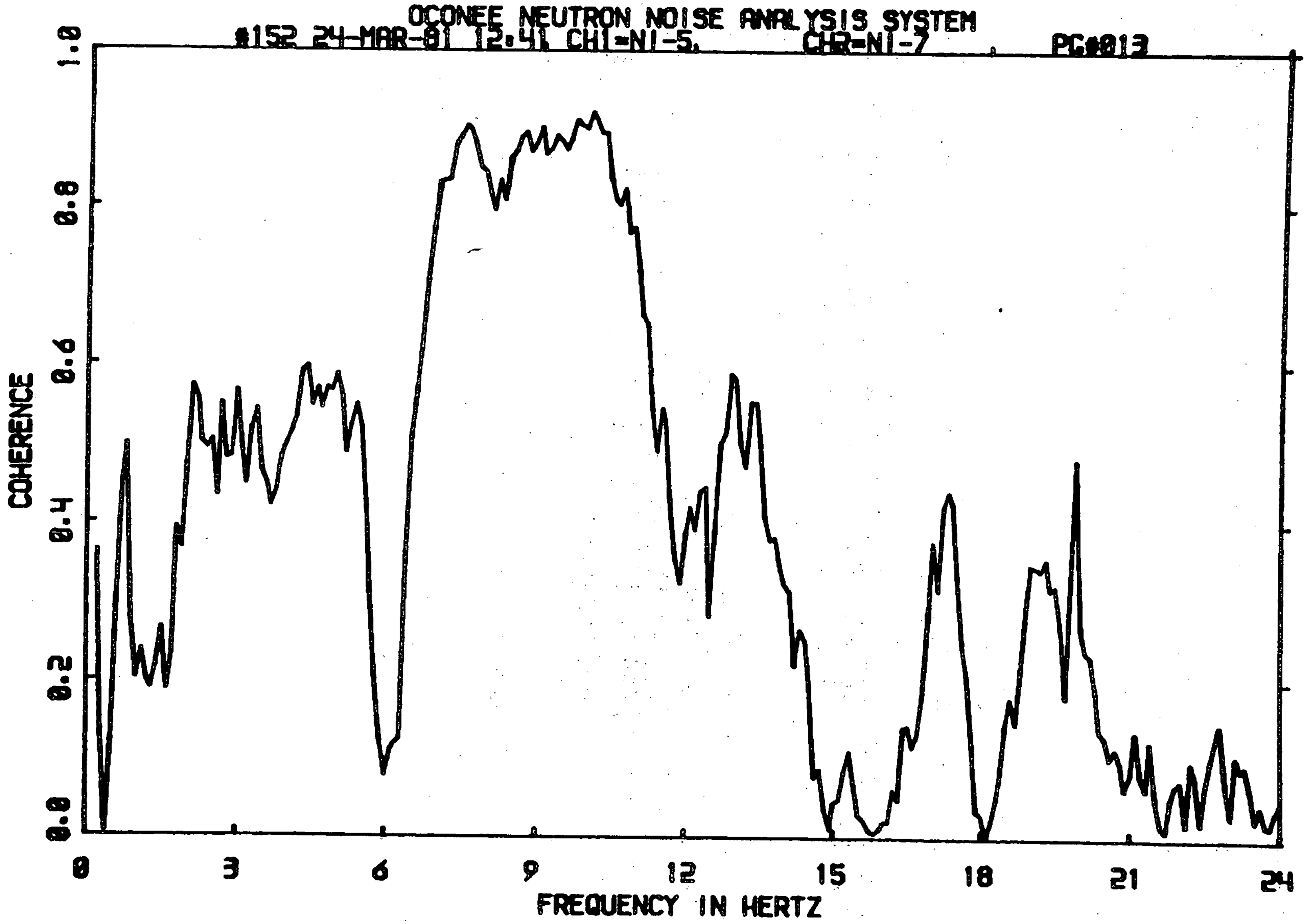

OCONEE NEUTRON NOISE ANALYSIS SYSTEM
#151 24-MAR-81 12:16 CH1=NI-5, CH2=NI-6 PG#013
COHERENCE
0.0
0.2
0.4
0.6
0.8
1.0
0
3
6
9
12
15
18
21
24
FREQUENCY IN HERTZ

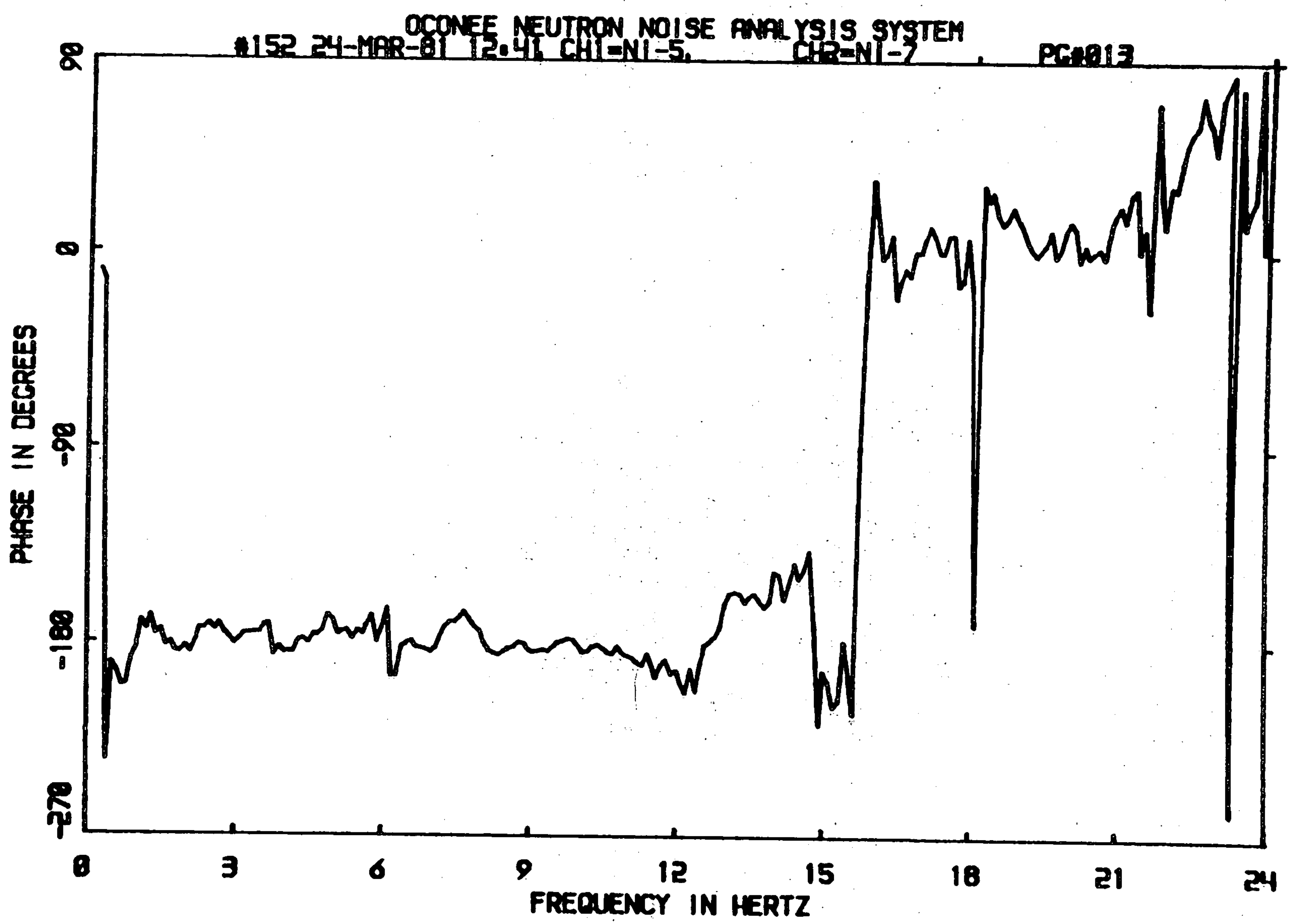

OCONEE NEUTRON NOISE ANALYSIS SYSTEM
#151 24-MAR-81 12:16 CH1=NI-5, CH2=NI-6 , PG#013
PHASE IN DEGREES
90
0
-90
-180
-270
0
3
6
9
12
15
18
21
24
FREQUENCY IN HERTZ

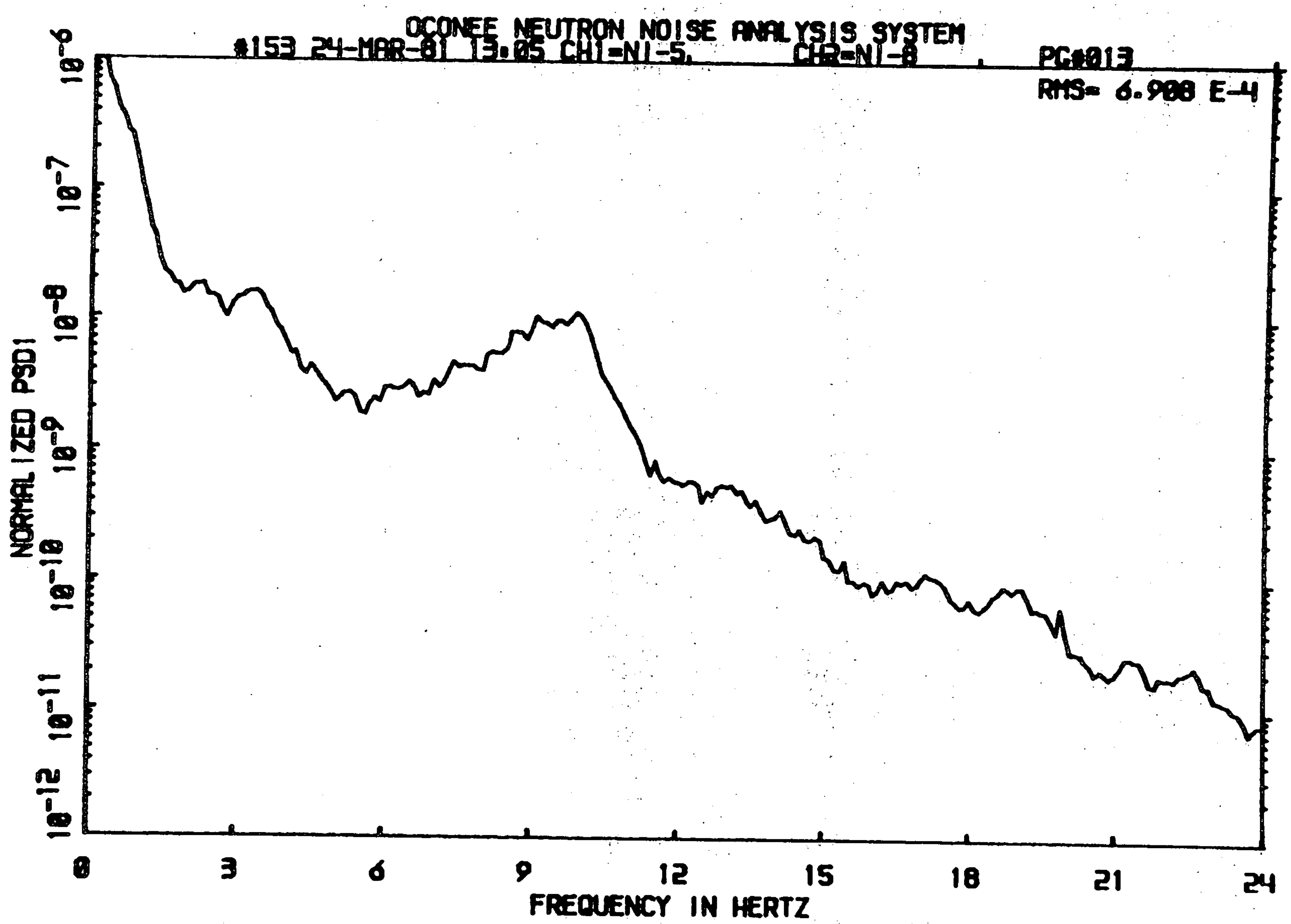

OCONEE NEUTRON NOISE ANALYSIS SYSTEM
#152 24-MAR-81 12:41 CH1=NI-5, CH2=NI-7
PG#013
RMS= 6.850 E-4
NORMALIZED PSD1
10^-12 10^-11 10^-10 10^-9 10^-8 10^-7 10^-6 10^-5
0 3 6 9 12 15 18 21 24
FREQUENCY IN HERTZ


OCONEE NEUTRON NOISE ANALYSIS SYSTEM
#152 24-MAR-81 12.41 CH1=NI-5. CH2=NI-7
PG#013
RMS= 5.885 E-4
NORMALIZED PSD2
10^-12 10^-11 10^-10 10^-9 10^-8 10^-7 10^-6
0 3 6 9 12 15 18 21 24
FREQUENCY IN HERTZ


OCONEE NEUTRON NOISE ANALYSIS SYSTEM
#152 24-MAR-81 12.41 CH1=NI-5, CH2=NI-7
PG#013
RMS= 4.509 E-4
NORM CPSD MAGNITUDE
10^{-13} 10^{-12} 10^{-11} 10^{-10} 10^{-9} 10^{-8} 10^{-7} 10^{-6}
0 3 6 9 12 15 18 21 24
FREQUENCY IN HERTZ


OCONEE NEUTRON NOISE ANALYSIS SYSTEM
#152 24-MAR-81 12:41 CH1=NI-5, CH2=NI-7 , PG#013
COHERENCE
1.0
0.8
0.6
0.4
0.2
0.0
0
3
6
9
12
15
18
21
24
FREQUENCY IN HERTZ

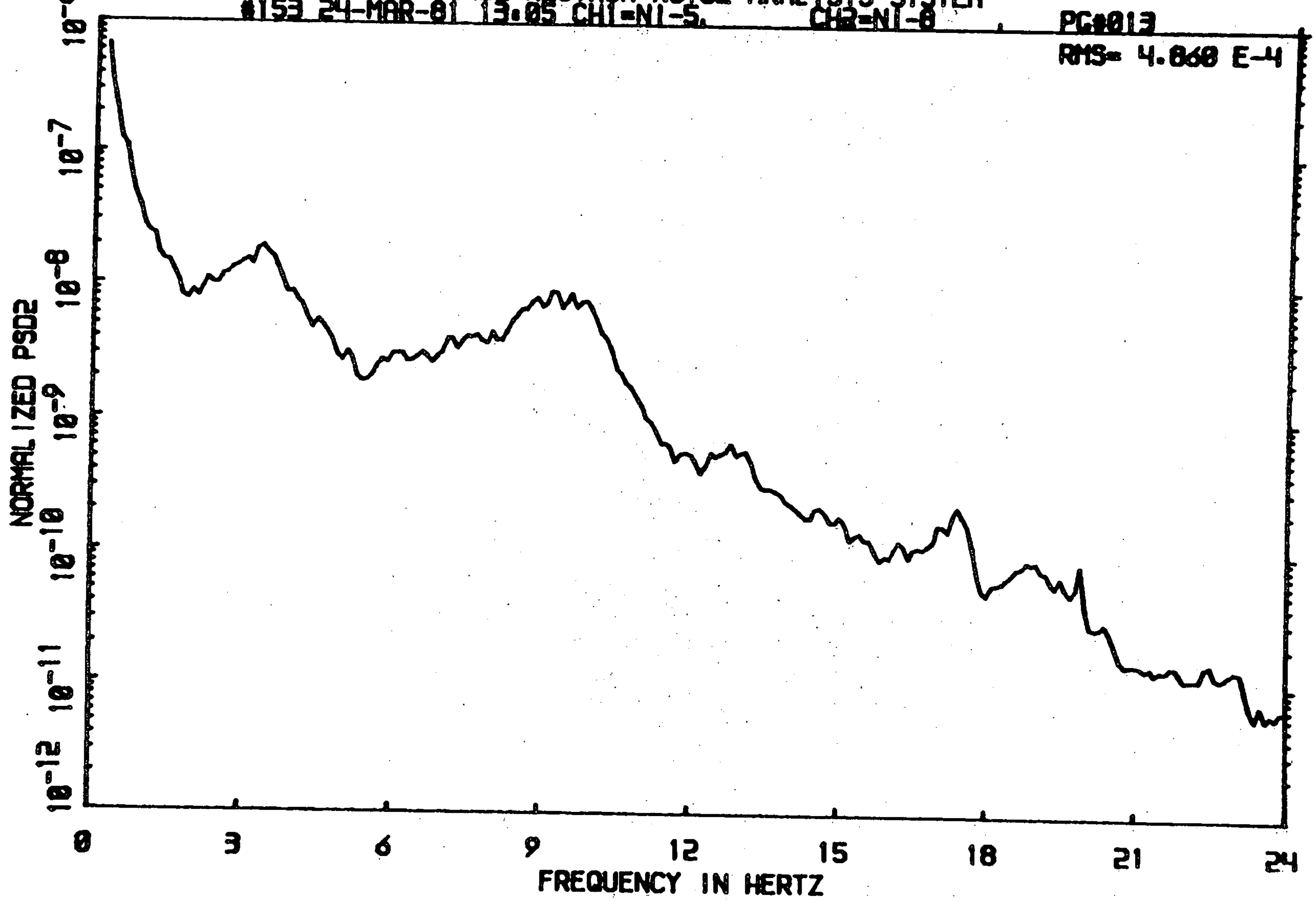

OCONEE NEUTRON NOISE ANALYSIS SYSTEM
#152 24-MAR-81 12:41 CH1=NI-5, CH2=NI-7 , PG#013
PHASE IN DEGREES
90
0
-90
-180
-270
0
3
6
9
12
15
18
21
24
FREQUENCY IN HERTZ

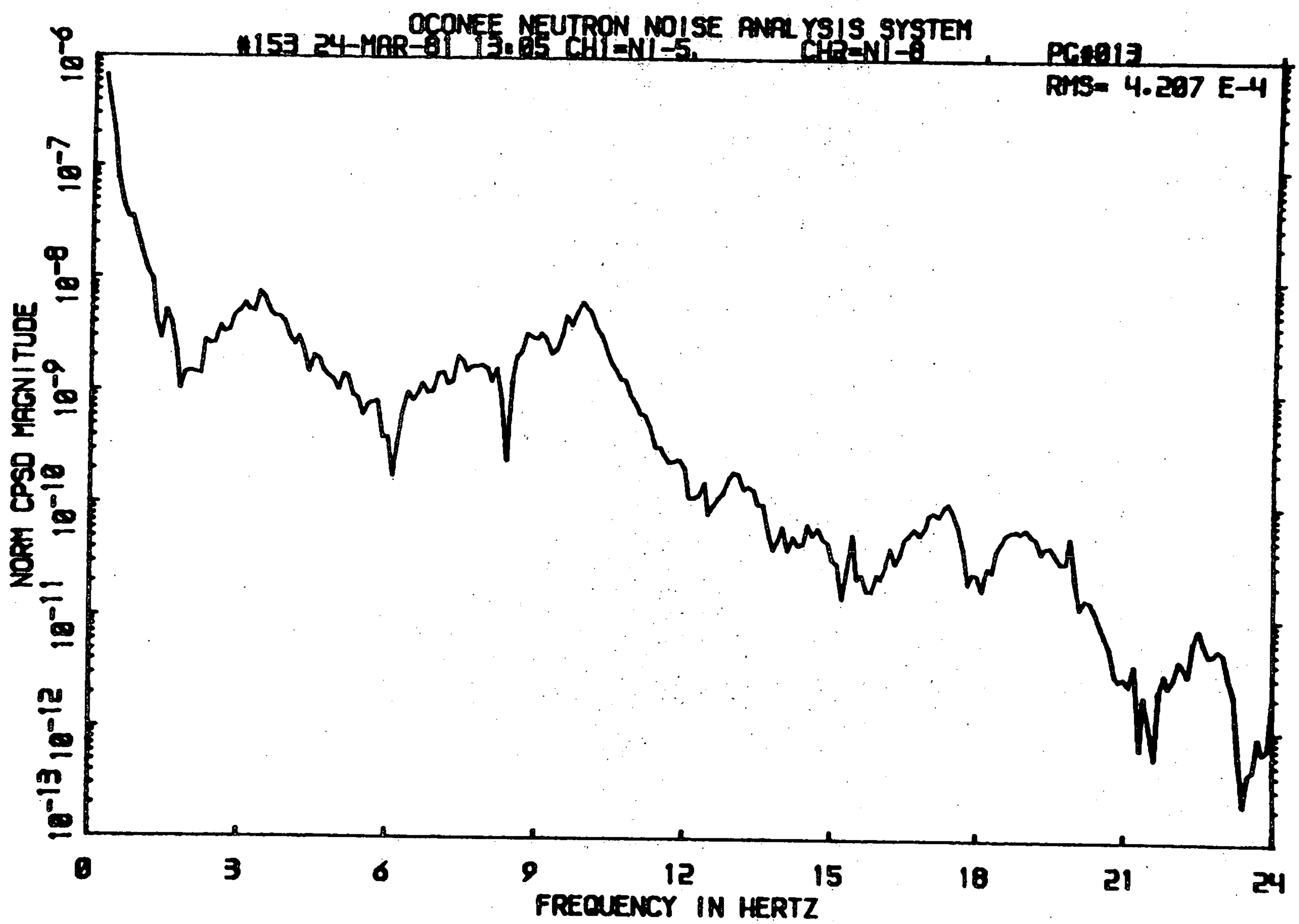

OCONEE NEUTRON NOISE ANALYSIS SYSTEM
#153 24-MAR-81 13:05 CH1=NI-5, CH2=NI-8 , PG#013
RMS= 6.908 E-4
NORMALIZED PSD1
10^-6
10^-7
10^-8
10^-9
10^-10
10^-11
10^-12
0
3
6
9
12
15
18
21
24
FREQUENCY IN HERTZ

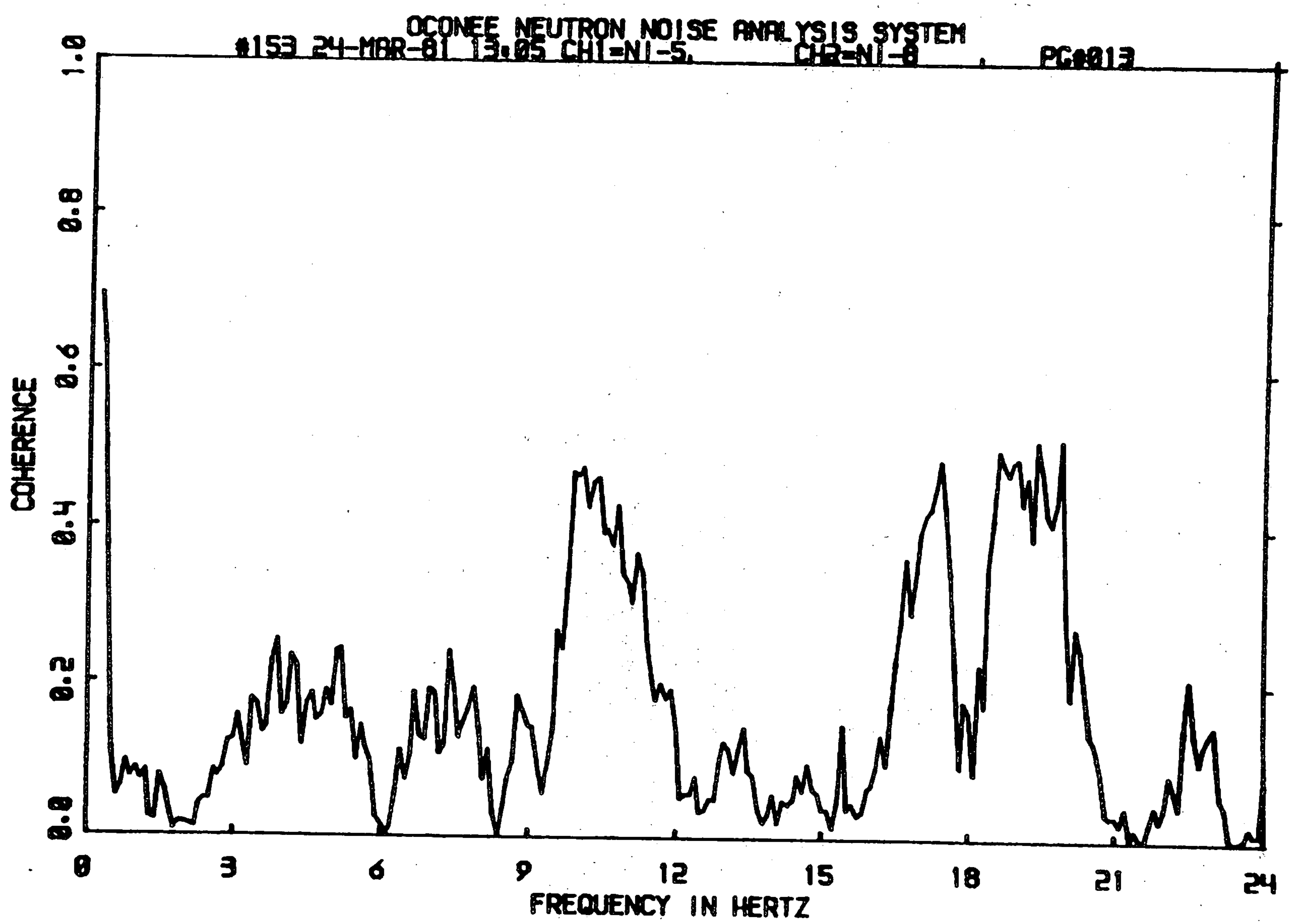
OCONEE NEUTRON NOISE ANALYSIS SYSTEM

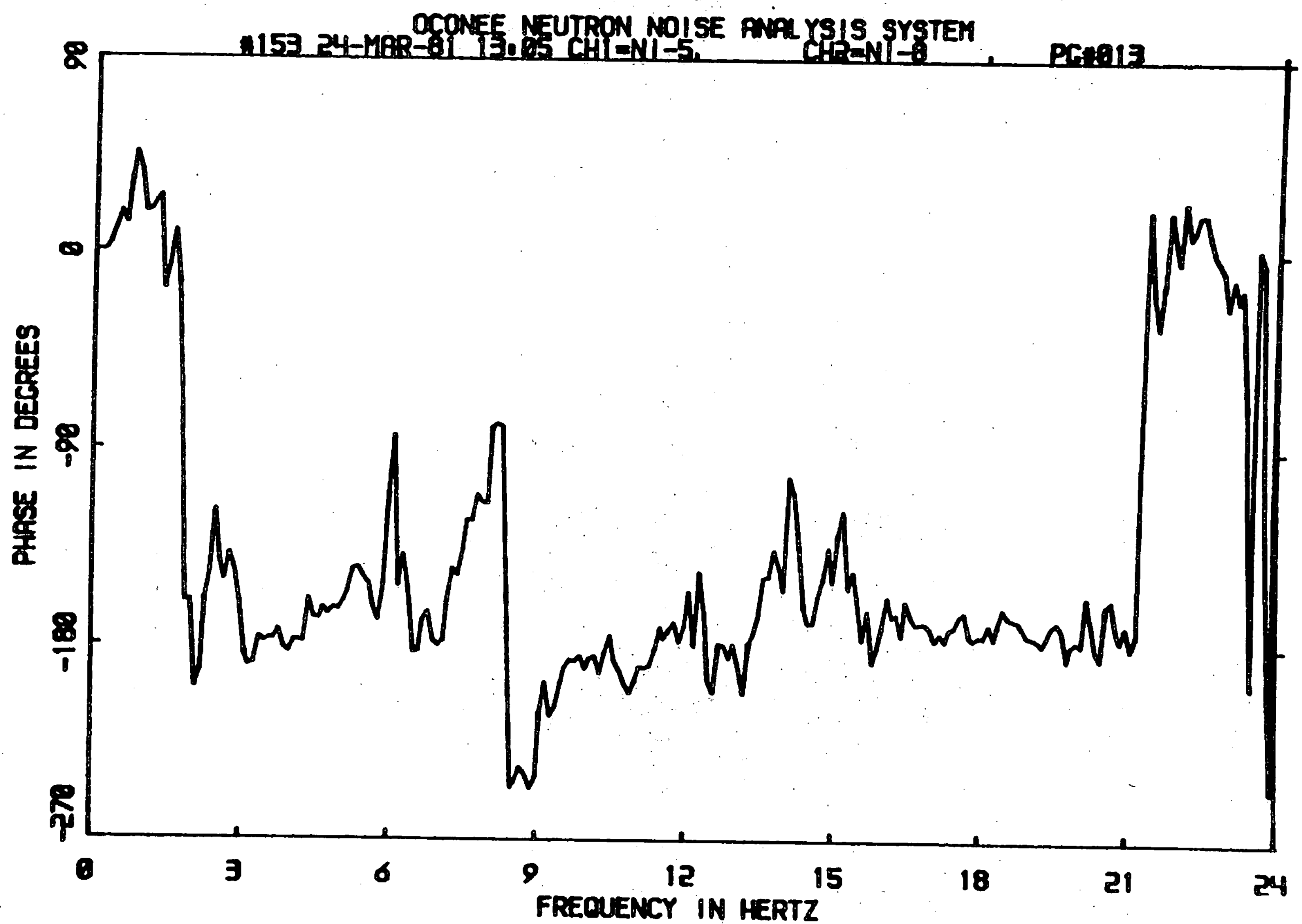
#153 24-MAR-81 13:05 CH1=NI-5, CH2=NI-8

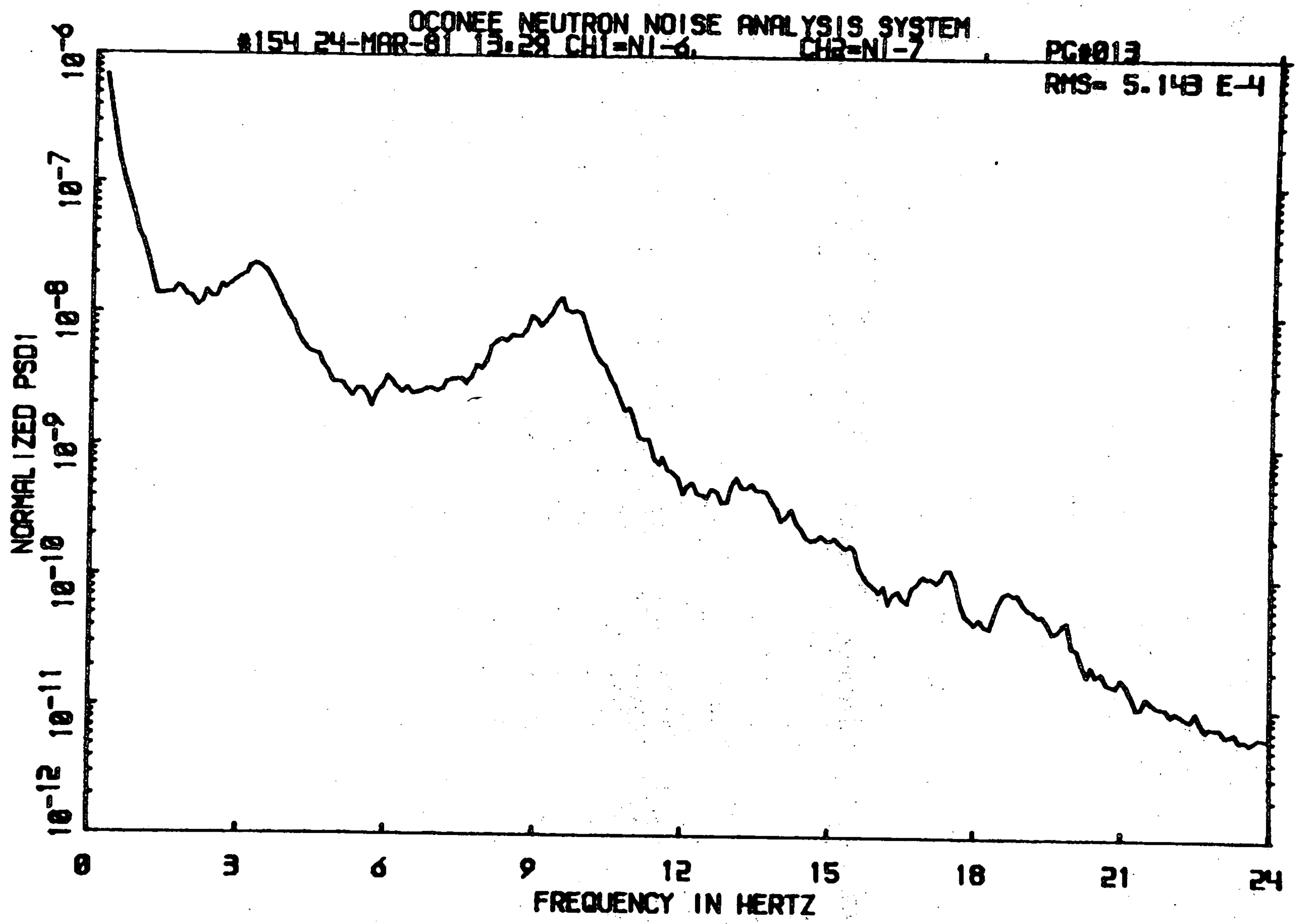
PG#013



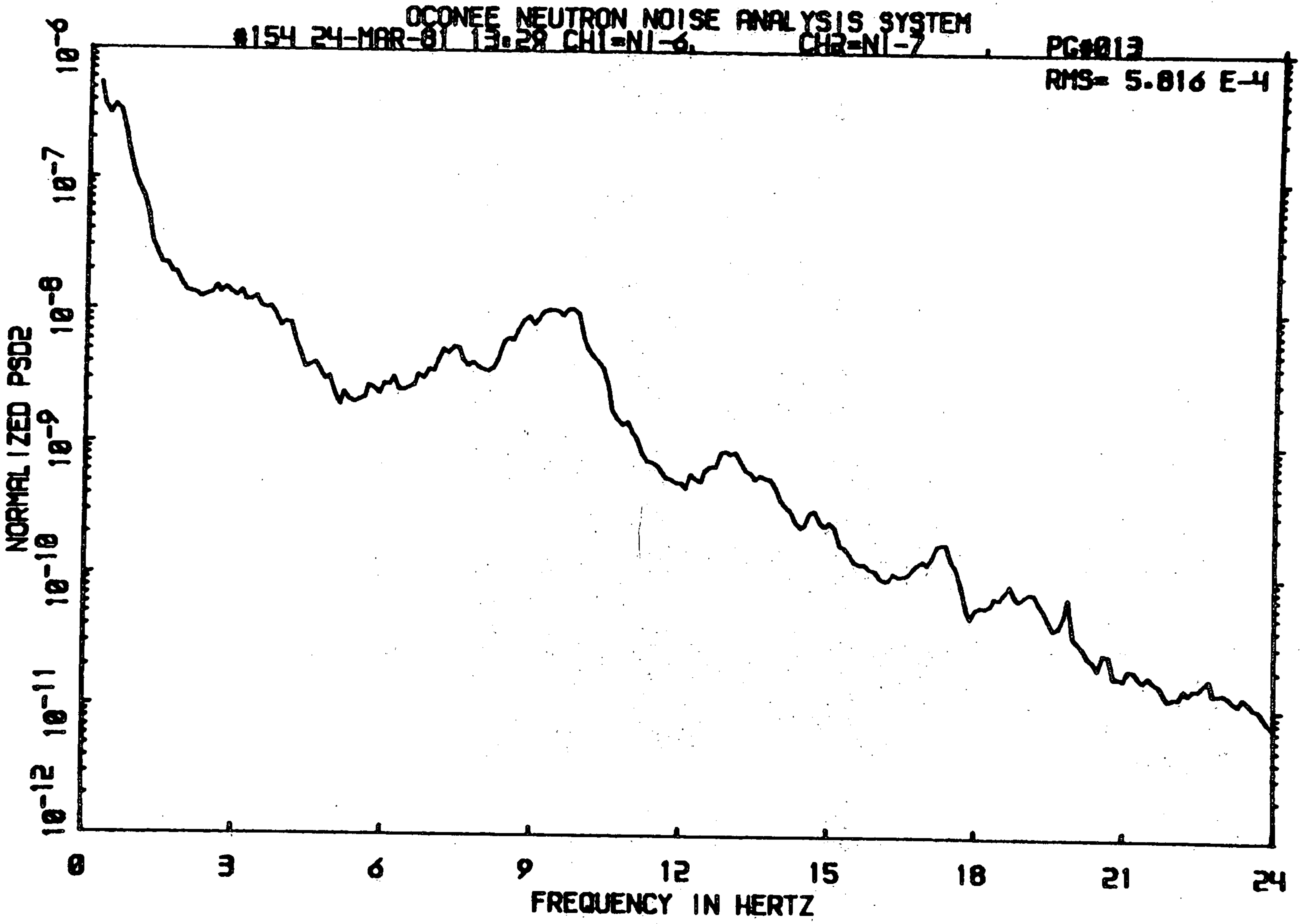

OCONEE NEUTRON NOISE ANALYSIS SYSTEM
#153 24-MAR-81 13:05 CH1=NI-5. CH2=NI-8
PG#013
RMS= 4.207 E-4
NORM CPSD MAGNITUDE
10^-6
10^-7
10^-8
10^-9
10^-10
10^-11
10^-12
10^-13
0
3
6
9
12
15
18
21
24
FREQUENCY IN HERTZ


OCONEE NEUTRON NOISE ANALYSIS SYSTEM
#153 24-MAR-81 13:05 CH1=NI-5, CH2=NI-8 , PG#013
COHERENCE
0.0
0.2
0.4
0.6
0.8
1.0
0
3
6
9
12
15
18
21
24
FREQUENCY IN HERTZ

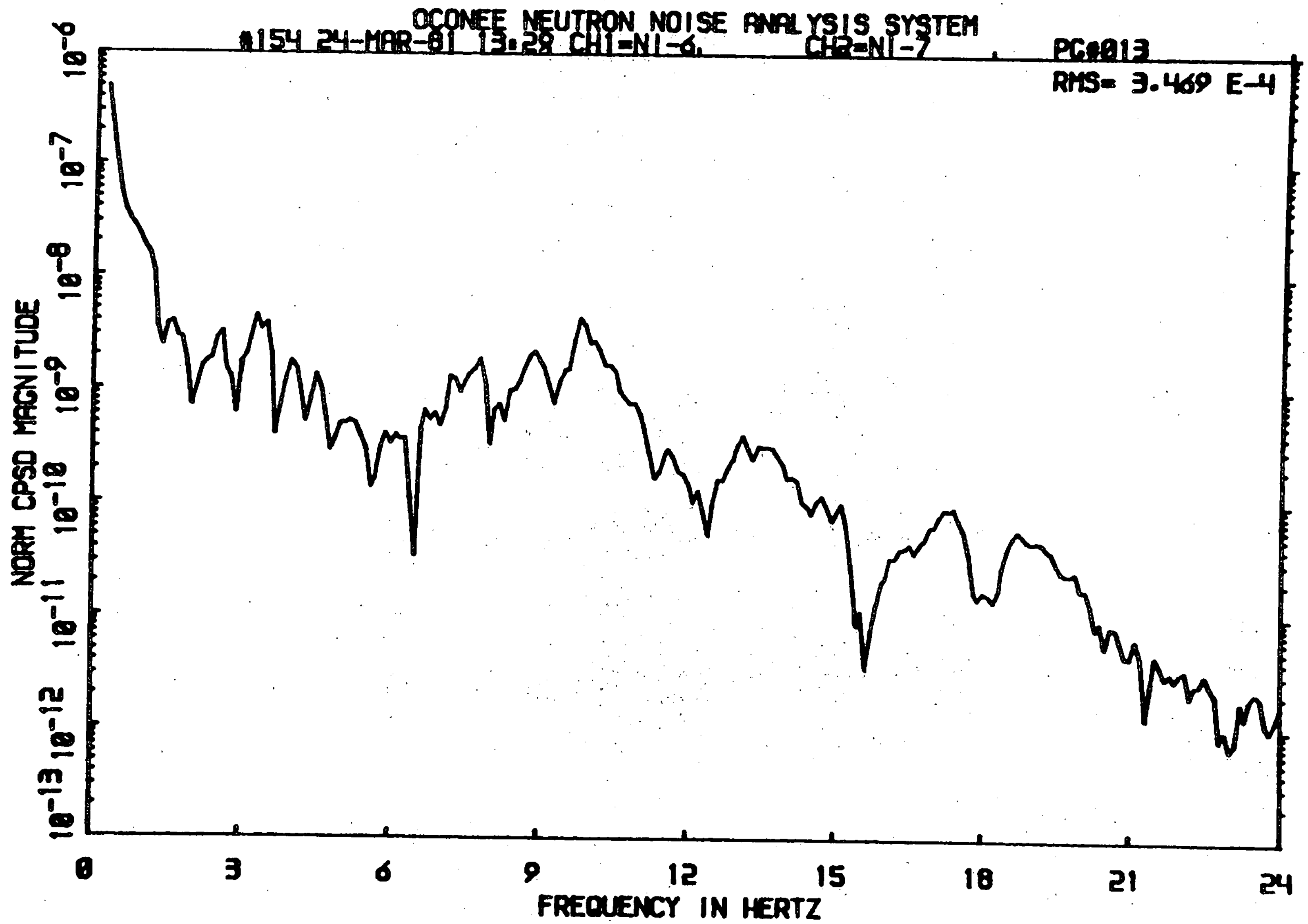

OCONEE NEUTRON NOISE ANALYSIS SYSTEM
#153 24-MAR-81 13:05 CH1=NI-5, CH2=NI-8 , PG#013
PHASE IN DEGREES
90
0
-90
-180
-270
0
3
6
9
12
15
18
21
24
FREQUENCY IN HERTZ

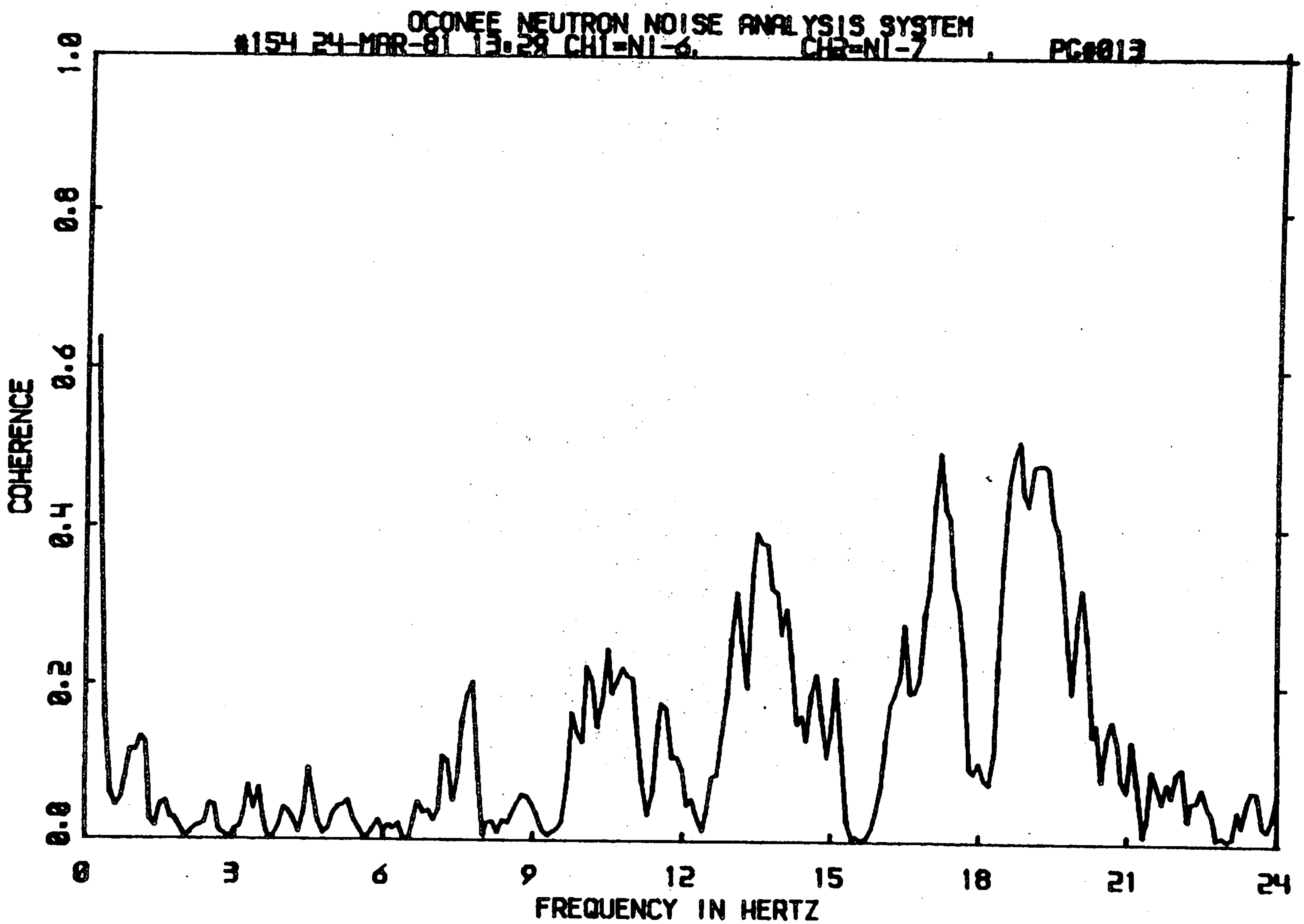


OCONEE NEUTRON NOISE ANALYSIS SYSTEM
#154 24-MAR-81 13:28 CH1=NI-6, CH2=NI-7 , PG#013
RMS= 5.143 E-4
NORMALIZED PSD1
10^-6
10^-7
10^-8
10^-9
10^-10
10^-11
10^-12
0
3
6
9
12
15
18
21
24
FREQUENCY IN HERTZ

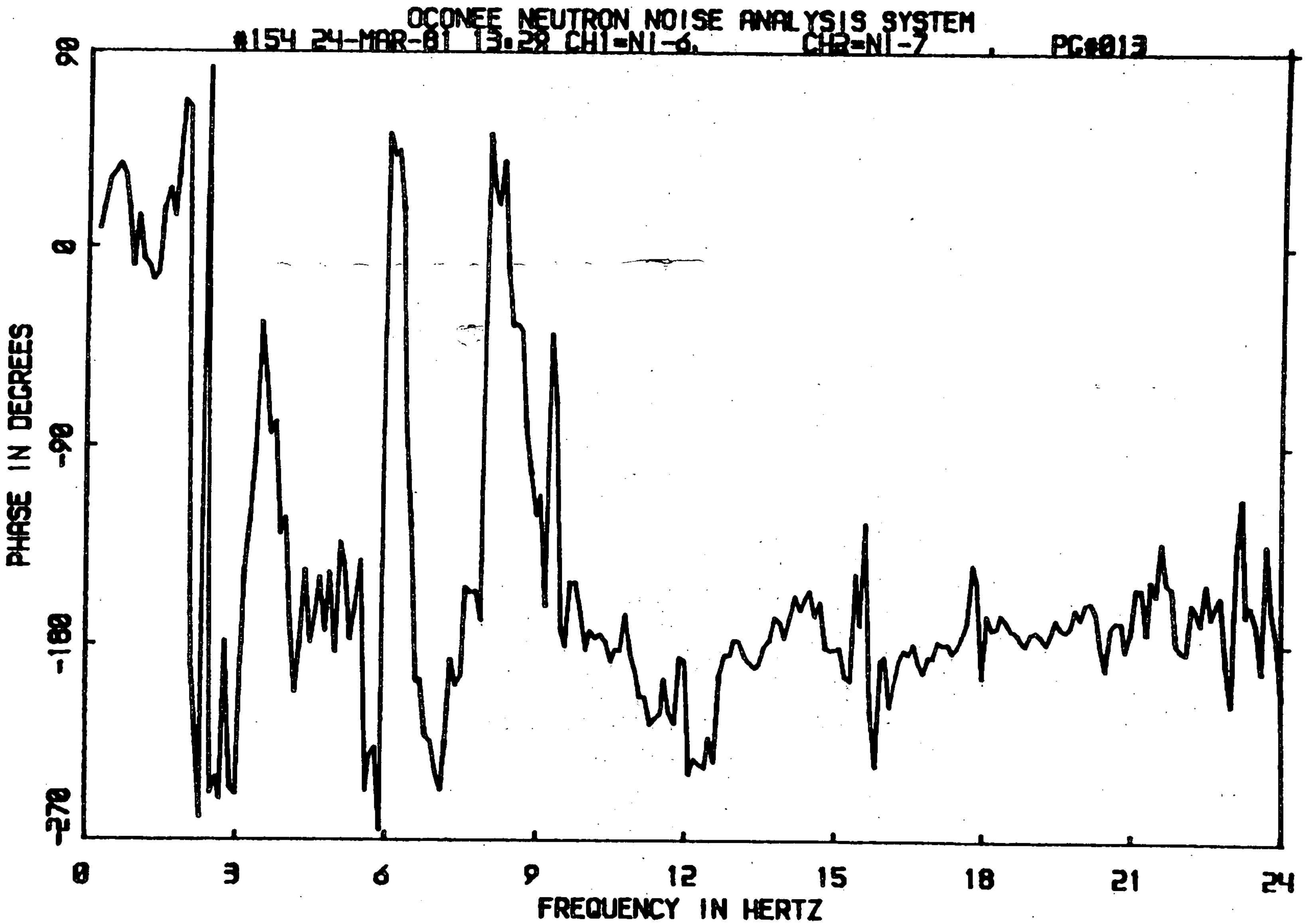


OCONEE NEUTRON NOISE ANALYSIS SYSTEM
#154 24-MAR-81 13:28 CH1=NI-6, CH2=NI-7
PG#013
RMS= 5.816 E-4
NORMALIZED PSD2
10^-6
10^-7
10^-8
10^-9
10^-10
10^-11
10^-12
0
3
6
9
12
15
18
21
24
FREQUENCY IN HERTZ

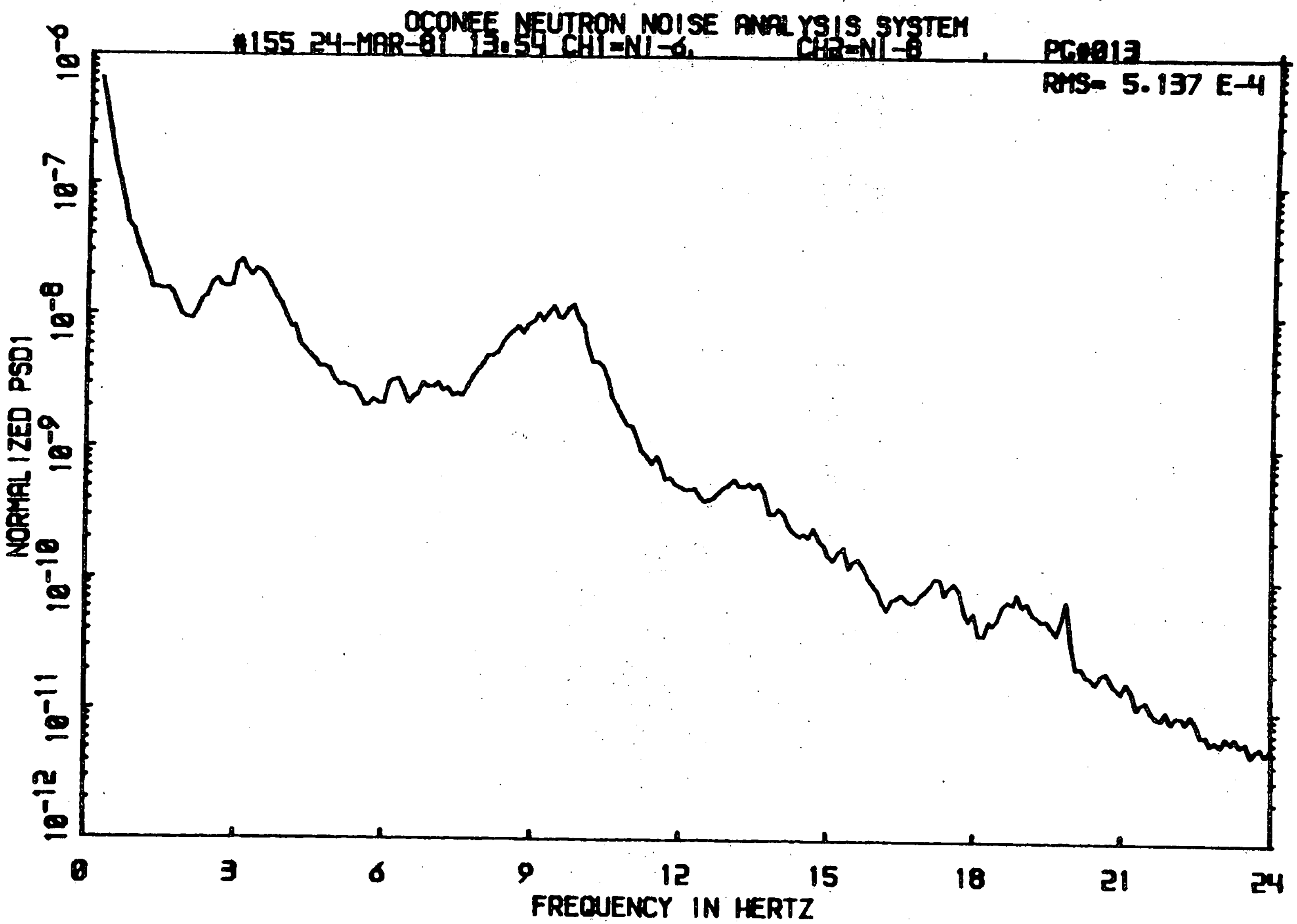

OCONEE NEUTRON NOISE ANALYSIS SYSTEM
#154 24-MAR-81 13:29 CH1=NI-6, CH2=NI-7
PC#013
RMS= 3.469 E-4
NORM CPSD MAGNITUDE
10^-13 10^-12 10^-11 10^-10 10^-9 10^-8 10^-7 10^-6
0 3 6 9 12 15 18 21 24
FREQUENCY IN HERTZ

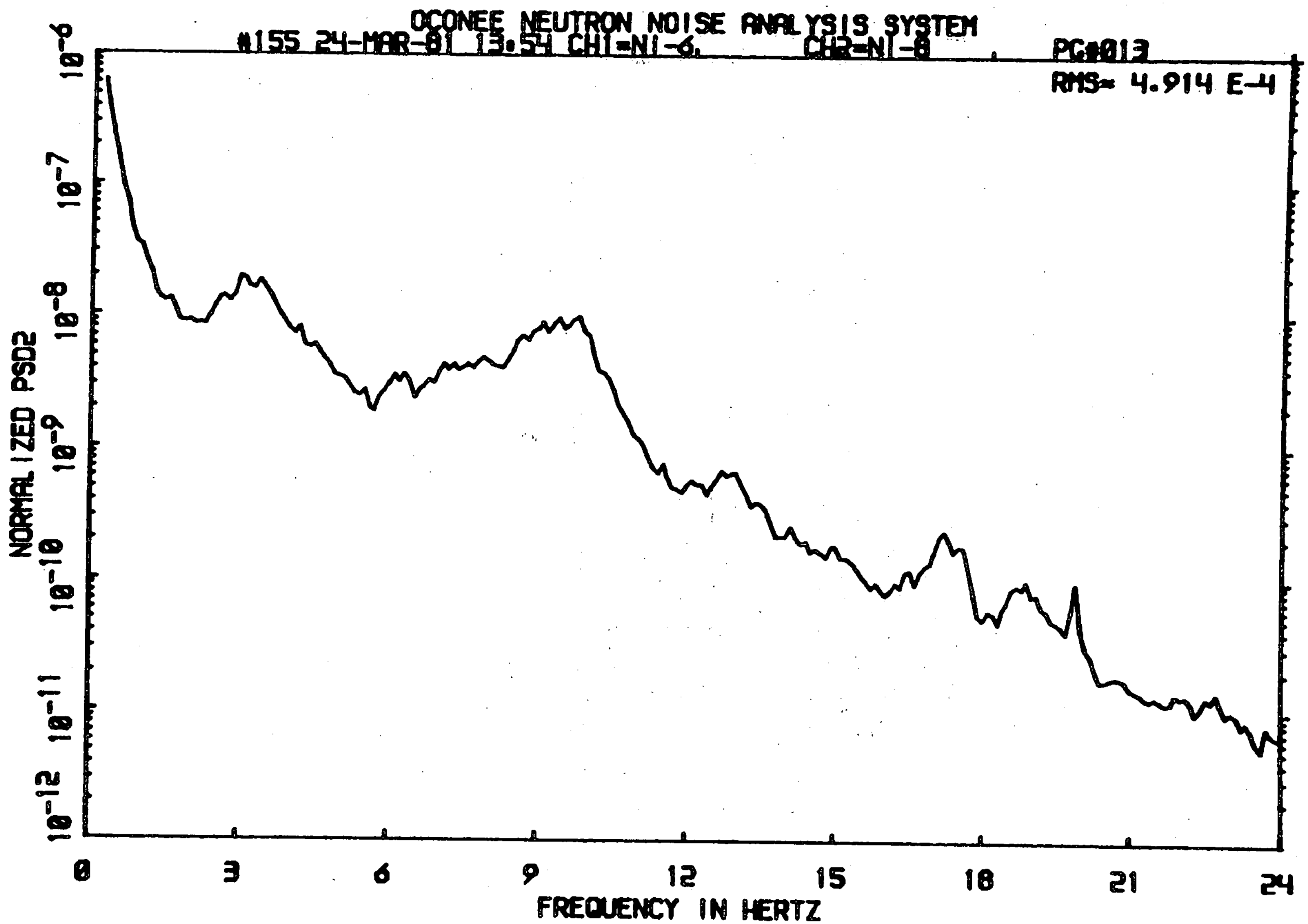


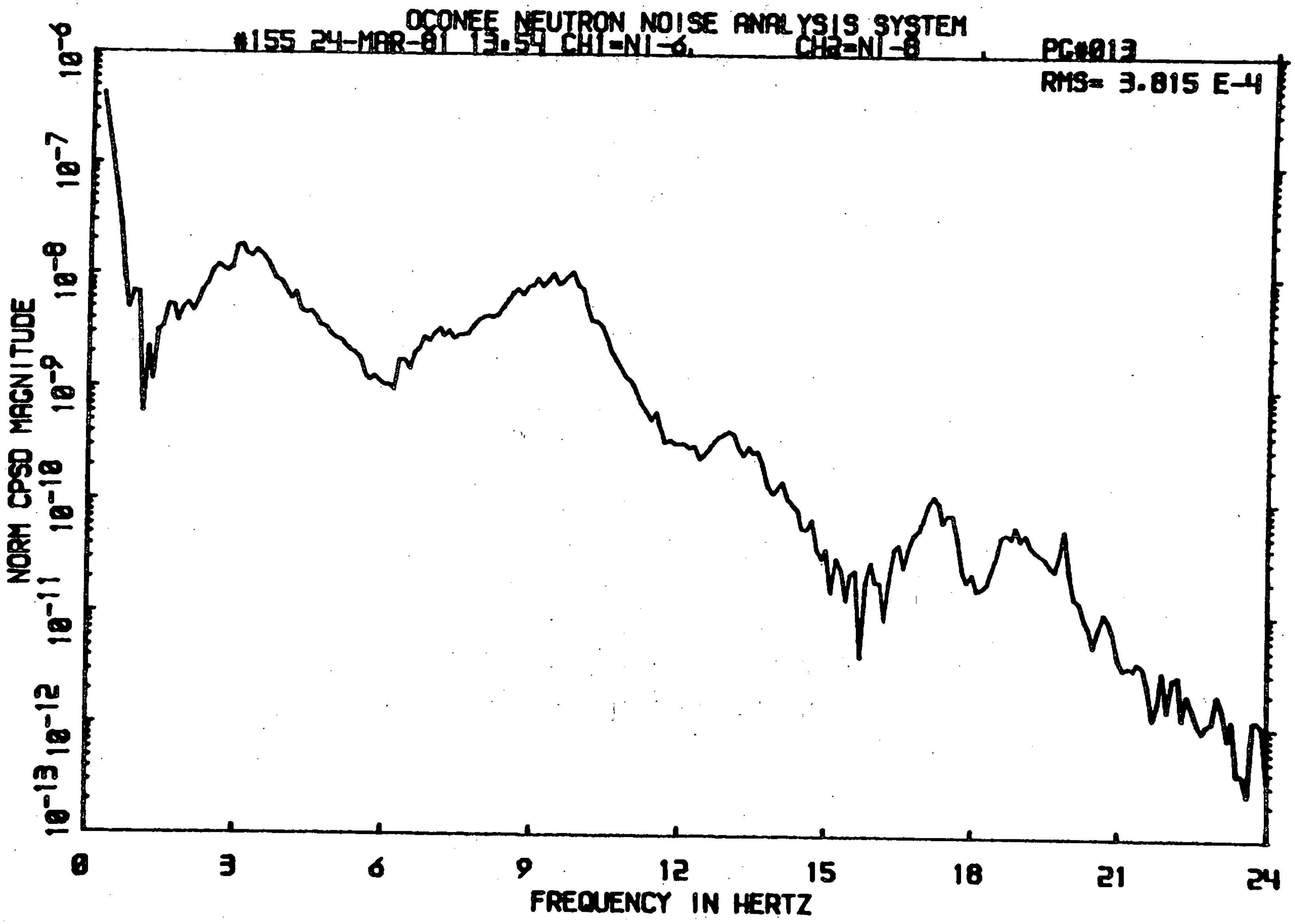
OCONEE NEUTRON NOISE ANALYSIS SYSTEM
#154 24-MAR-81 13:29 CH1=NI-6, CH2=NI-7 , PG#013
COHERENCE
0.0
0.2
0.4
0.6
0.8
1.0
0
3
6
9
12
15
18
21
24
FREQUENCY IN HERTZ

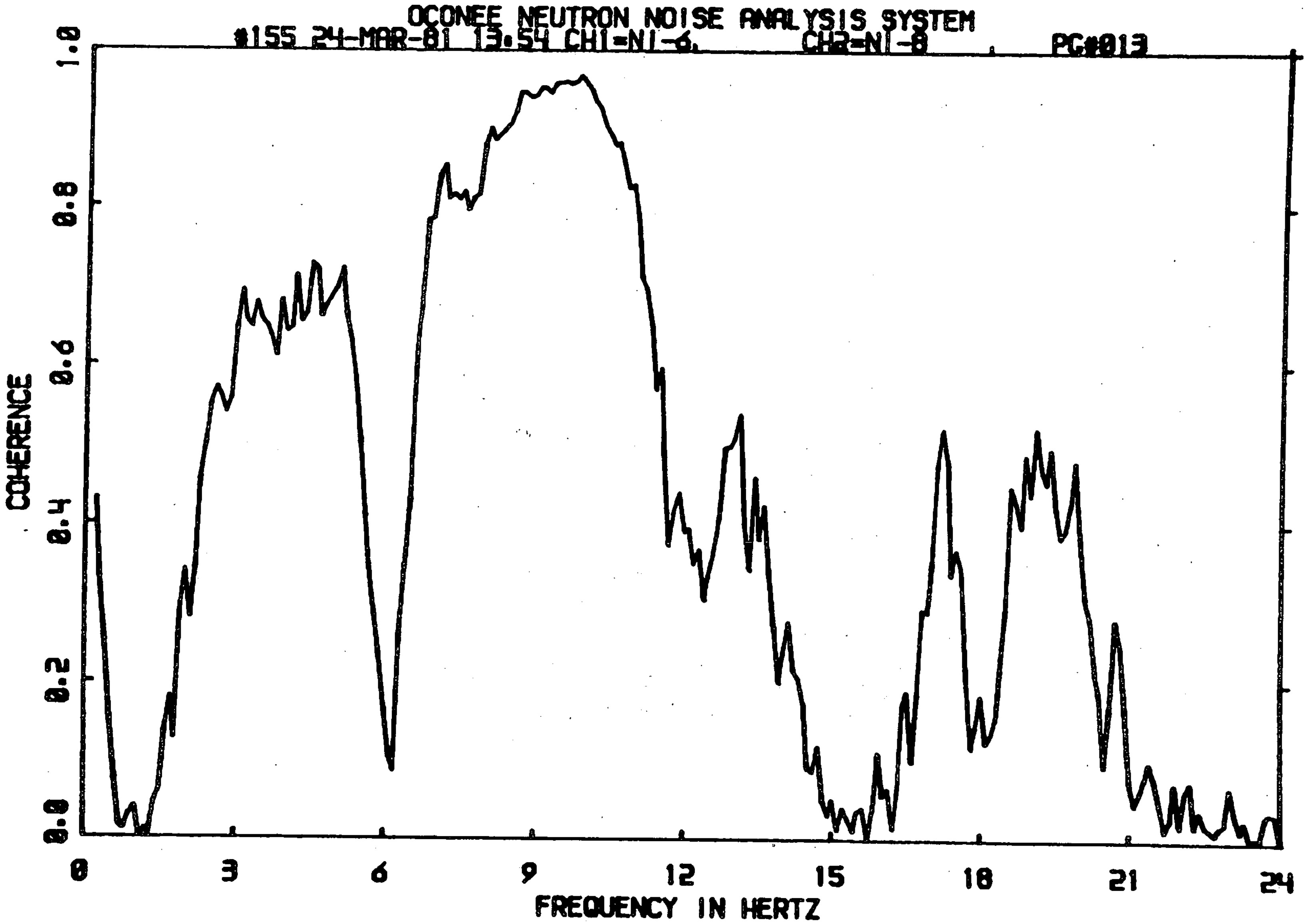


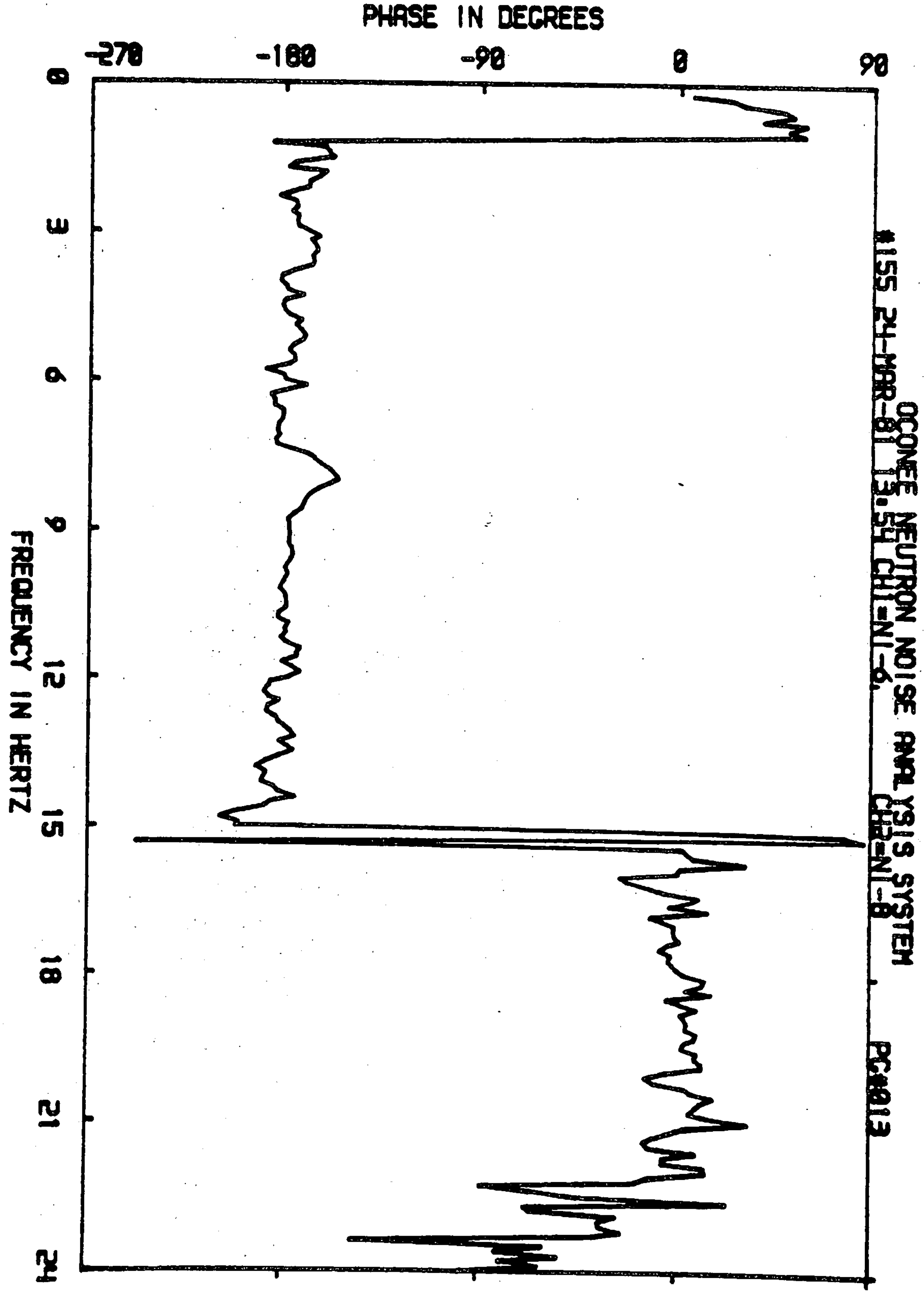
OCONEE NEUTRON NOISE ANALYSIS SYSTEM
#154 24-MAR-81 13:28 CH1=NI-6, CH2=NI-7 , PG#013
PHASE IN DEGREES
90
0
-90
-180
-270
0
3
6
9
12
15
18
21
24
FREQUENCY IN HERTZ

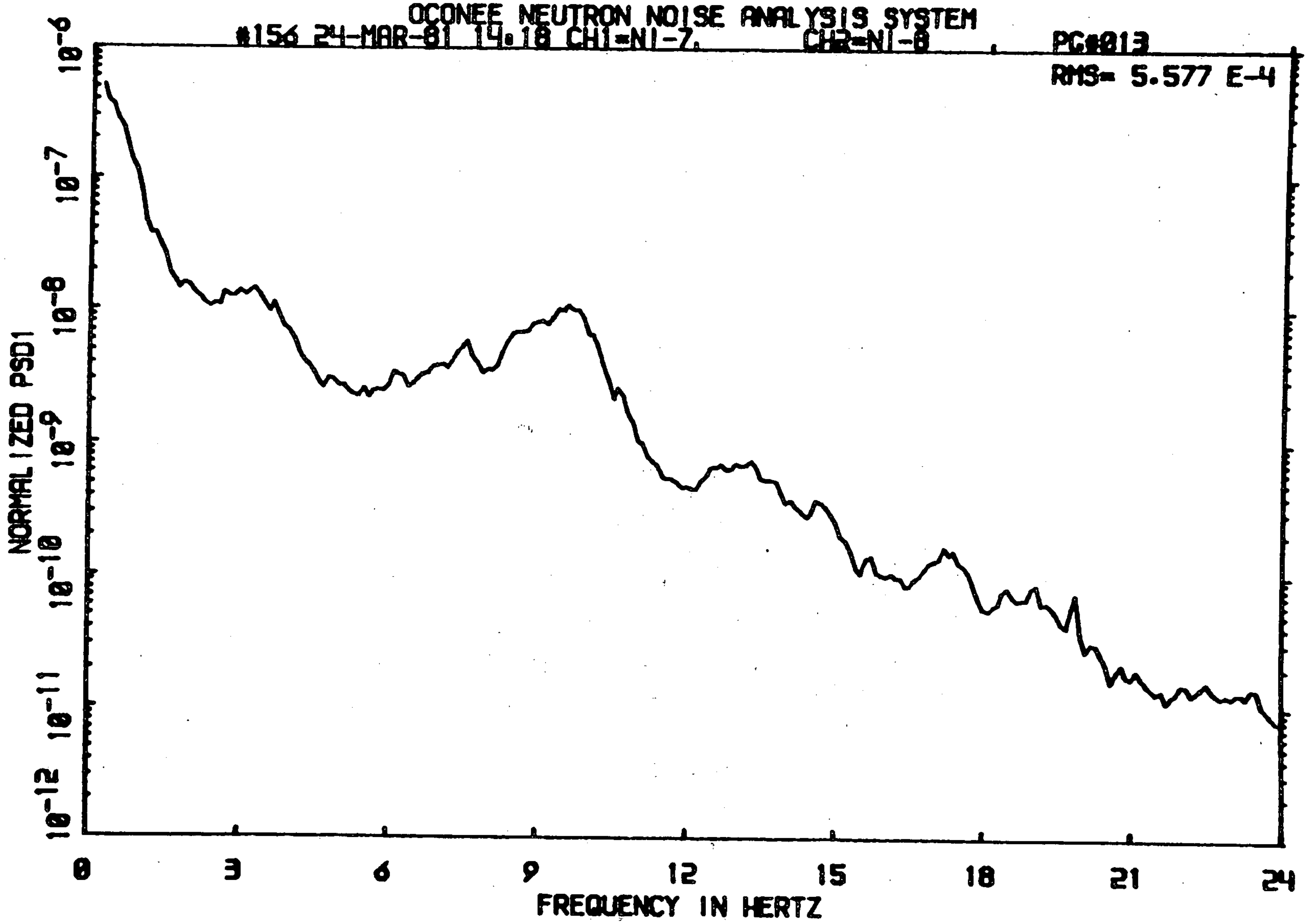

OCONEE NEUTRON NOISE ANALYSIS SYSTEM
#155 24-MAR-81 13:54 CH1=NI-6, CH2=NI-8 , PG#013
RMS= 5.137 E-4
NORMALIZED PSD1
10^-6
10^-7
10^-8
10^-9
10^-10
10^-11
10^-12
0
3
6
9
12
15
18
21
24
FREQUENCY IN HERTZ

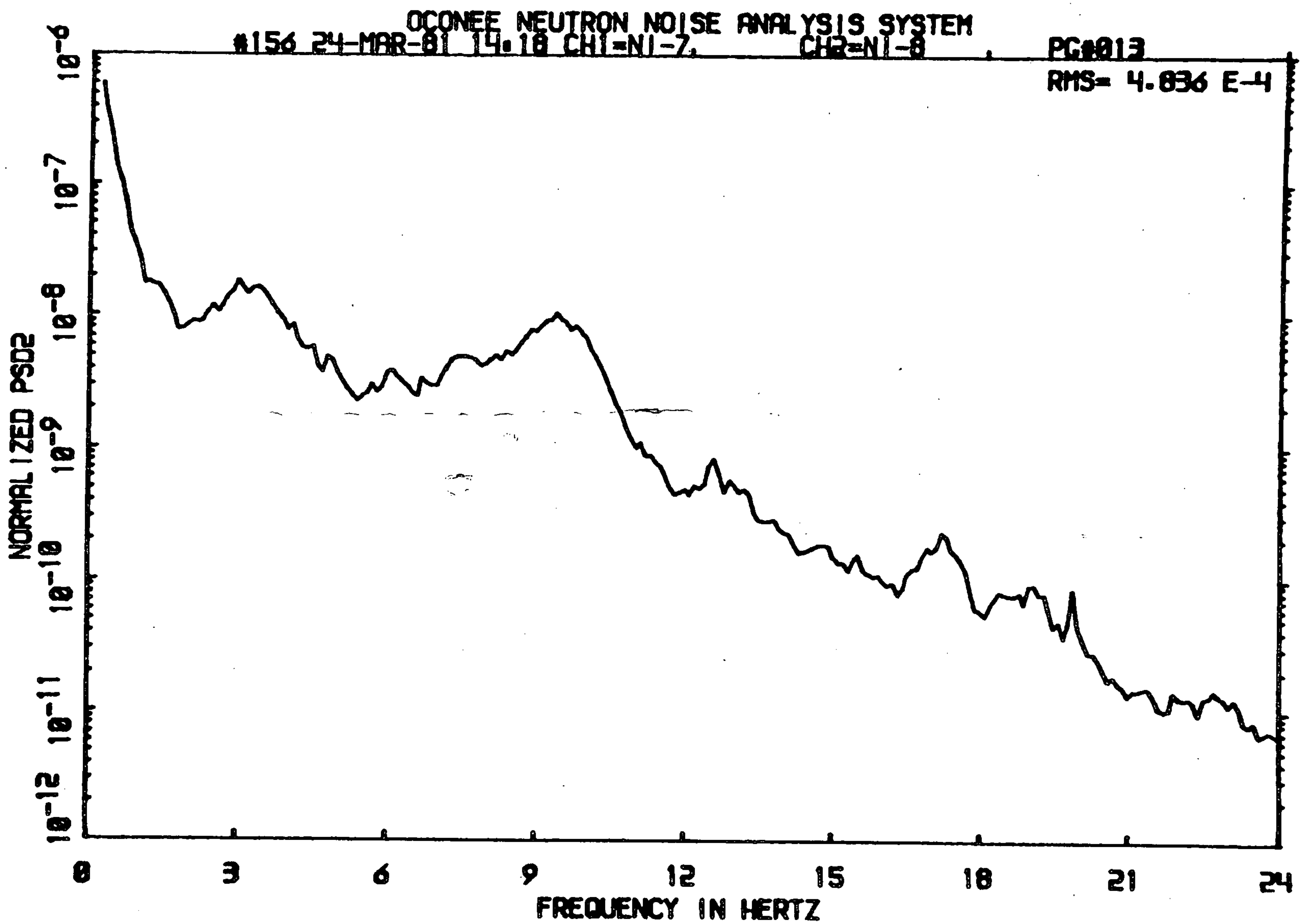

OCONEE NEUTRON NOISE ANALYSIS SYSTEM
#155 24-MAR-81 13:54 CH1=NI-6, CH2=NI-8
PG#013
RMS= 4.914 E-4
NORMALIZED PSD2
10^-12
10^-11
10^-10
10^-9
10^-8
10^-7
10^-6
0
3
6
9
12
15
18
21
24
FREQUENCY IN HERTZ

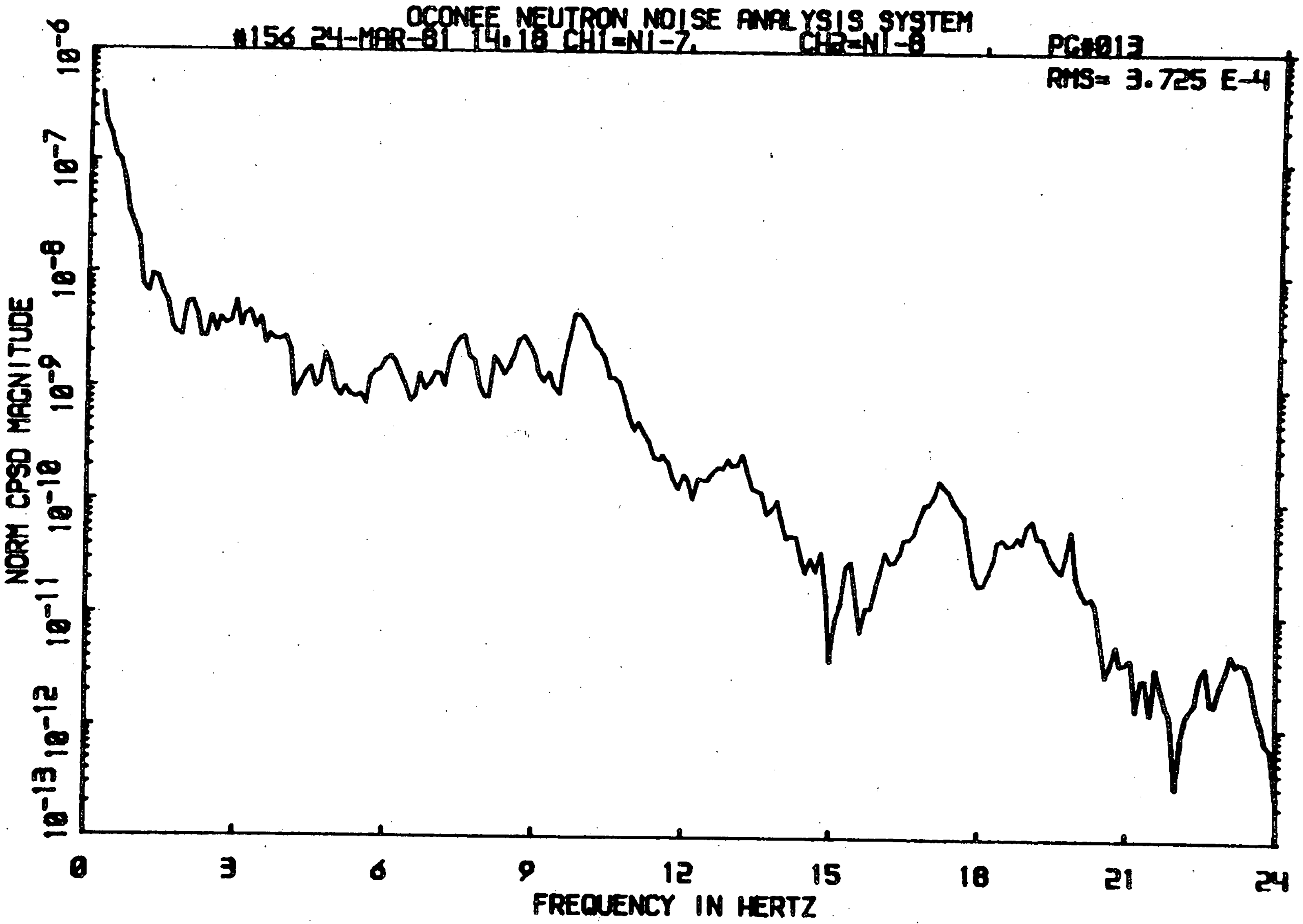

OCONEE NEUTRON NOISE ANALYSIS SYSTEM
#155 24-MAR-81 13:54 CH1=NI-6, CH2=NI-8
PG#013
RMS= 3.815 E-4
NORM CPSD MAGNITUDE
10^-6
10^-7
10^-8
10^-9
10^-10
10^-11
10^-12
10^-13
0
3
6
9
12
15
18
21
24
FREQUENCY IN HERTZ

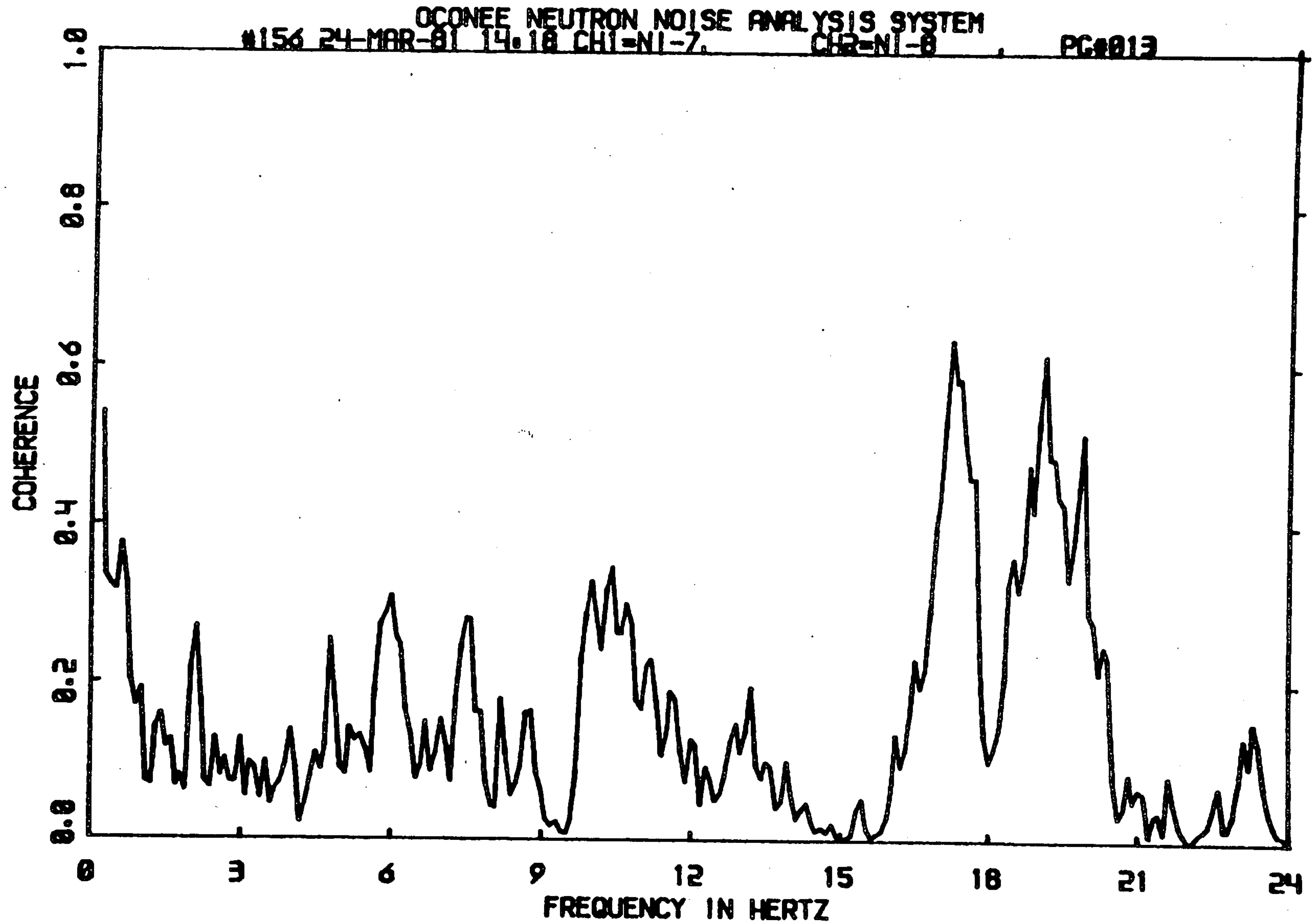

OCONEE NEUTRON NOISE ANALYSIS SYSTEM
#155 24-MAR-81 13:54 CH1=NI-6, CH2=NI-8 PG#013
COHERENCE
0.0
0.2
0.4
0.6
0.8
1.0
0
3
6
9
12
15
18
21
24
FREQUENCY IN HERTZ

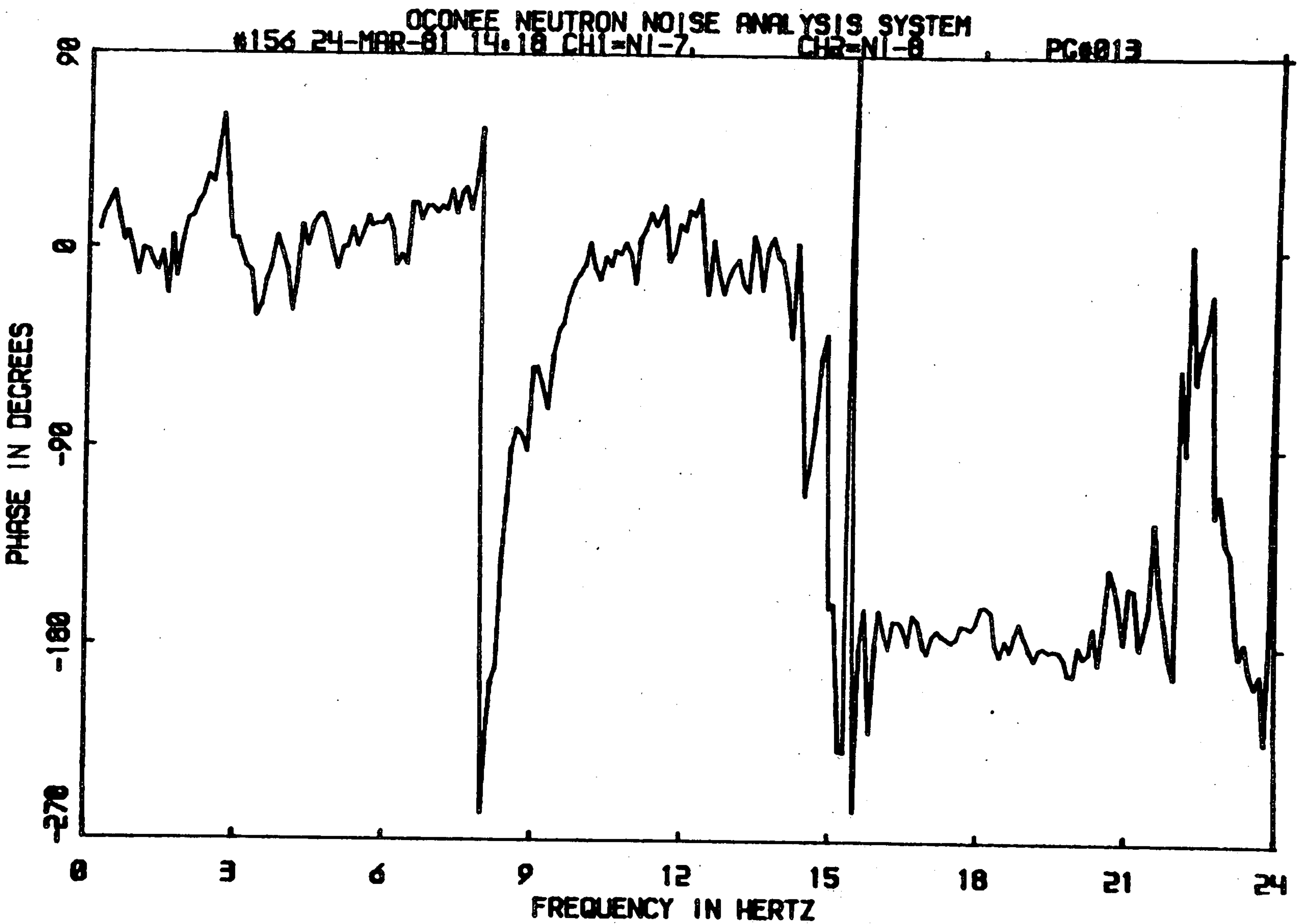

OCONEE NEUTRON NOISE ANALYSIS SYSTEM
#155 24-MAR-81 13.54 CH1=NI-6, CH2=NI-8
PC#0013
PHASE IN DEGREES
-270
-180
-90
0
90
FREQUENCY IN HERTZ
0
3
6
9
12
15
18
21
24


OCONEE NEUTRON NOISE ANALYSIS SYSTEM
#156 24-MAR-81 14.18 CH1=NI-7, CH2=NI-8 , PG#013
RMS= 5.577 E-4
NORMALIZED PSD1
10^-6
10^-7
10^-8
10^-9
10^-10
10^-11
10^-12
0
3
6
9
12
15
18
21
24
FREQUENCY IN HERTZ


OCONEE NEUTRON NOISE ANALYSIS SYSTEM
#156 24-MAR-81 14.18 CH1=NI-7, CH2=NI-8 , PG#013
RMS= 4.836 E-4
NORMALIZED PSD2
10^-12 10^-11 10^-10 10^-9 10^-8 10^-7 10^-6
0 3 6 9 12 15 18 21 24
FREQUENCY IN HERTZ


OCONEE NEUTRON NOISE ANALYSIS SYSTEM
#156 24-MAR-81 14:18 CH1=NI-7, CH2=NI-8
PG#013
RMS= 3.725 E-4
NORM CPSD MAGNITUDE
10^-6
10^-7
10^-8
10^-9
10^-10
10^-11
10^-12
10^-13
0
3
6
9
12
15
18
21
24
FREQUENCY IN HERTZ


OCONEE NEUTRON NOISE ANALYSIS SYSTEM
#156 24-MAR-81 14.18 CH1=NI-7, CH2=NI-8 , PG#013
COHERENCE
0.0
0.2
0.4
0.6
0.8
1.0
0
3
6
9
12
15
18
21
24
FREQUENCY IN HERTZ



OCONEE NEUTRON NOISE ANALYSIS SYSTEM
#156 24-MAR-81 14:18 CH1=NI-7, CH2=NI-8 , PG#013
PHASE IN DEGREES
90
0
-90
-180
-270
0
3
6
9
12
15
18
21
24
FREQUENCY IN HERTZ

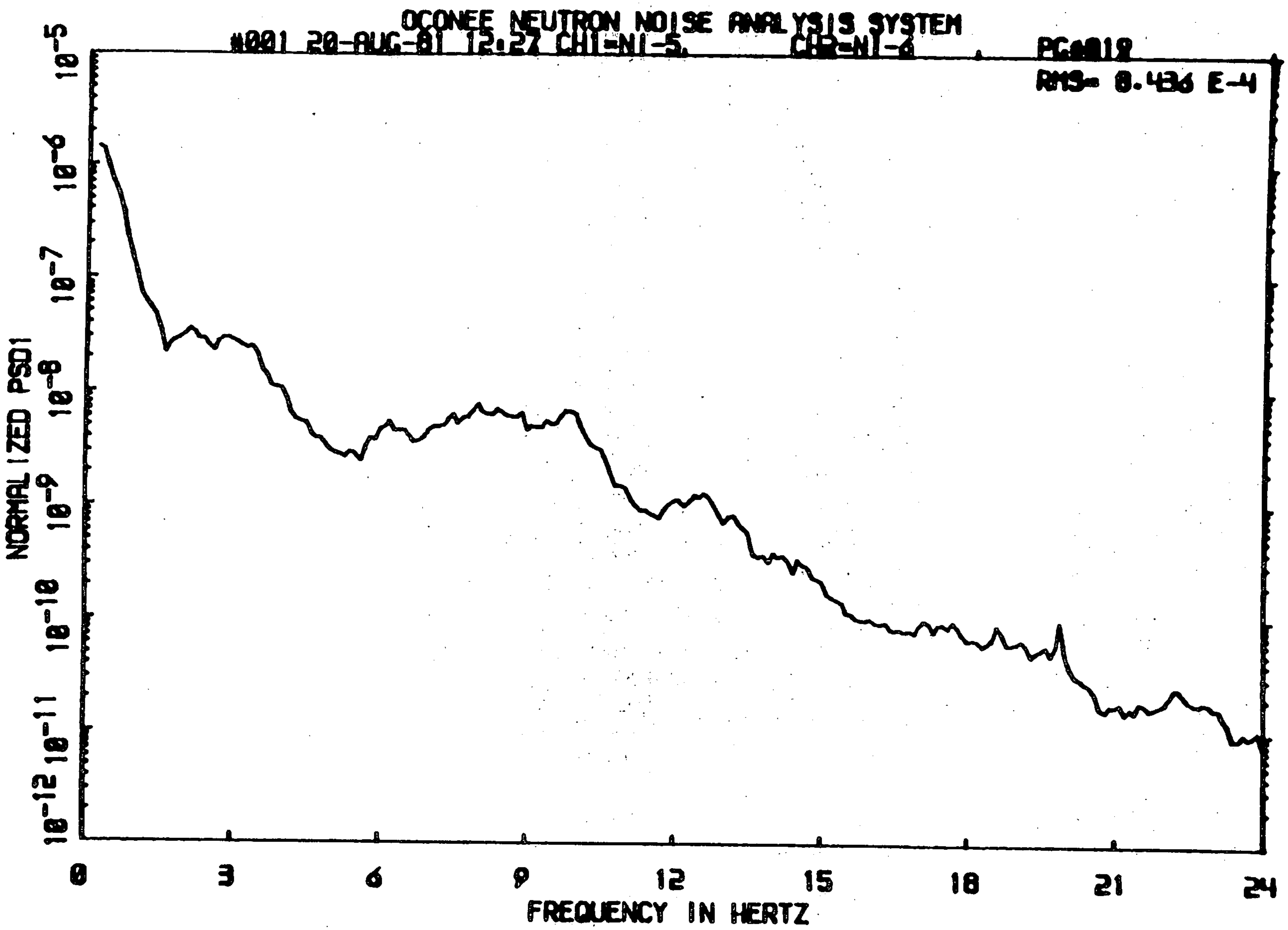
CONTENTS

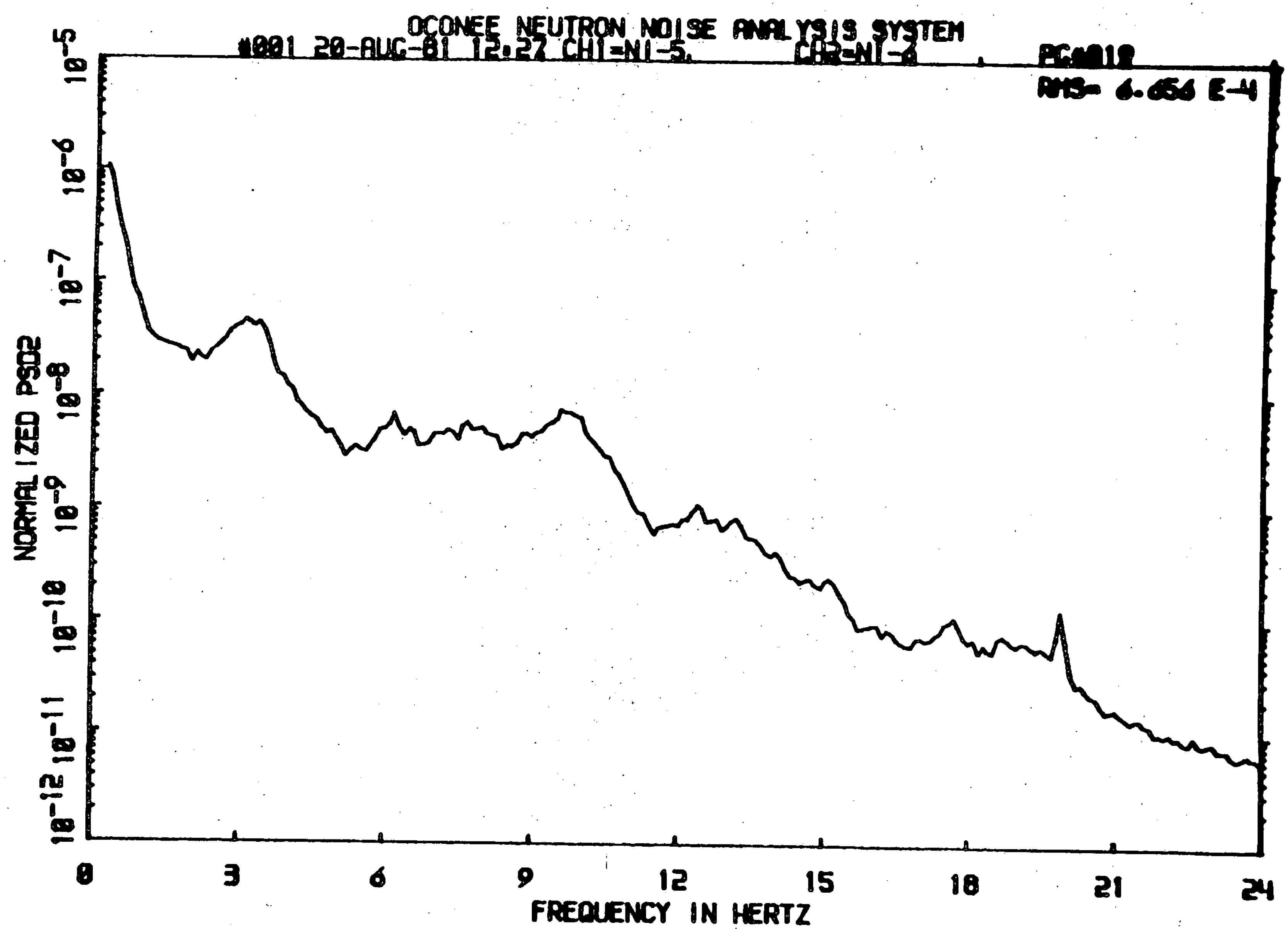
Neutron Noise Data for MOC 6 (≈150 EFPD)
Unit 3, taken August 20, 1981

Test #	Detector pairs *
001	NI5 x NI6
002	NI5 x NI7
003	NI5 x NI8
004	NI6 x NI7
005	NI6 x NI8
006	NI7 x NI8

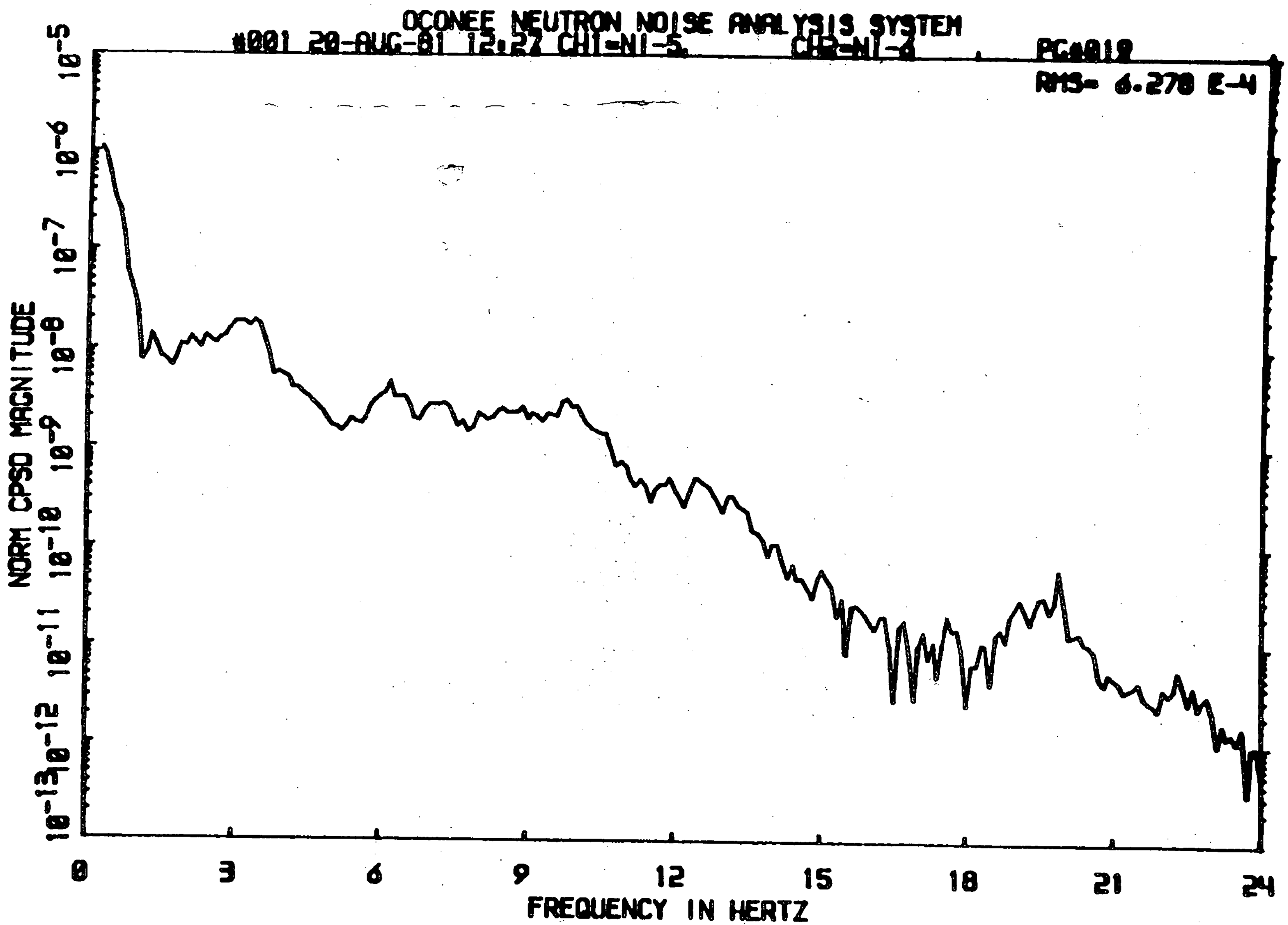
* summed from upper & lower chambers

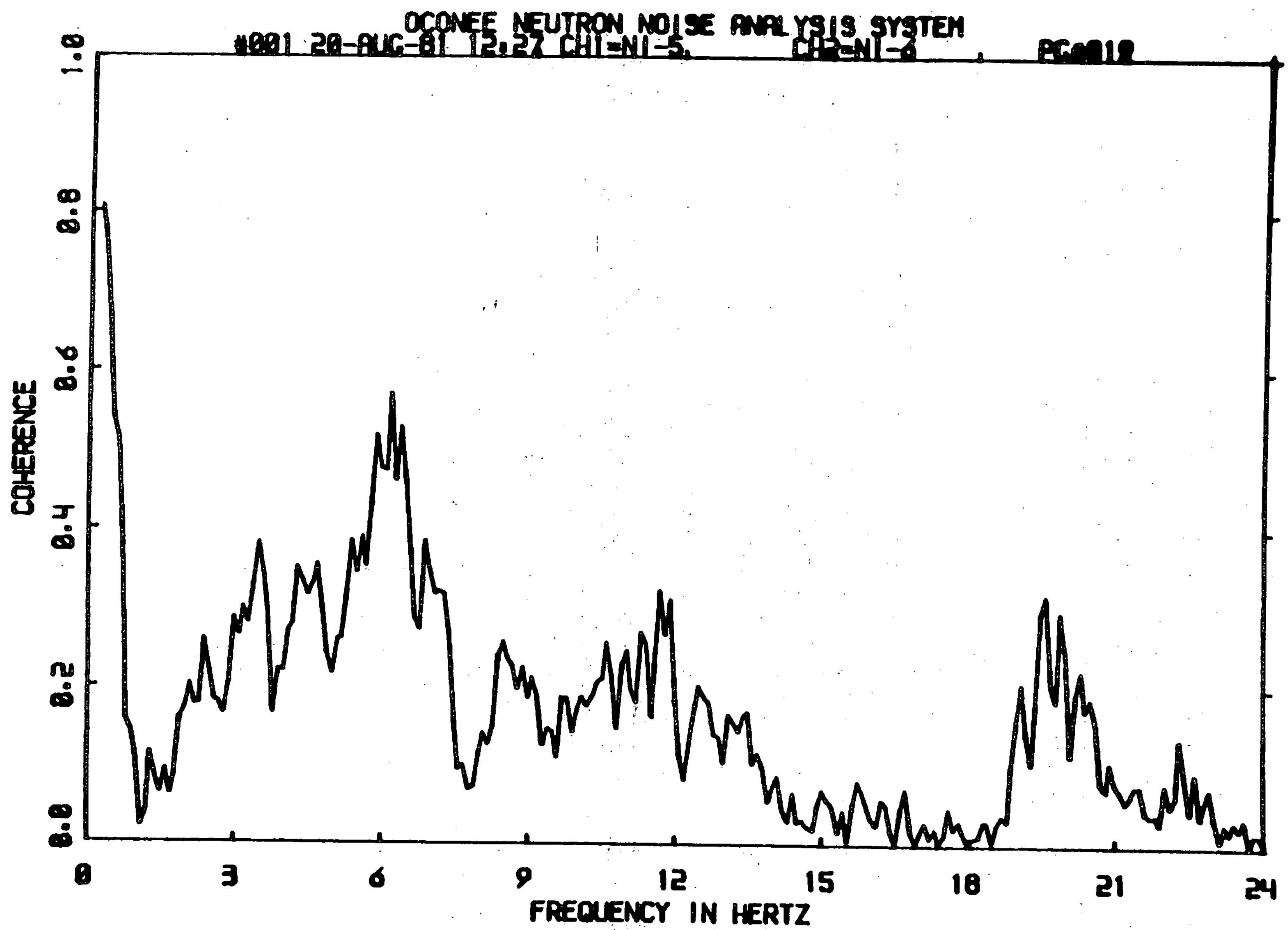
03C6 MOC ≈ 150 EFPD

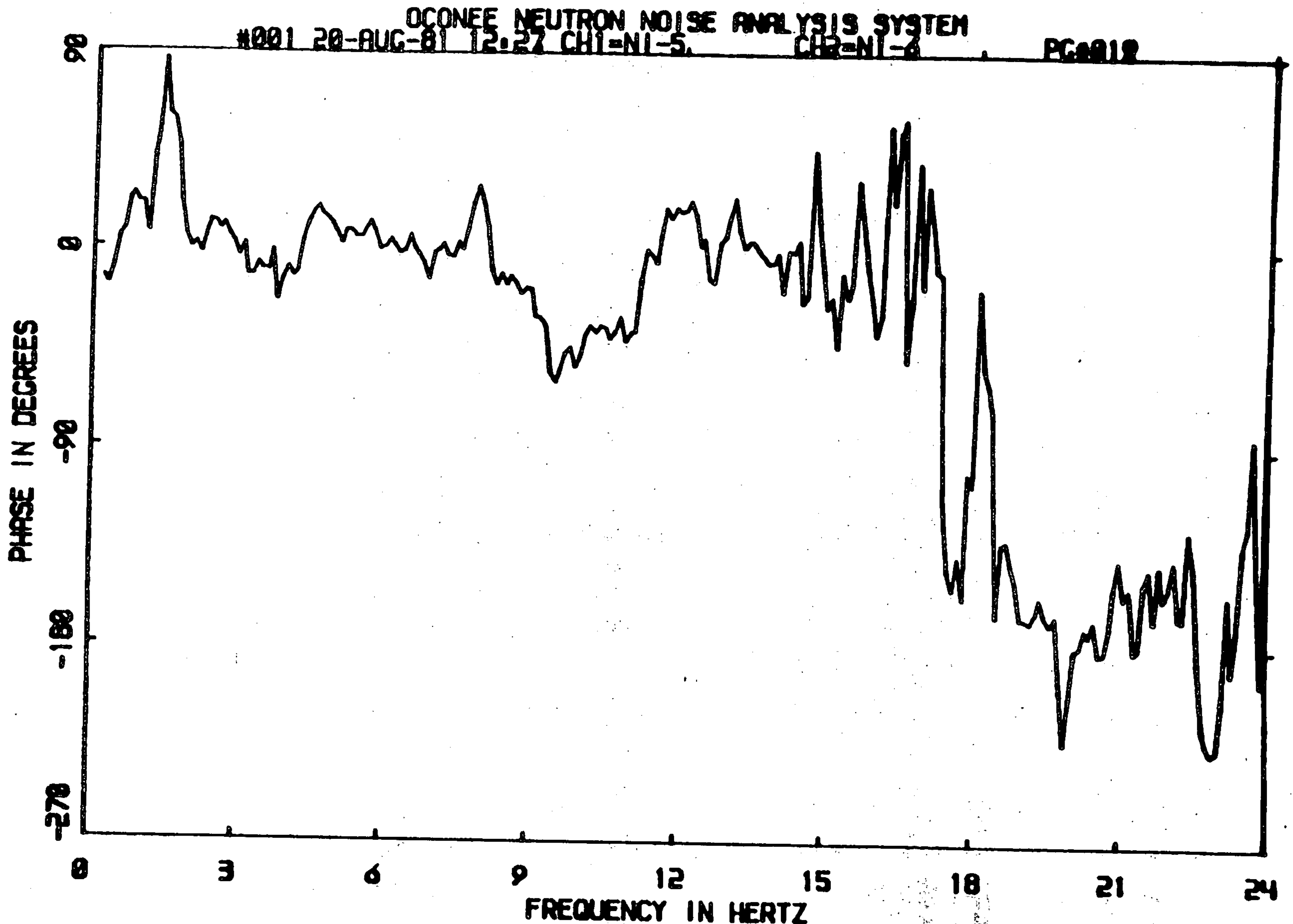




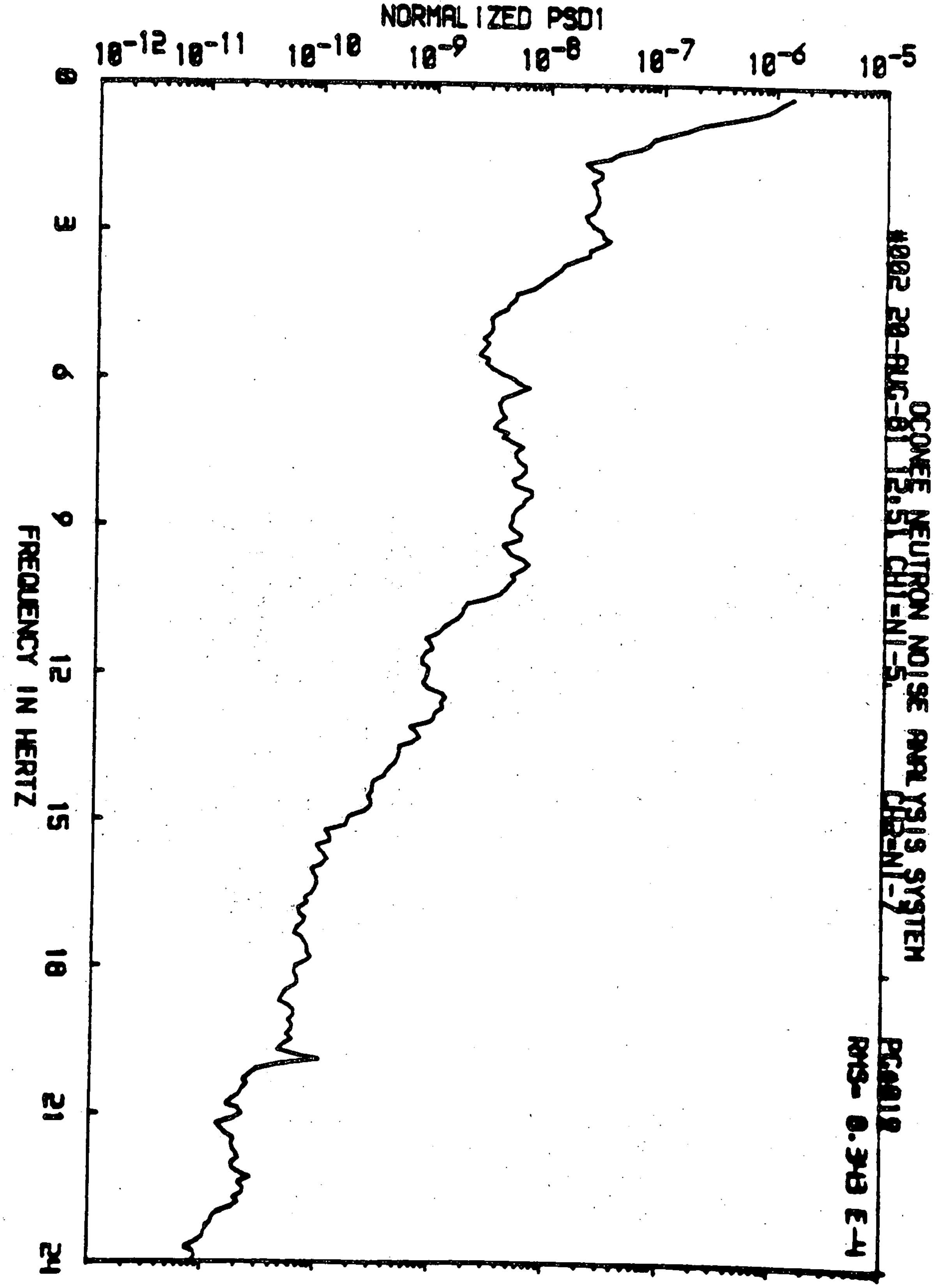
OCONEE NEUTRON NOISE ANALYSIS SYSTEM
#001 20-AUG-81 12.27 CH1=NI-5, CH2=NI-6
PG#010
RMS= 6.656 E-4
NORMALIZED PSD2
10^-12
10^-11
10^-10
10^-9
10^-8
10^-7
10^-6
10^-5
0
3
6
9
12
15
18
21
24
FREQUENCY IN HERTZ


OCONEE NEUTRON NOISE ANALYSIS SYSTEM
#001 20-AUG-81 12:27 CH1=NI-5, CH2=NI-6
PG#010
RMS= 6.270 E-4
NORM CPSD MAGNITUDE
10^-5 10^-6 10^-7 10^-8 10^-9 10^-10 10^-11 10^-12 10^-13
0 3 6 9 12 15 18 21 24
FREQUENCY IN HERTZ

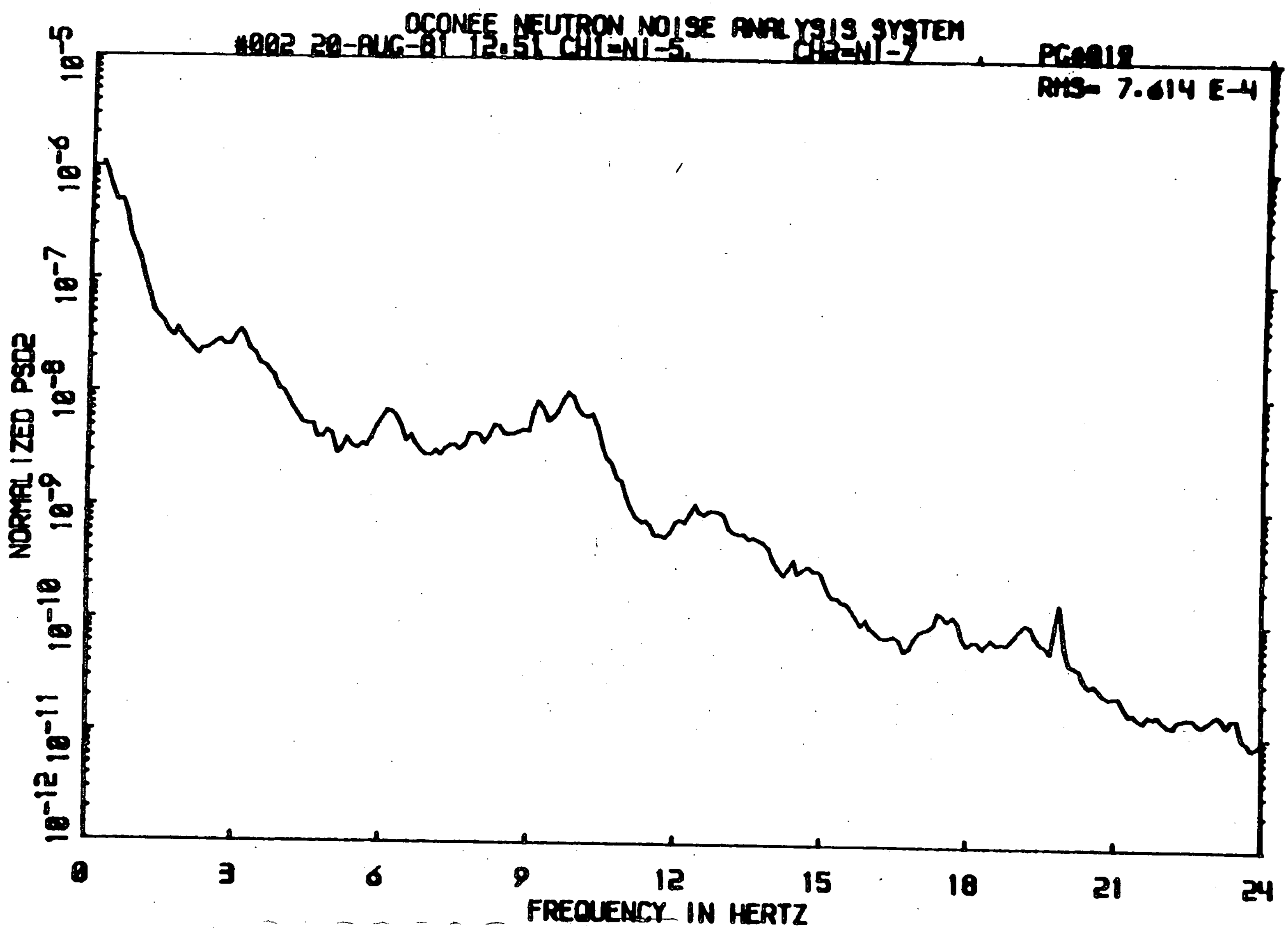

OCONEE NEUTRON NOISE ANALYSIS SYSTEM
#001 20-AUG-81 12.27 CH1=NI-5. CH2=NI-6 PG#010
COHERENCE
0.0
0.2
0.4
0.6
0.8
1.0
0
3
6
9
12
15
18
21
24
FREQUENCY IN HERTZ

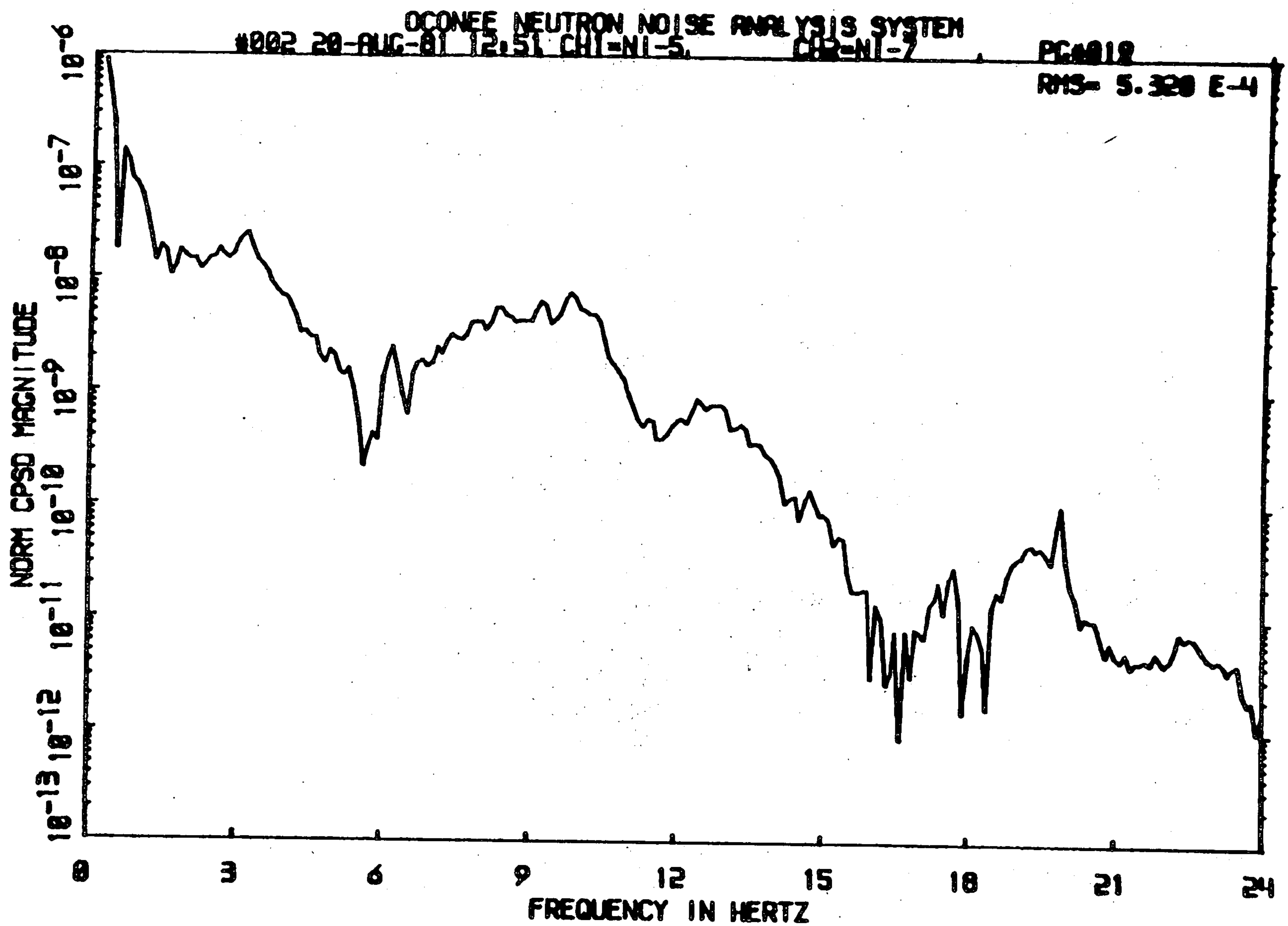


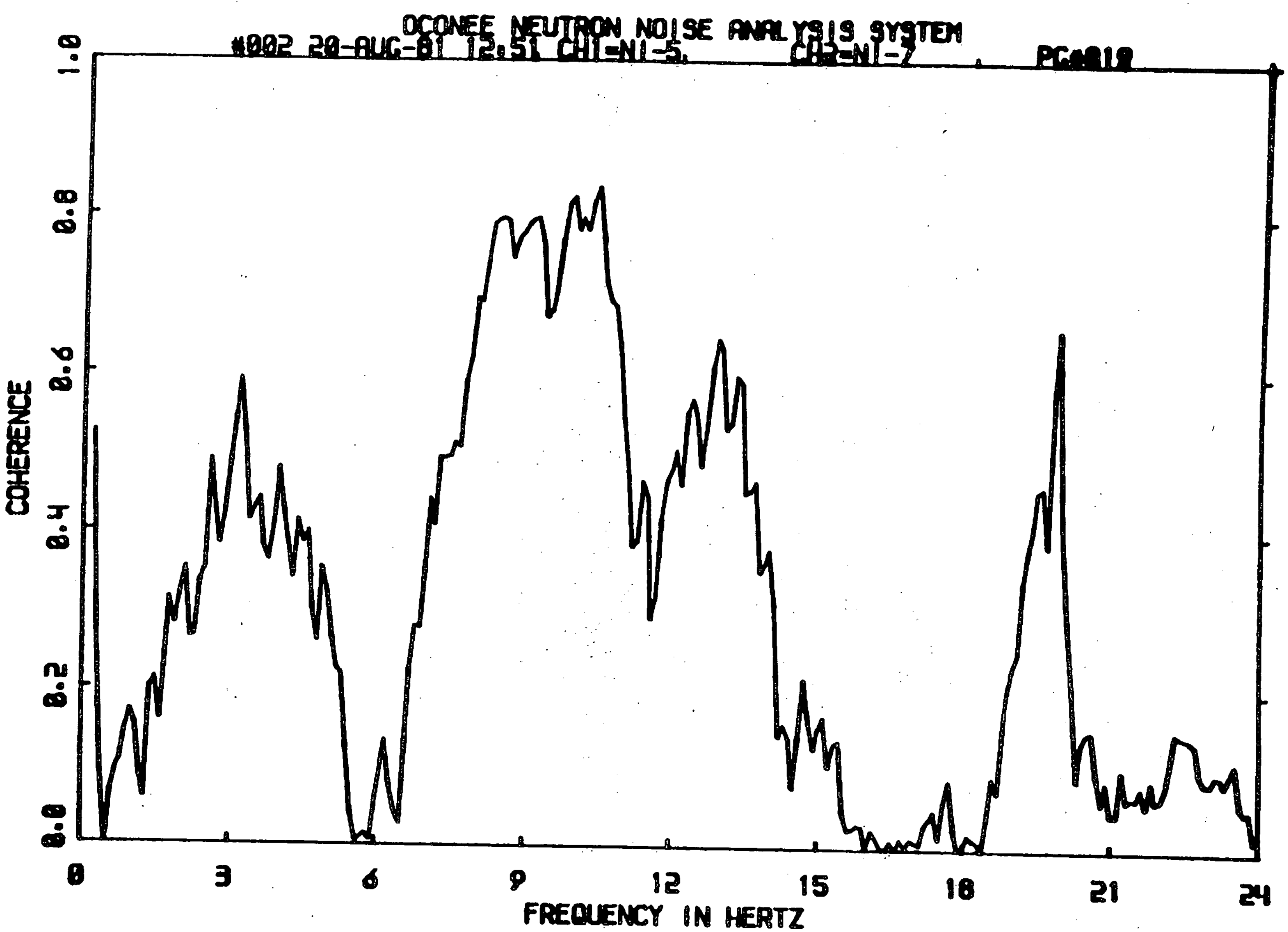
OCONEE NEUTRON NOISE ANALYSIS SYSTEM
#001 20-AUG-81 12.27 CH1=NI-5. CH2=NI-6 PG#010
PHASE IN DEGREES
90
0
-90
-180
-270
FREQUENCY IN HERTZ
0
3
6
9
12
15
18
21
24

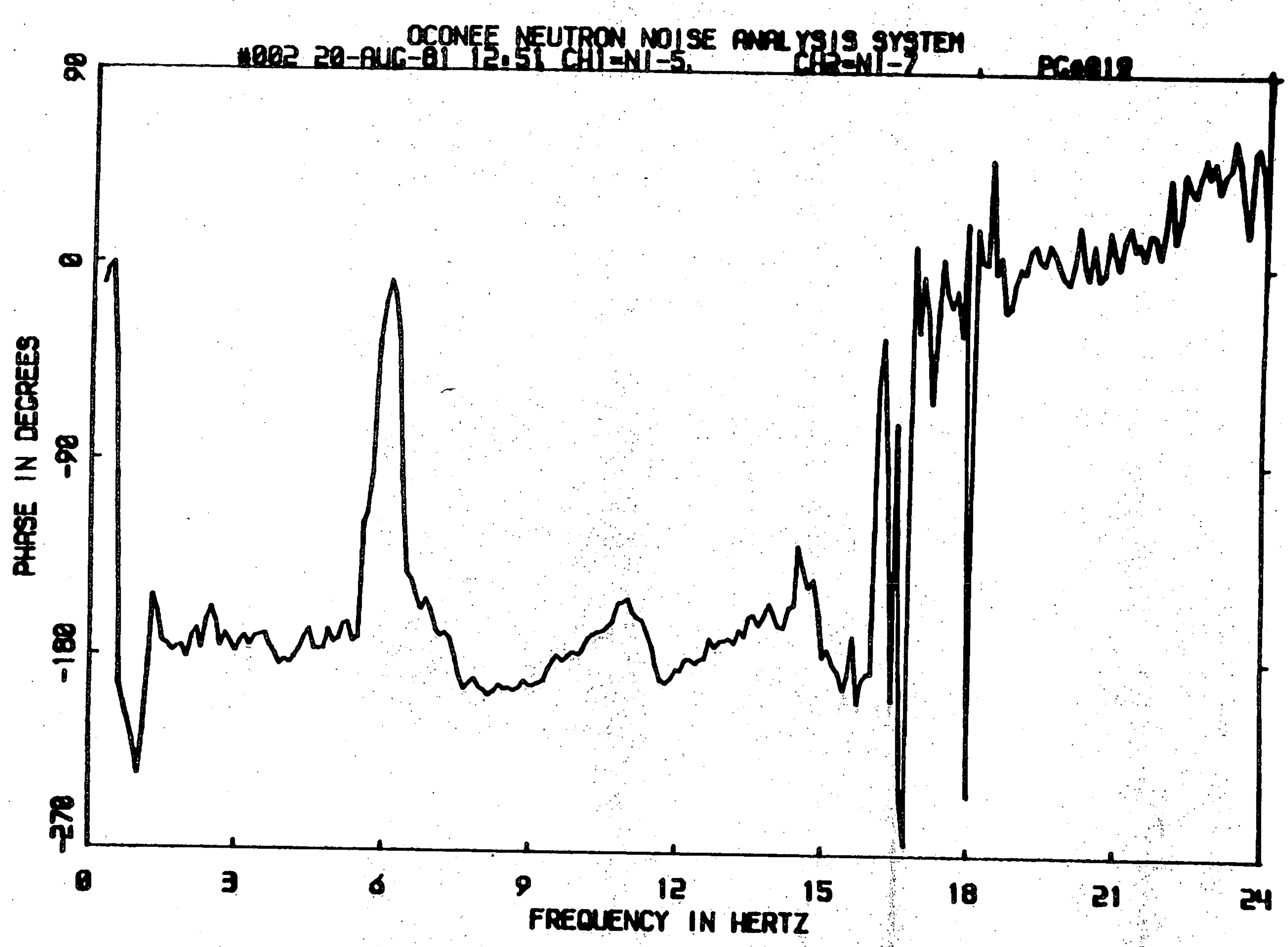


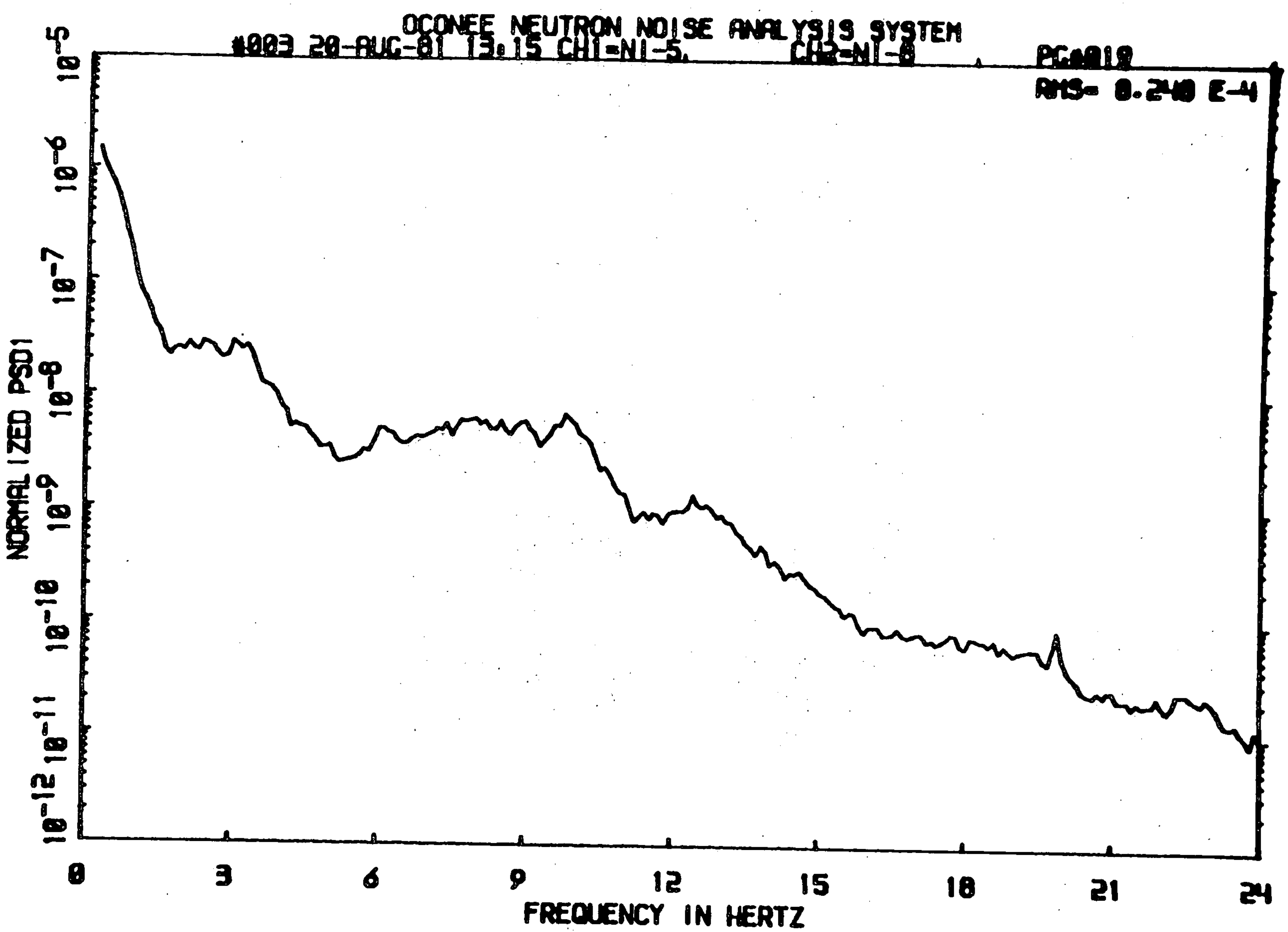
OCONEE NEUTRON NOISE ANALYSIS SYSTEM
#002 20-AUG-81 12.51 CH1=NI-5, CH2=NI-7
PG0012
RMS= 0.343 E-4
NORMALIZED PSD1
10^-12 10^-11 10^-10 10^-9 10^-8 10^-7 10^-6 10^-5
0 3 6 9 12 15 18 21 24
FREQUENCY IN HERTZ

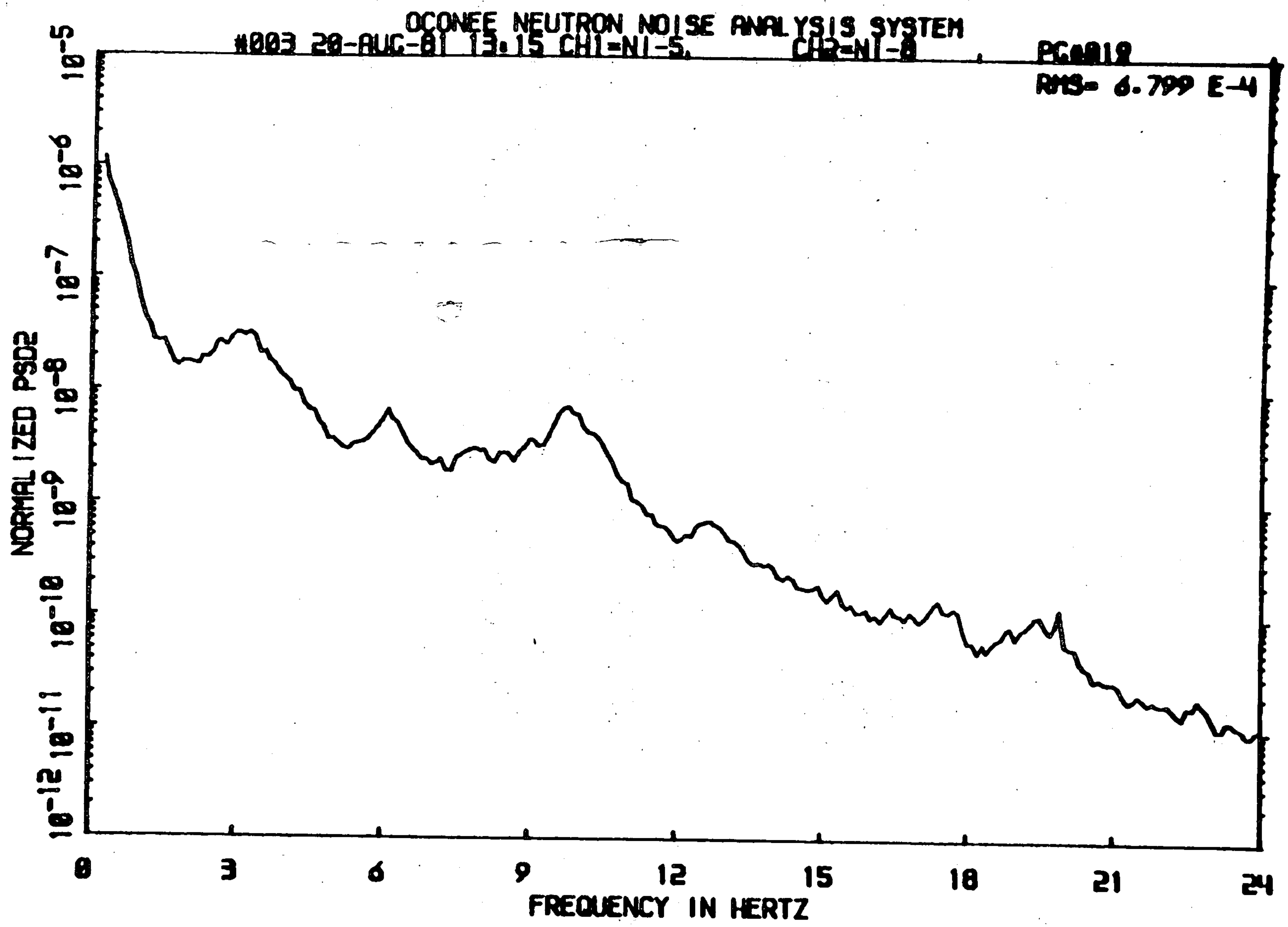

OCONEE NEUTRON NOISE ANALYSIS SYSTEM
#002 20-AUG-81 12.51 CH1=NI-5, CH2=NI-7
PG0010
RMS= 7.614 E-4
NORMALIZED PSD2
10^-12
10^-11
10^-10
10^-9
10^-8
10^-7
10^-6
10^-5
0
3
6
9
12
15
18
21
24
FREQUENCY IN HERTZ

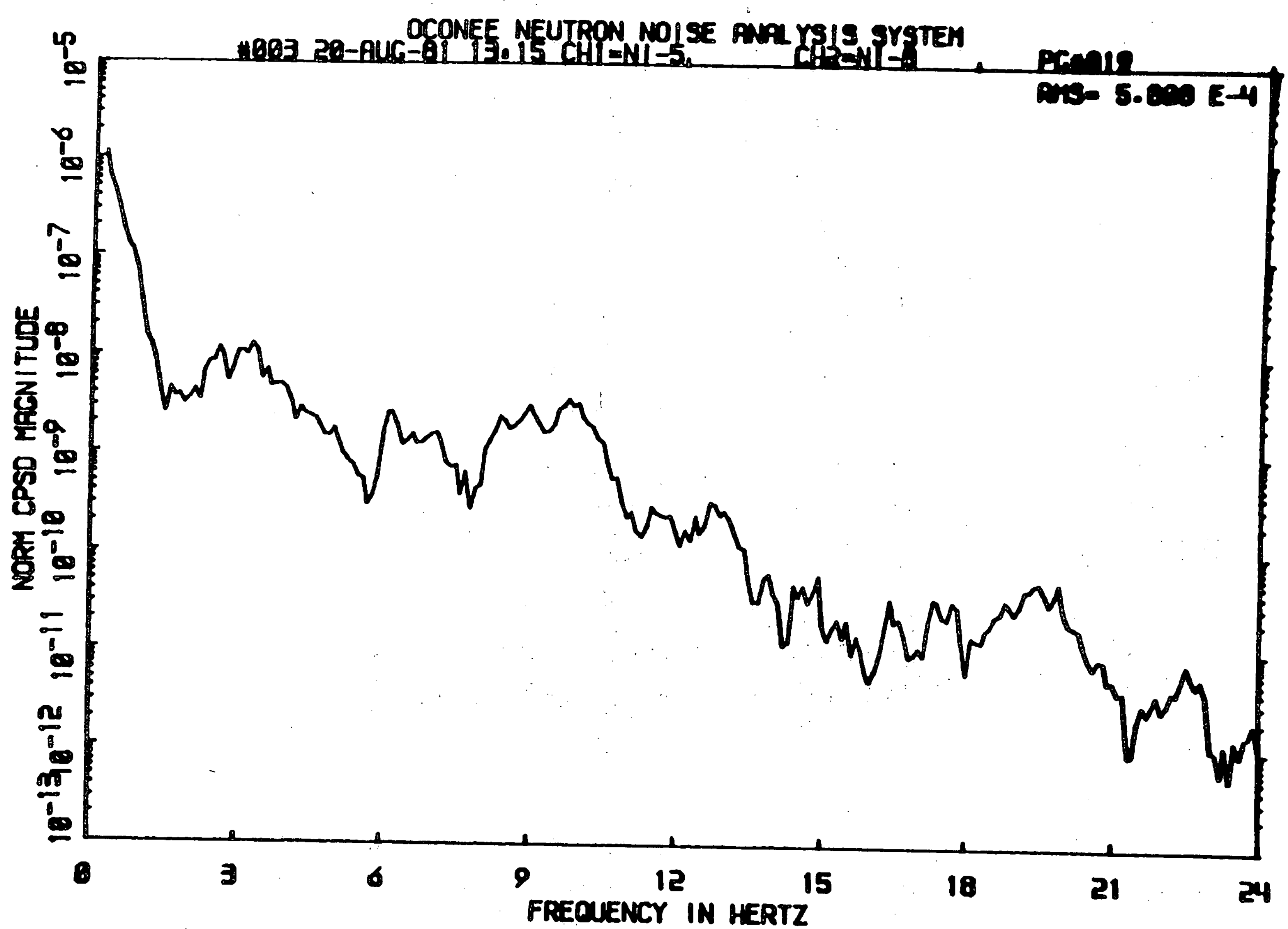

OCONEE NEUTRON NOISE ANALYSIS SYSTEM
#002 20-AUG-81 12:51 CH1=NI-5, CH2=NI-7
PG#018
RMS= 5.320 E-4
NORM CPSD MAGNITUDE
10⁻⁶
10⁻⁷
10⁻⁸
10⁻⁹
10⁻¹⁰
10⁻¹¹
10⁻¹²
10⁻¹³
0
3
6
9
12
15
18
21
24
FREQUENCY IN HERTZ

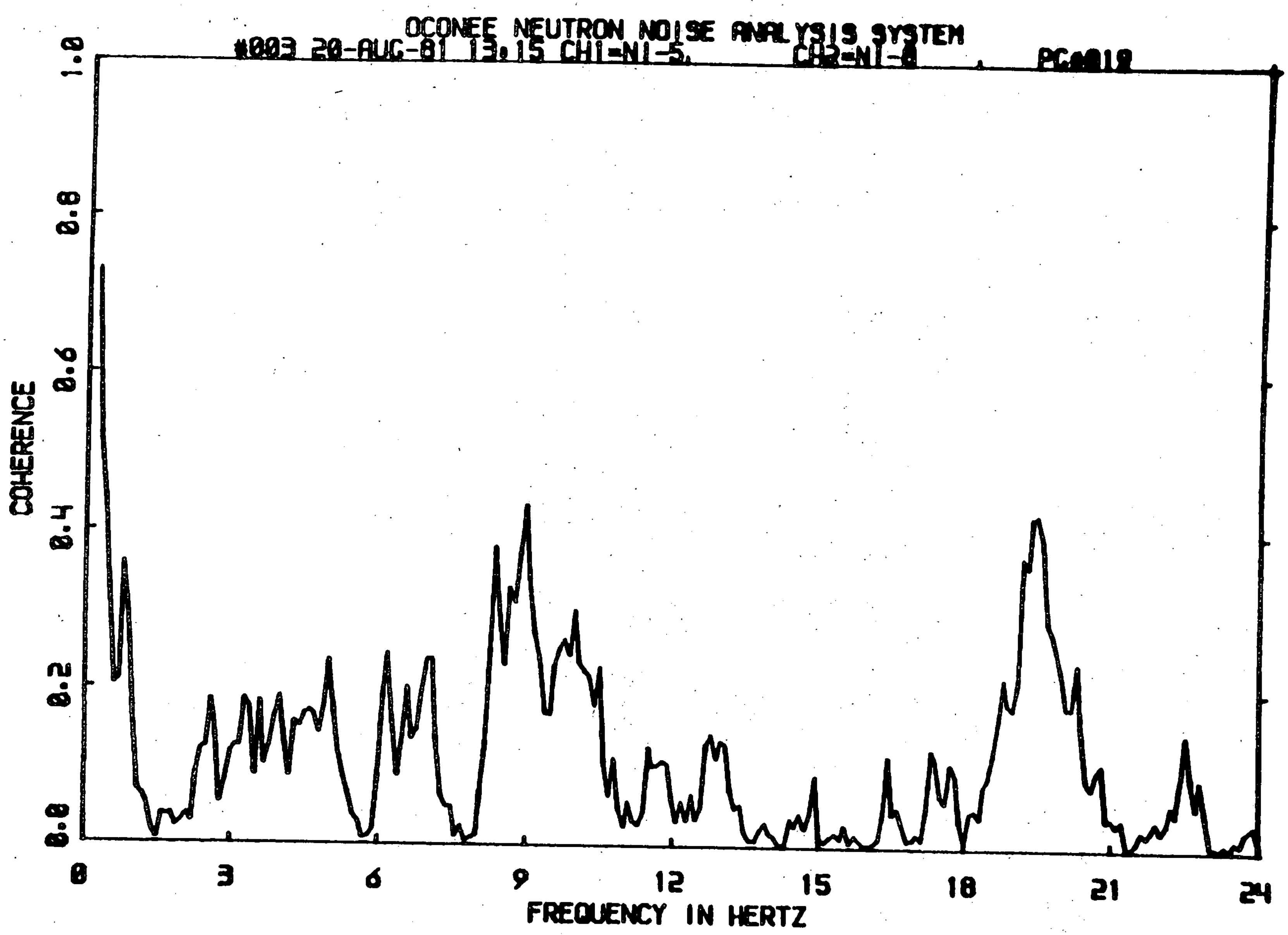

OCONEE NEUTRON NOISE ANALYSIS SYSTEM
#002 20-AUG-81 12.51 CH1=NI-5. CH2=NI-7
PG#019
COHERENCE
0.0
0.2
0.4
0.6
0.8
1.0
0
3
6
9
12
15
18
21
24
FREQUENCY IN HERTZ

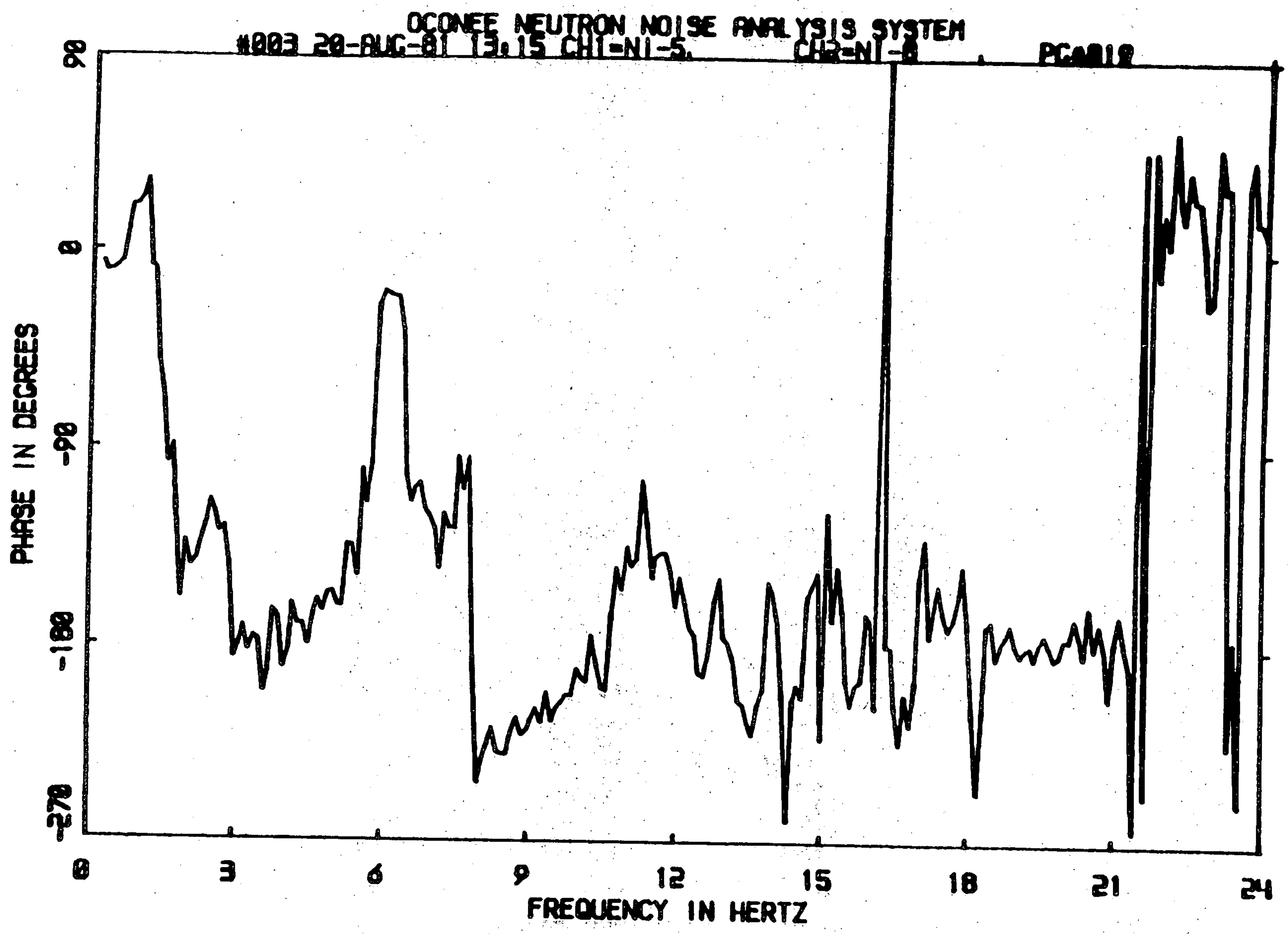

OCONEE NEUTRON NOISE ANALYSIS SYSTEM
#002 20-AUG-81 12.51 CH1=NI-5. CH2=NI-7
PG#019
PHASE IN DEGREES
90
0
-90
-180
-270
0
3
6
9
12
15
18
21
24
FREQUENCY IN HERTZ


OCONEE NEUTRON NOISE ANALYSIS SYSTEM
#003 20-AUG-81 13:15 CH1=NI-5, CH2=NI-8
PG#010
RMS= 0.240 E-4
NORMALIZED PSD1
10^{-12}
10^{-11}
10^{-10}
10^{-9}
10^{-8}
10^{-7}
10^{-6}
10^{-5}
0
3
6
9
12
15
18
21
24
FREQUENCY IN HERTZ

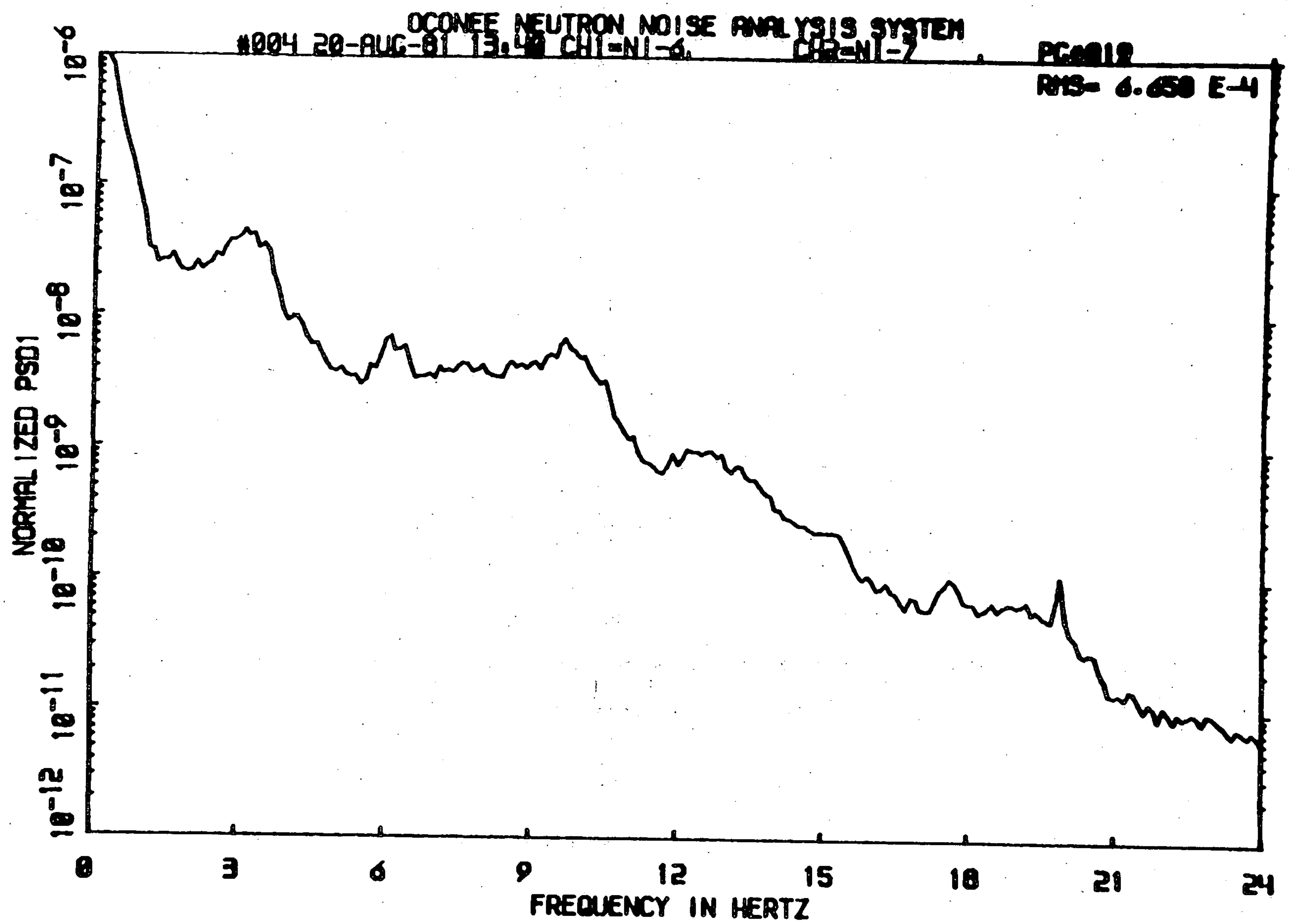

OCONEE NEUTRON NOISE ANALYSIS SYSTEM
#003 20-AUG-81 13:15 CH1=NI-5, CH2=NI-8
PG0019
RMS= 6.799 E-4
NORMALIZED PSD2
10^-12 10^-11 10^-10 10^-9 10^-8 10^-7 10^-6 10^-5
0 3 6 9 12 15 18 21 24
FREQUENCY IN HERTZ

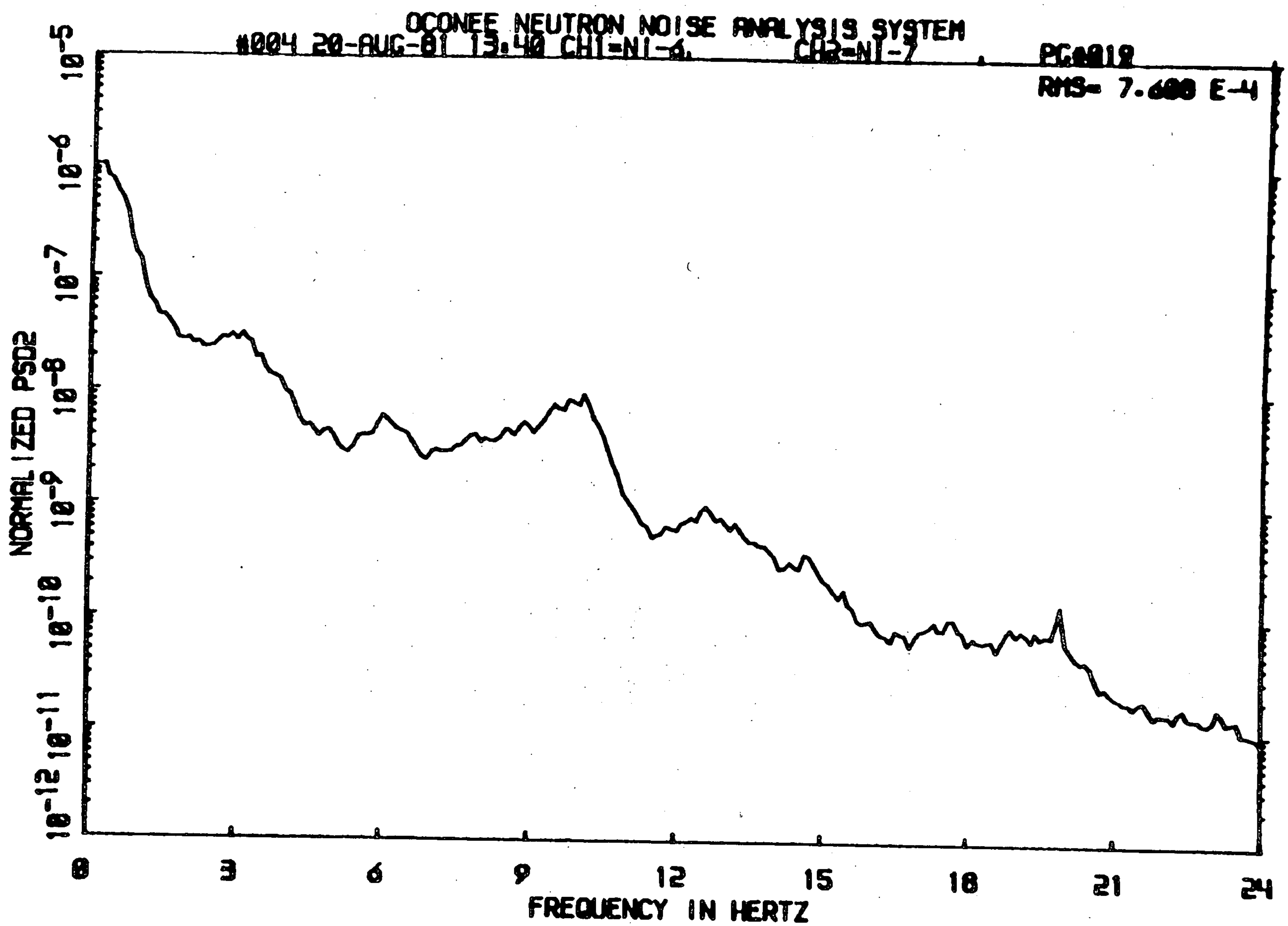

OCONEE NEUTRON NOISE ANALYSIS SYSTEM
#003 20-AUG-81 13.15 CH1=NI-5. CH2=NI-8
PG#019
RMS= 5.000 E-4
NORM CPSD MAGNITUDE
10^-13 10^-12 10^-11 10^-10 10^-9 10^-8 10^-7 10^-6 10^-5
0 3 6 9 12 15 18 21 24
FREQUENCY IN HERTZ


OCONEE NEUTRON NOISE ANALYSIS SYSTEM
#003 20-AUG-81 13.15 CH1=NI-5, CH2=NI-8 , PG#019
COHERENCE
0.0
0.2
0.4
0.6
0.8
1.0
0
3
6
9
12
15
18
21
24
FREQUENCY IN HERTZ



OCONEE NEUTRON NOISE ANALYSIS SYSTEM
#003 20-AUG-81 13.15 CH1=NI-5, CH2=NI-6 PGA019
PHASE IN DEGREES
90
0
-90
-180
-270
0
3
6
9
12
15
18
21
24
FREQUENCY IN HERTZ


OCONEE NEUTRON NOISE ANALYSIS SYSTEM
#004 20-AUG-81 13.40 CH1=NI-6. CH2=NI-7
PG#010
RMS= 6.650 E-4
NORMALIZED PSD1
10^-12
10^-11
10^-10
10^-9
10^-8
10^-7
10^-6
0
3
6
9
12
15
18
21
24
FREQUENCY IN HERTZ


OCONEE NEUTRON NOISE ANALYSIS SYSTEM
#004 20-AUG-81 13:40 CH1=NI-6. CH2=NI-7
PG#019
RMS= 7.600 E-4
NORMALIZED PSD2
FREQUENCY IN HERTZ
0
3
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9
12
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21
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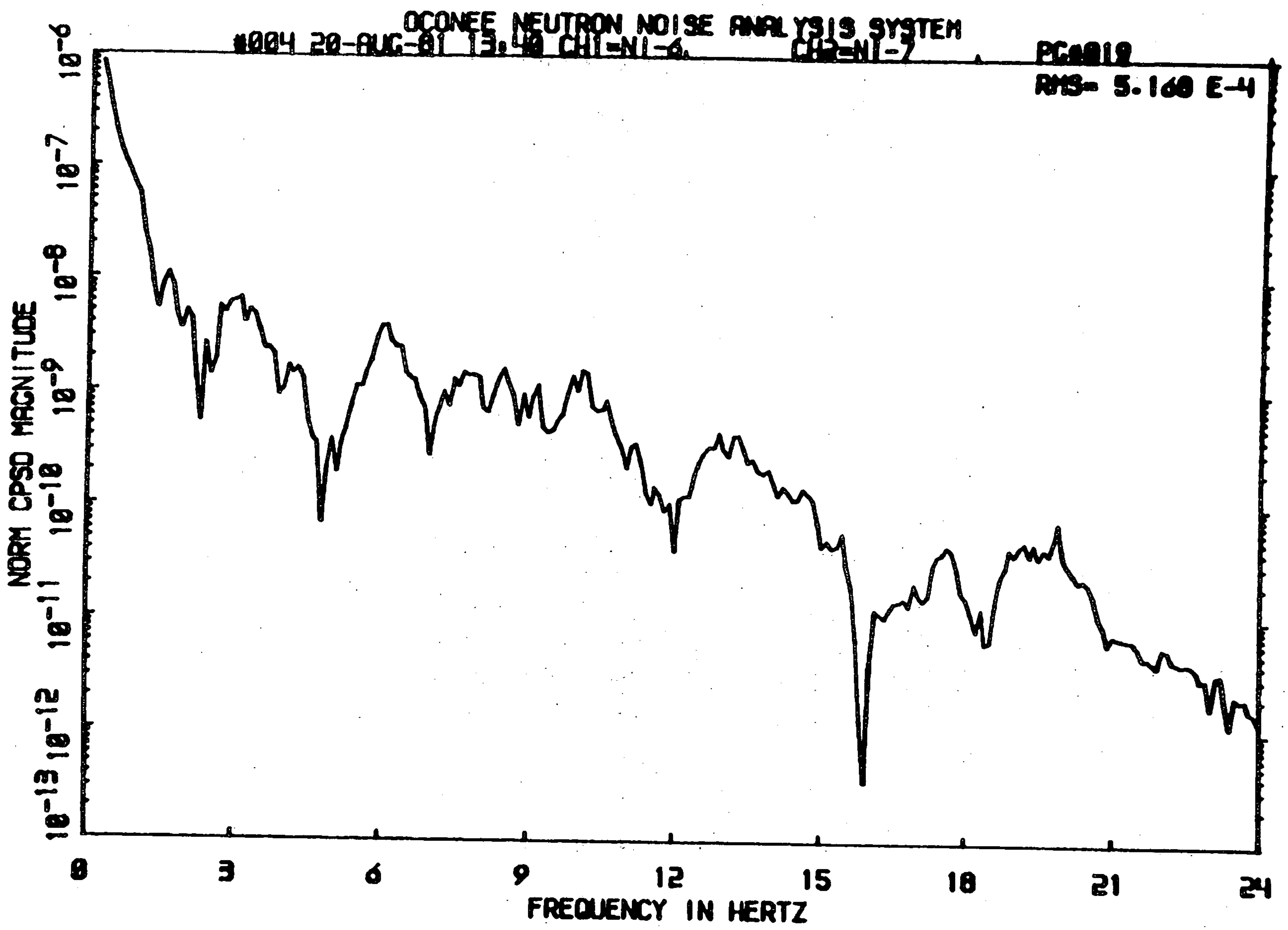

OCONEE NEUTRON NOISE ANALYSIS SYSTEM
#004 20-AUG-81 13:40 CH1=NI-6 CH2=NI-7
PG#010
RMS= 5.160 E-4
NORM CPSD MAGNITUDE
10^-6
10^-7
10^-8
10^-9
10^-10
10^-11
10^-12
10^-13
0
3
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12
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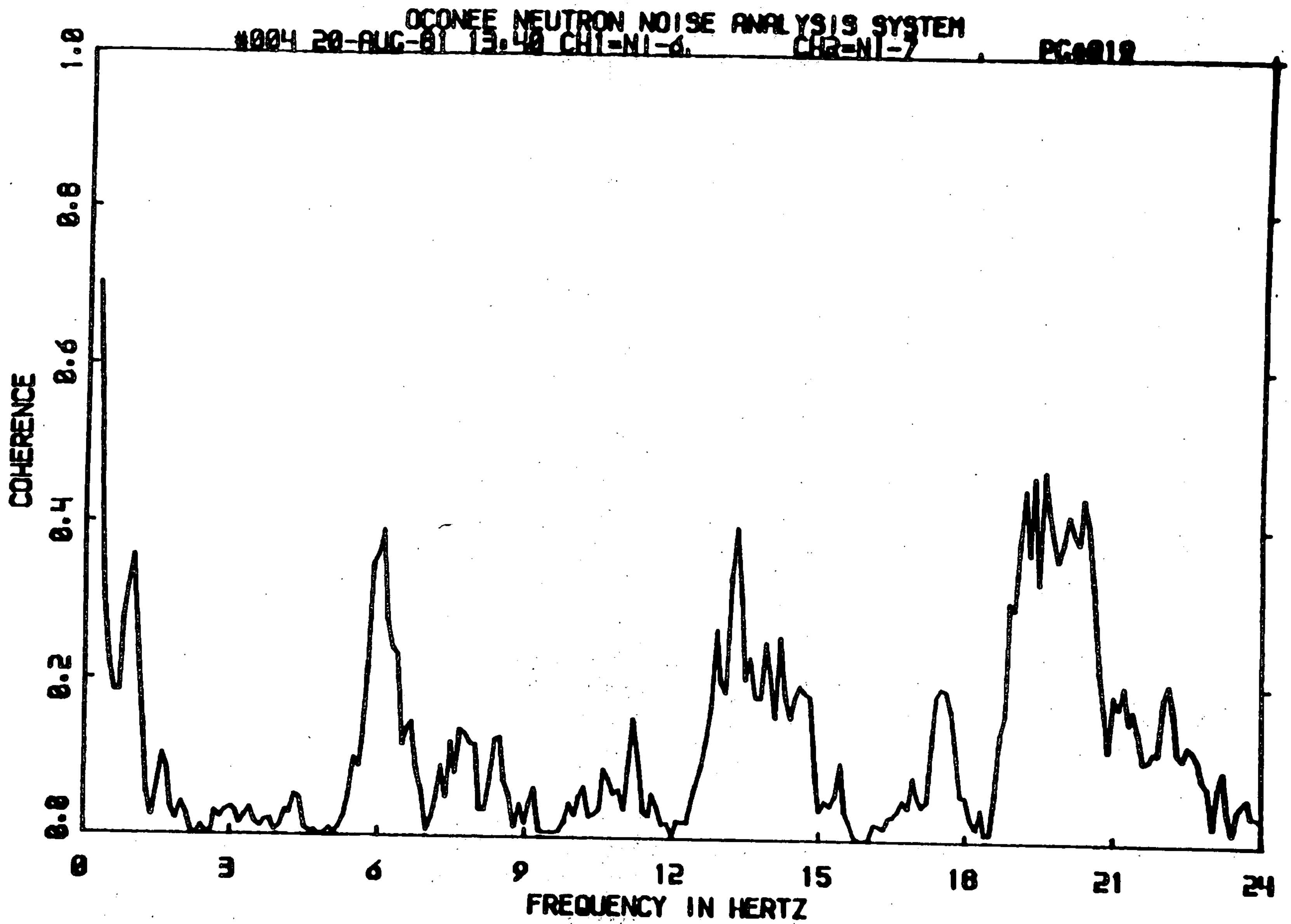
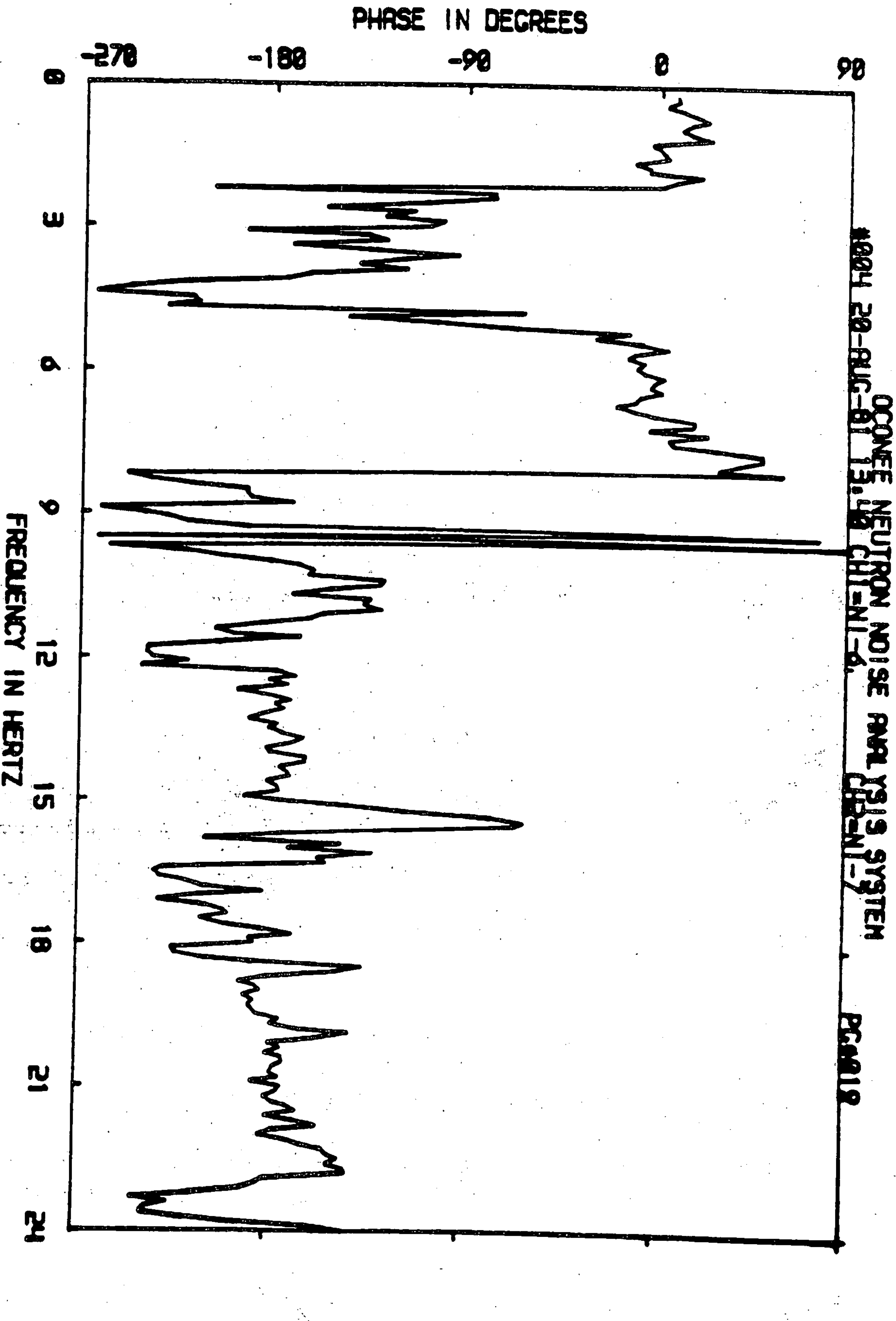
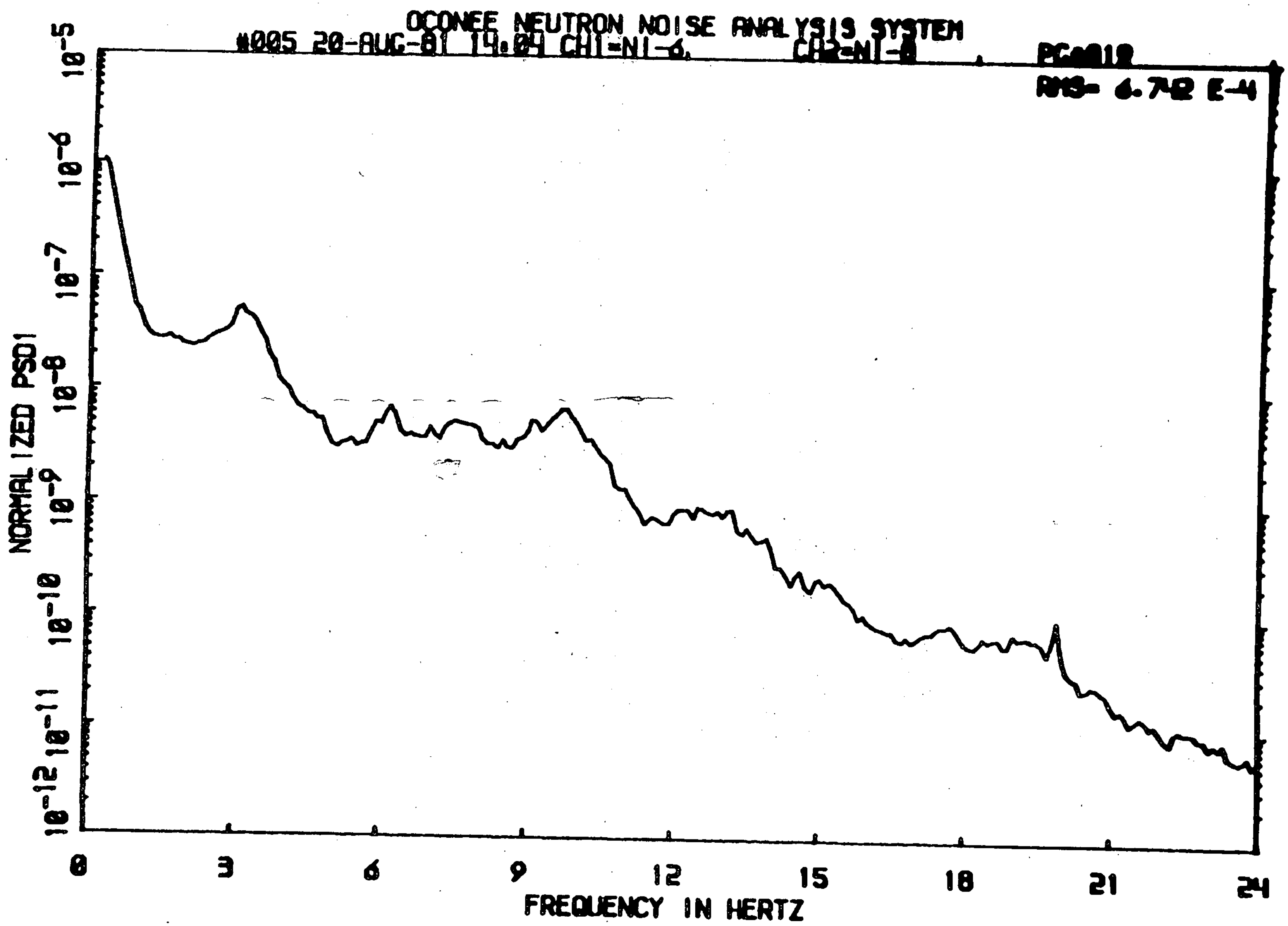
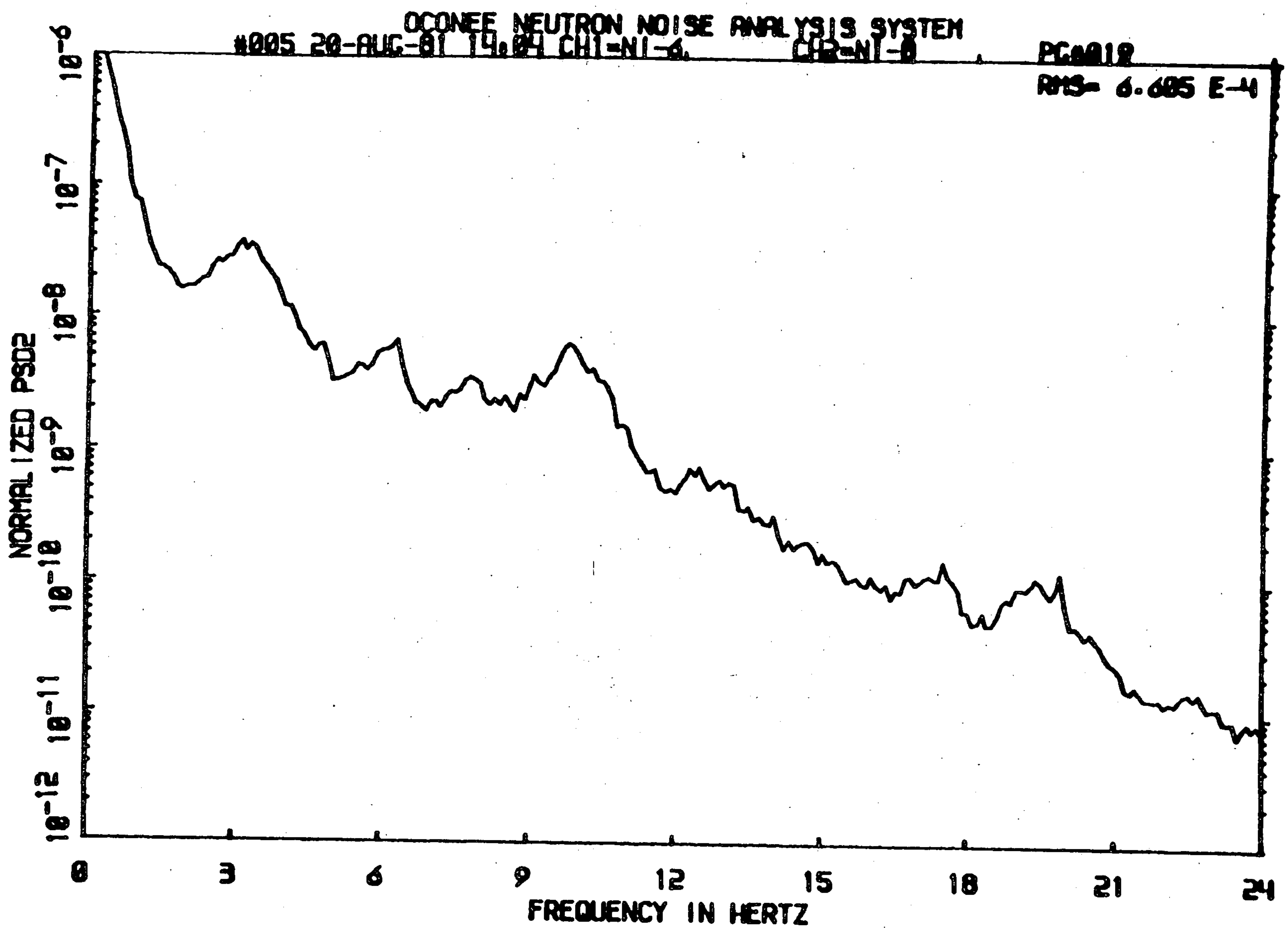
FREQUENCY IN HERTZ


OCONEE NEUTRON NOISE ANALYSIS SYSTEM
#004 20-AUG-81 13.40 CH1=NI-6. CH2=NI-7
PG0010
COHERENCE
0.0
0.2
0.4
0.6
0.8
1.0
0
3
6
9
12
15
18
21
24
FREQUENCY IN HERTZ


PHASE IN DEGREES
-270
-180
-90
0
90
0
3
6
9
12
15
18
21
24
FREQUENCY IN HERTZ
OCONEE NEUTRON NOISE ANALYSIS SYSTEM
#004 20-AUG-81 13:40 CH1=NI-6, CH2=NI-7
PC0018


OCONEE NEUTRON NOISE ANALYSIS SYSTEM
#005 20-AUG-81 14.04 CH1=NI-6, CH2=NI-8
PG0018
RMS= 6.742 E-4
NORMALIZED PSD1
10^-12 10^-11 10^-10 10^-9 10^-8 10^-7 10^-6 10^-5
0 3 6 9 12 15 18 21 24
FREQUENCY IN HERTZ



OCONEE NEUTRON NOISE ANALYSIS SYSTEM
#005 20-AUG-81 14.04 CH1=NI-6. CH2=NI-8
PG#019
RMS= 6.605 E-4
NORMALIZED PSD2
10^-6
10^-7
10^-8
10^-9
10^-10
10^-11
10^-12
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3
6
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12
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18
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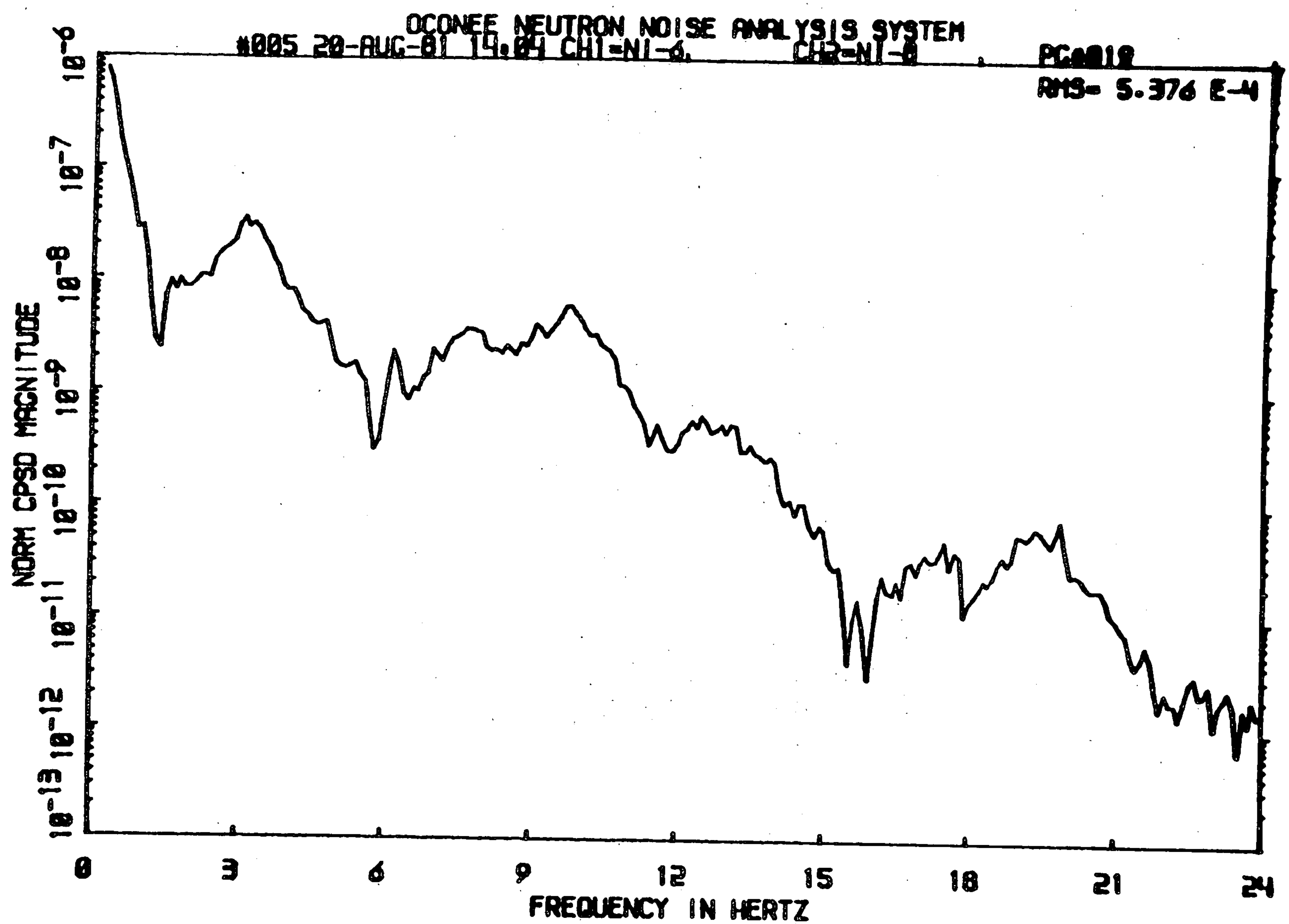
24
FREQUENCY IN HERTZ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#005 20-AUG-81 14.04 CH1=NI-6. CH2=NI-8
PG0010
RMS= 5.376 E-4
NORM CPSD MAGNITUDE
10^-13 10^-12 10^-11 10^-10 10^-9 10^-8 10^-7 10^-6
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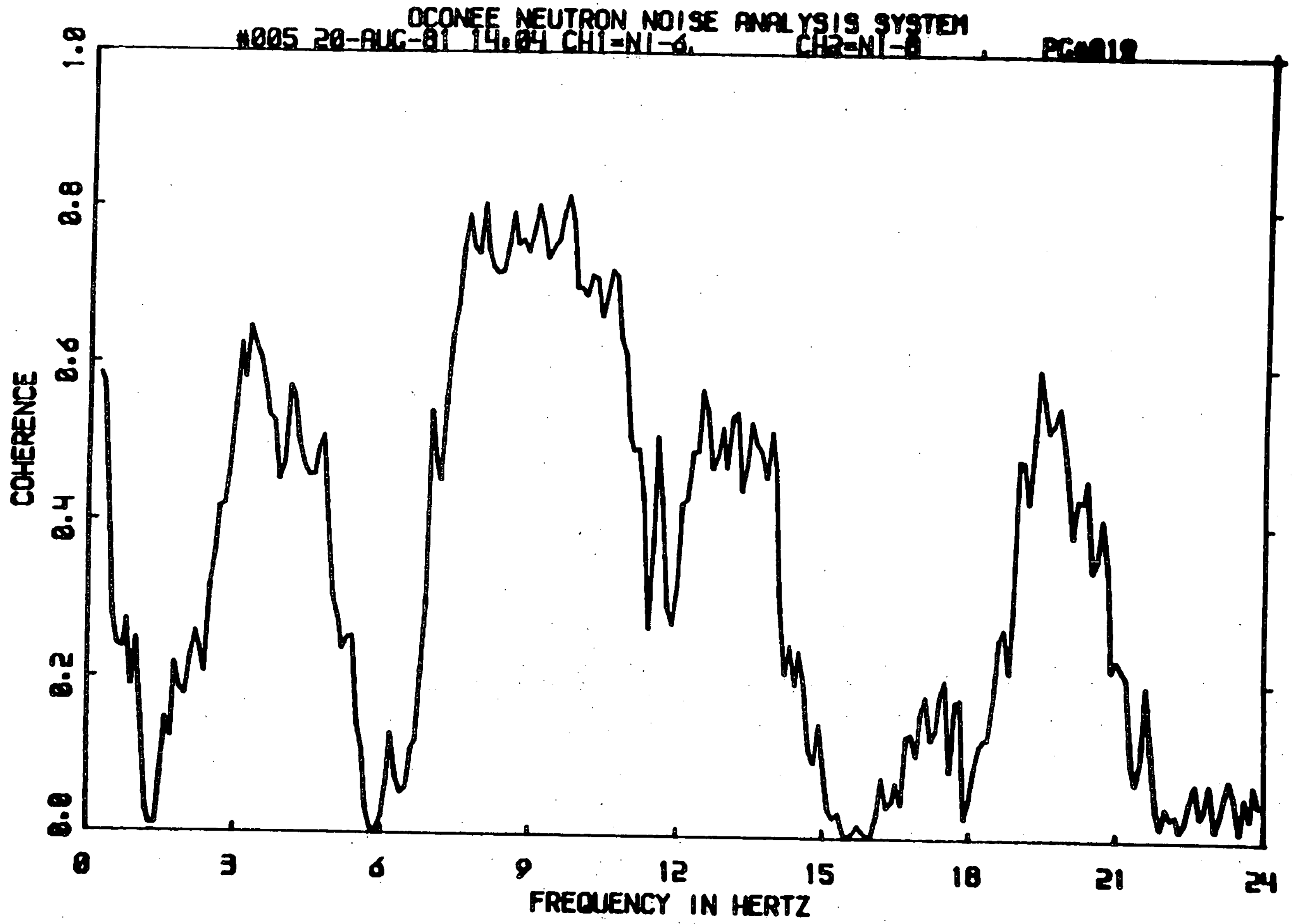
FREQUENCY IN HERTZ


OCONEE NEUTRON NOISE ANALYSIS SYSTEM
#005 20-AUG-81 14.04 CH1=NI-6, CH2=NI-8
COHERENCE
0.0
0.2
0.4
0.6
0.8
1.0
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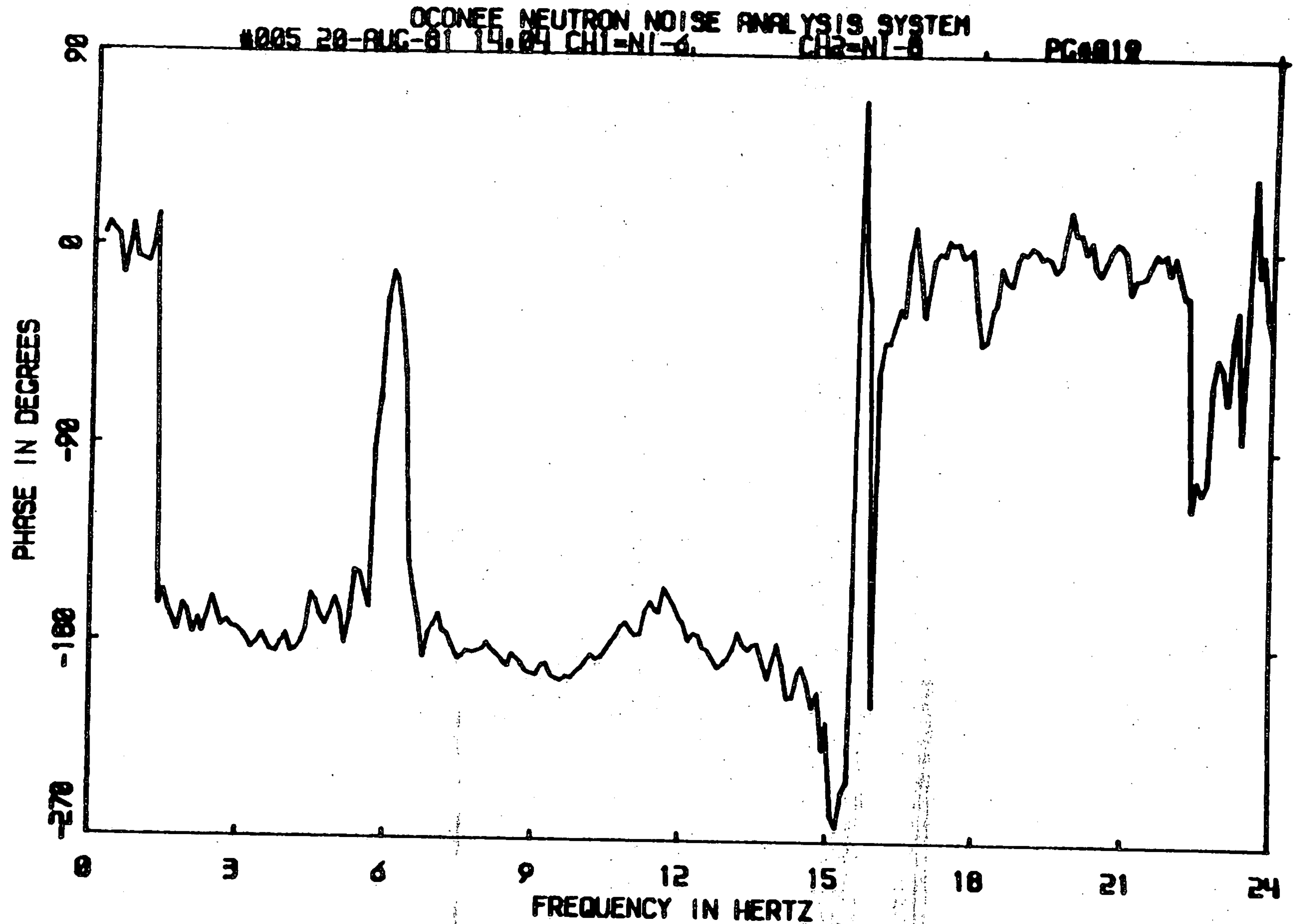
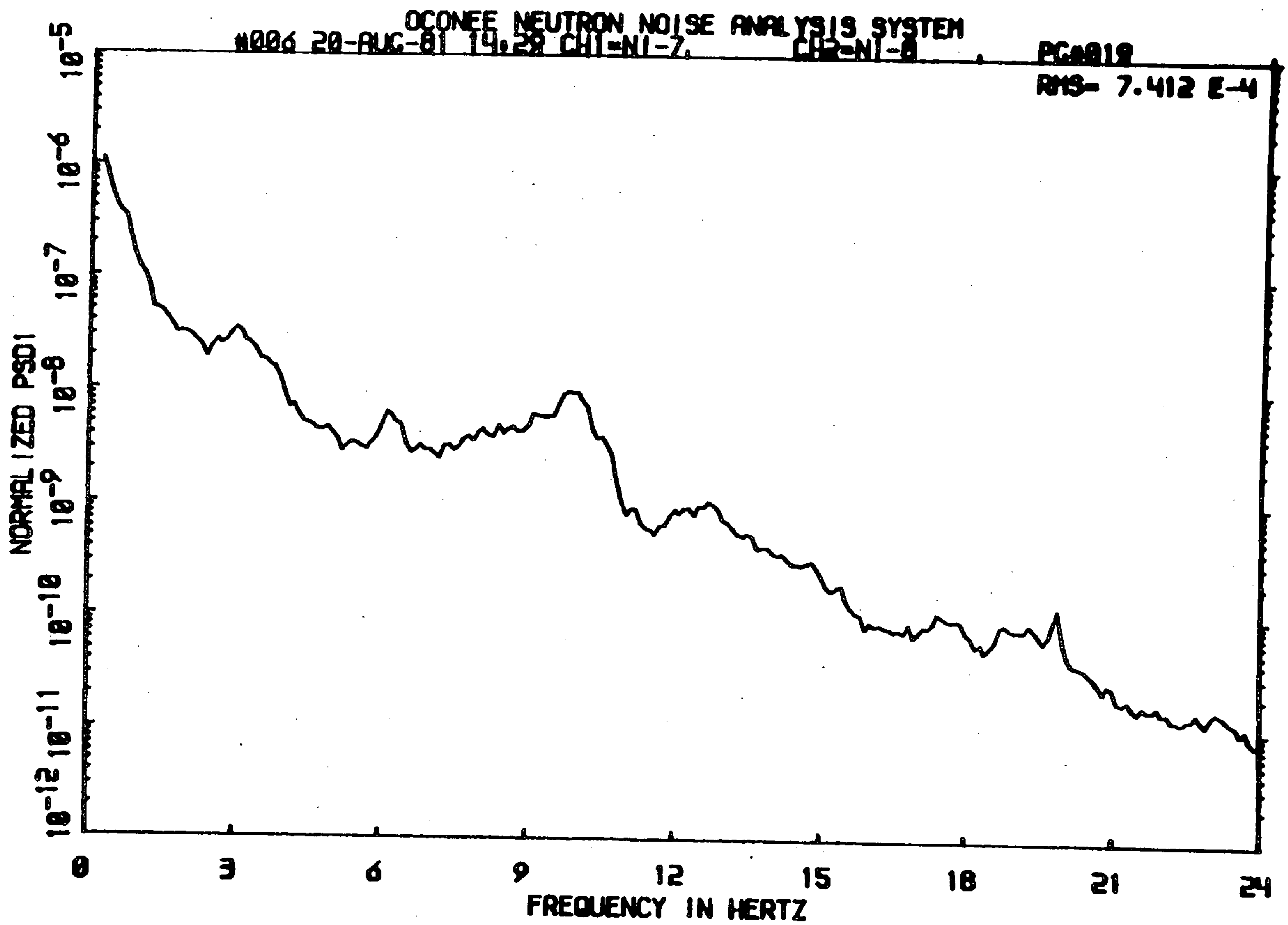
15
18
21
24
FREQUENCY IN HERTZ


OCONEE NEUTRON NOISE ANALYSIS SYSTEM
#005 20-AUG-81 14.04 CH1=NI-6. CH2=NI-8 PG#019
PHASE IN DEGREES
90
0
-90
-180
-270
0
3
6
9
12
15
18
21
24
FREQUENCY IN HERTZ



OCONEE NEUTRON NOISE ANALYSIS SYSTEM
#006 20-AUG-81 14.28 CH1=NI-7, CH2=NI-8 , PG#019
RMS= 7.412 E-4
NORMALIZED PSD1
10^-5
10^-6
10^-7
10^-8
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10^-11
10^-12
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3
6
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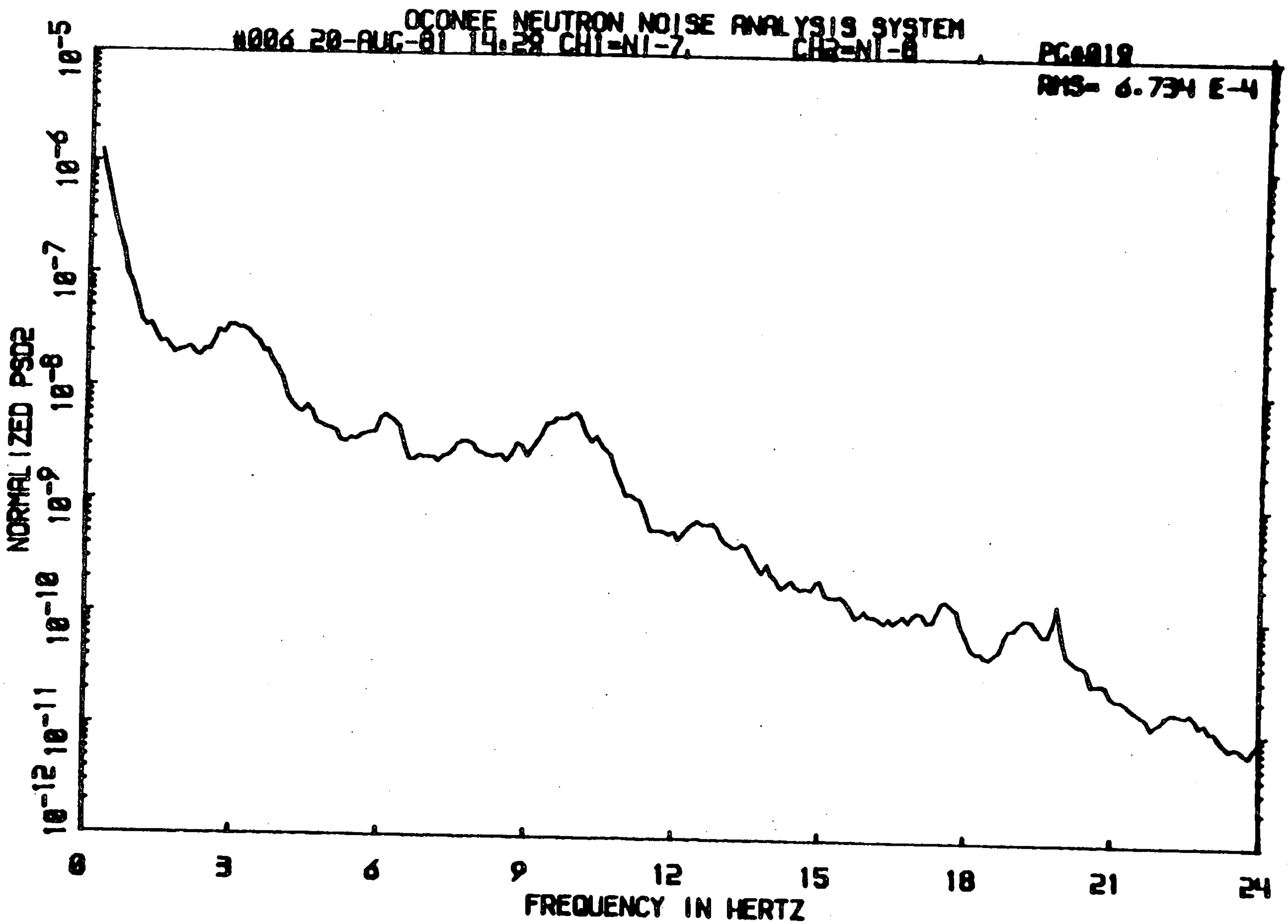
12
15
18
21
24
FREQUENCY IN HERTZ


OCONEE NEUTRON NOISE ANALYSIS SYSTEM
#006 20-AUG-81 14:28 CH1=NI-7, CH2=NI-8
PC#019
RMS= 6.734 E-4
NORMALIZED PSD2
10^-5
10^-6
10^-7
10^-8
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10^-11
10^-12
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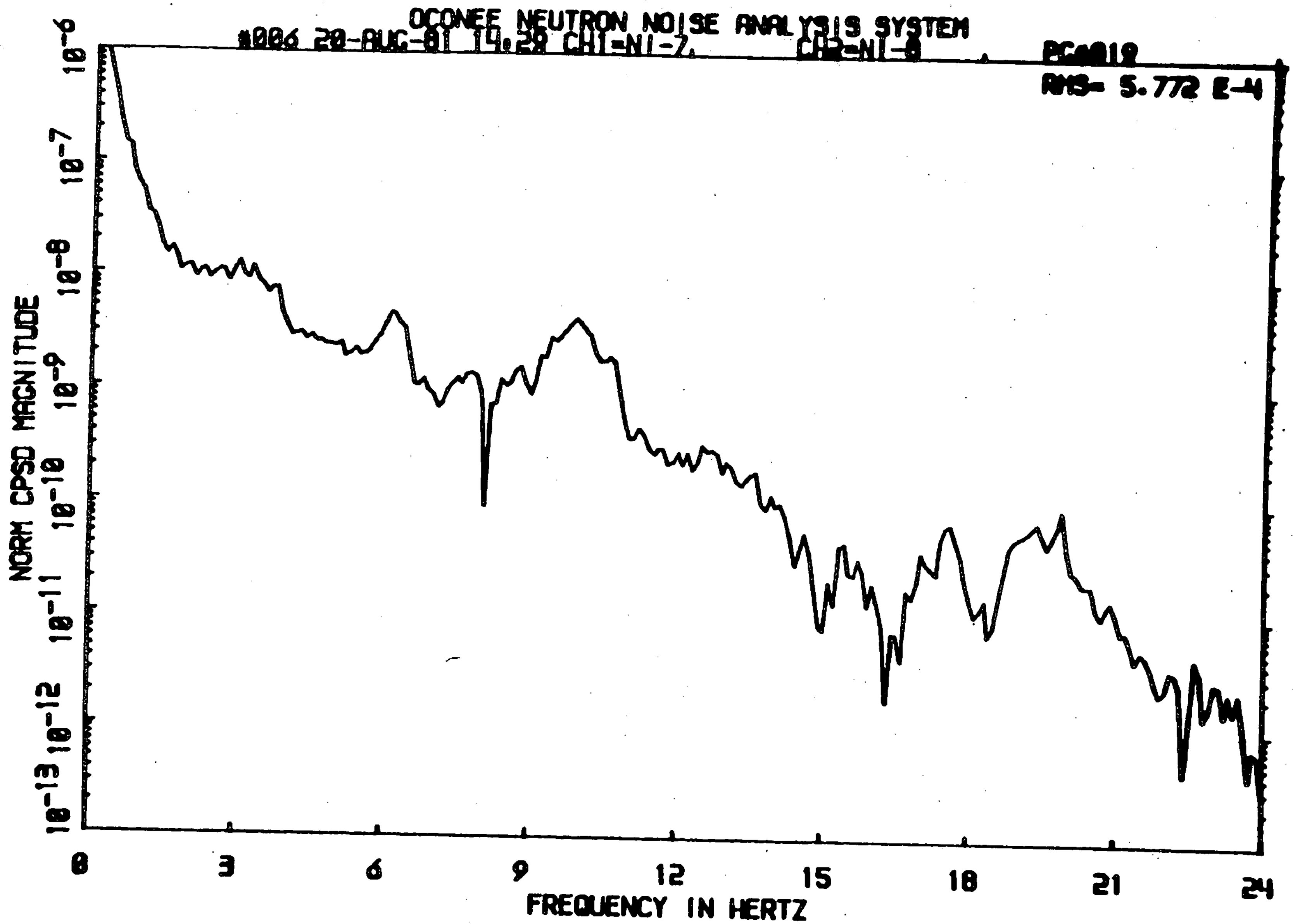
9
12
15
18
21
24
FREQUENCY IN HERTZ



OCONEE NEUTRON NOISE ANALYSIS SYSTEM
#006 20-AUG-81 14.28 CH1=NI-7, CH2=NI-8
PC0019
RMS= 5.772 E-4
NORM CPSD MAGNITUDE
10^-13
10^-12
10^-11
10^-10
10^-9
10^-8
10^-7
10^-6
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3
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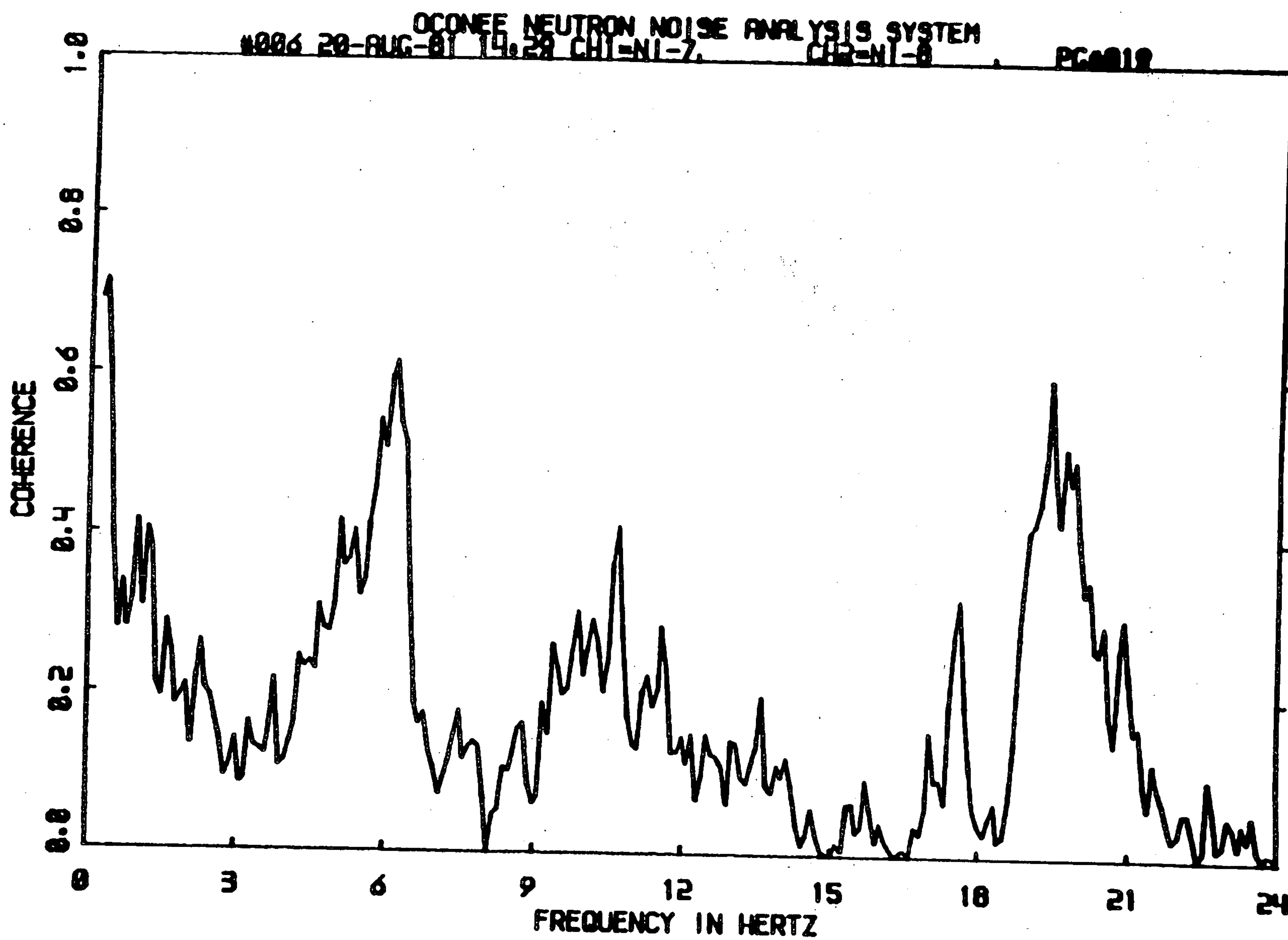
9
12
15
18
21
24
FREQUENCY IN HERTZ


OCONEE NEUTRON NOISE ANALYSIS SYSTEM
#006 20-AUG-81 14.29 CH1=NI-7, CH2=NI-8 , PG0010
COHERENCE
0.0
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0.8
1.0
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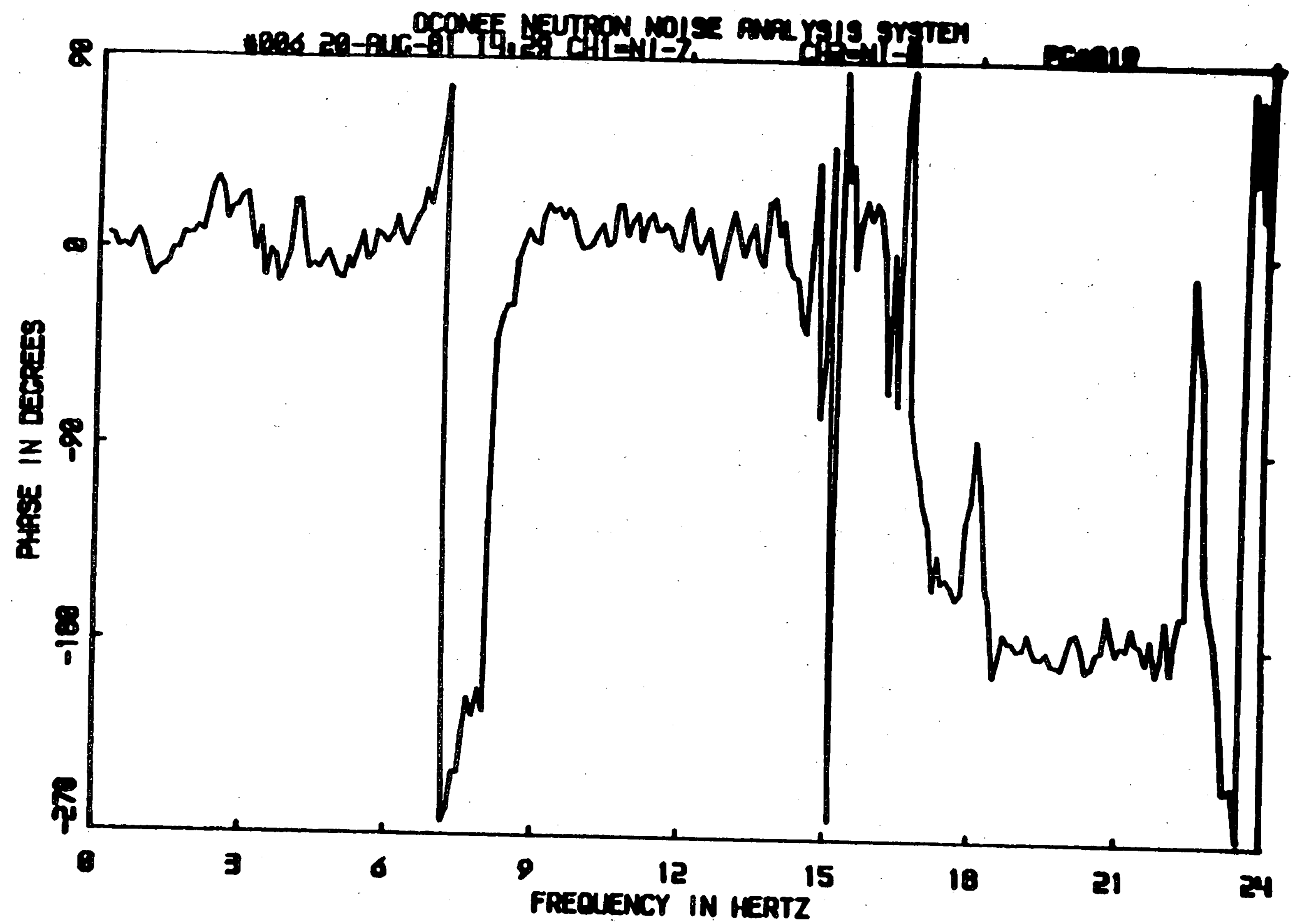
21
24
FREQUENCY IN HERTZ



OCONEE NEUTRON NOISE ANALYSIS SYSTEM
#006 20-AUG-81 14.28 CH1=NI-7. CH2=NI-8
PHASE IN DEGREES
90
0
-90
-180
-270
0
3
6
9
12
15
18
21
24
FREQUENCY IN HERTZ

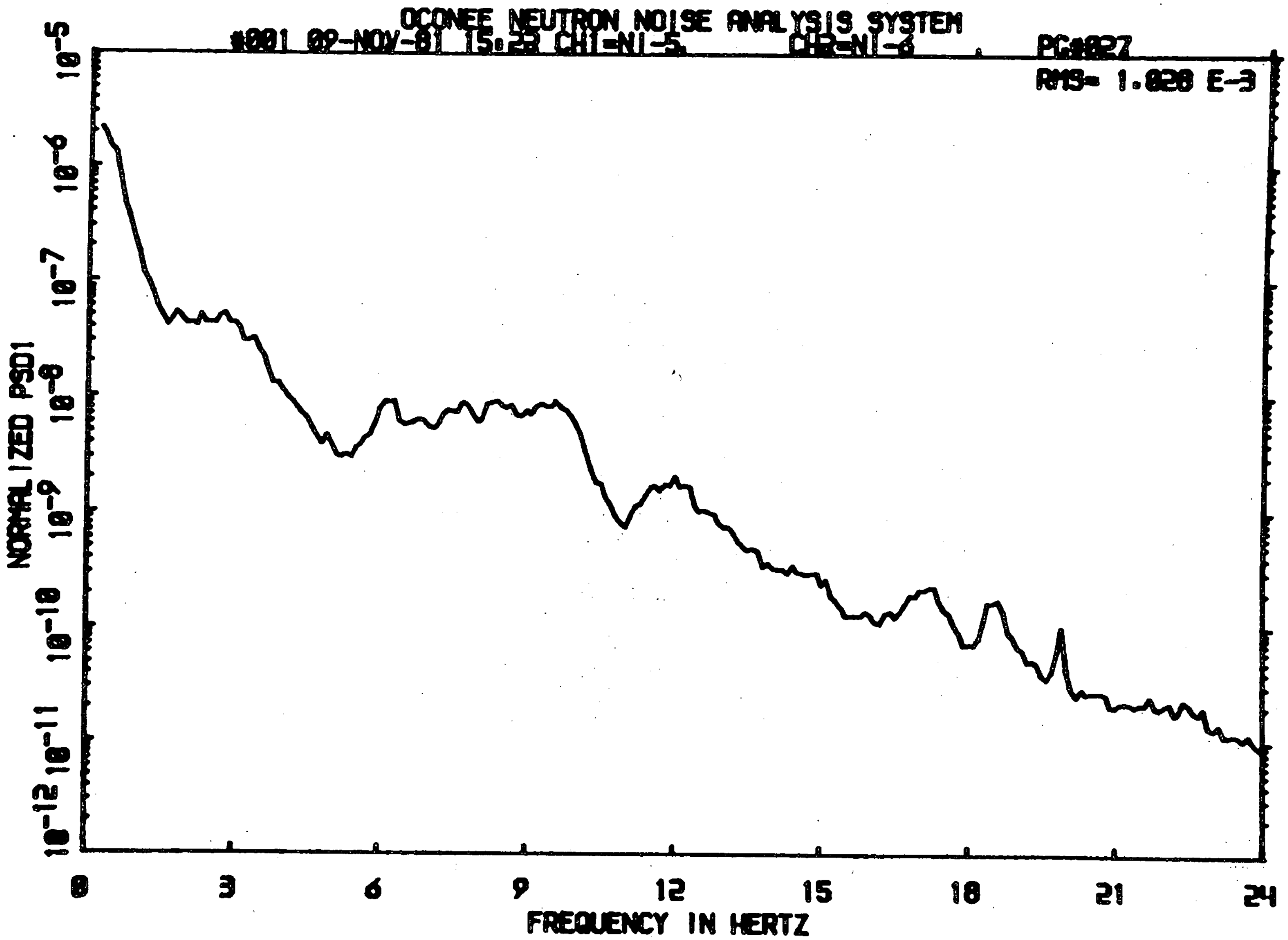
CONTENTS

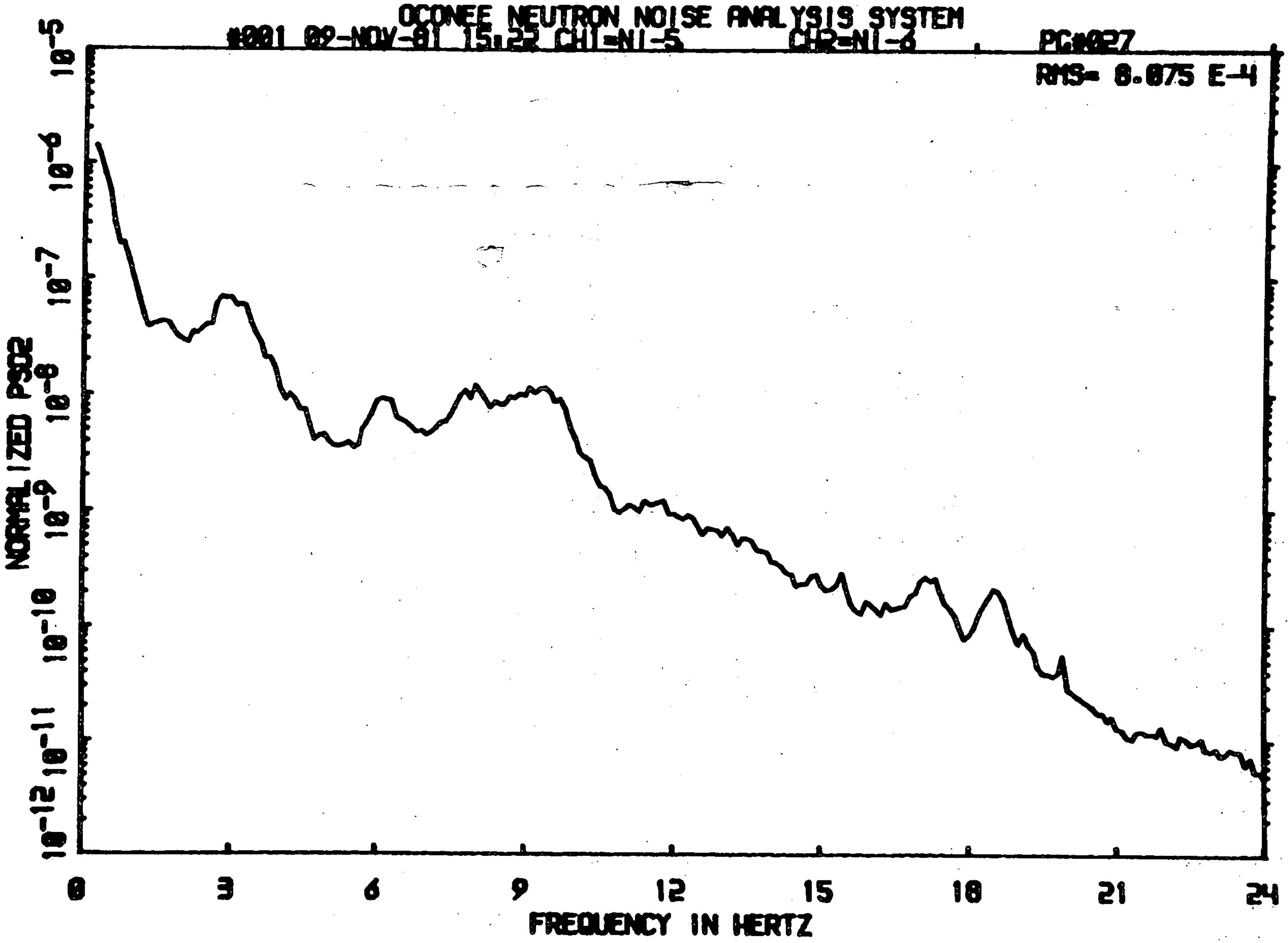
Neutron Noise Data for MOC 6 (≈227 EFPD)
Unit 3, taken November 9, 1981

Test #	Detector pairs *
001	NI5 x NI6
002	NI5 x NI7
003	NI5 x NI8
004	NI6 x NI7
005	NI6 x NI8
006	NI7 x NI8

* summed from upper & lower chambers

O3C6 MOC ≈ 227 EFPD




OCONEE NEUTRON NOISE ANALYSIS SYSTEM
#001 09-NOV-81 15:22 CH1=NI-5 CH2=NI-6
PG#027
RMS= 0.075 E-4
NORMALIZED PSD2
10^-5
10^-6
10^-7
10^-8
10^-9
10^-10
10^-11
10^-12
0
3
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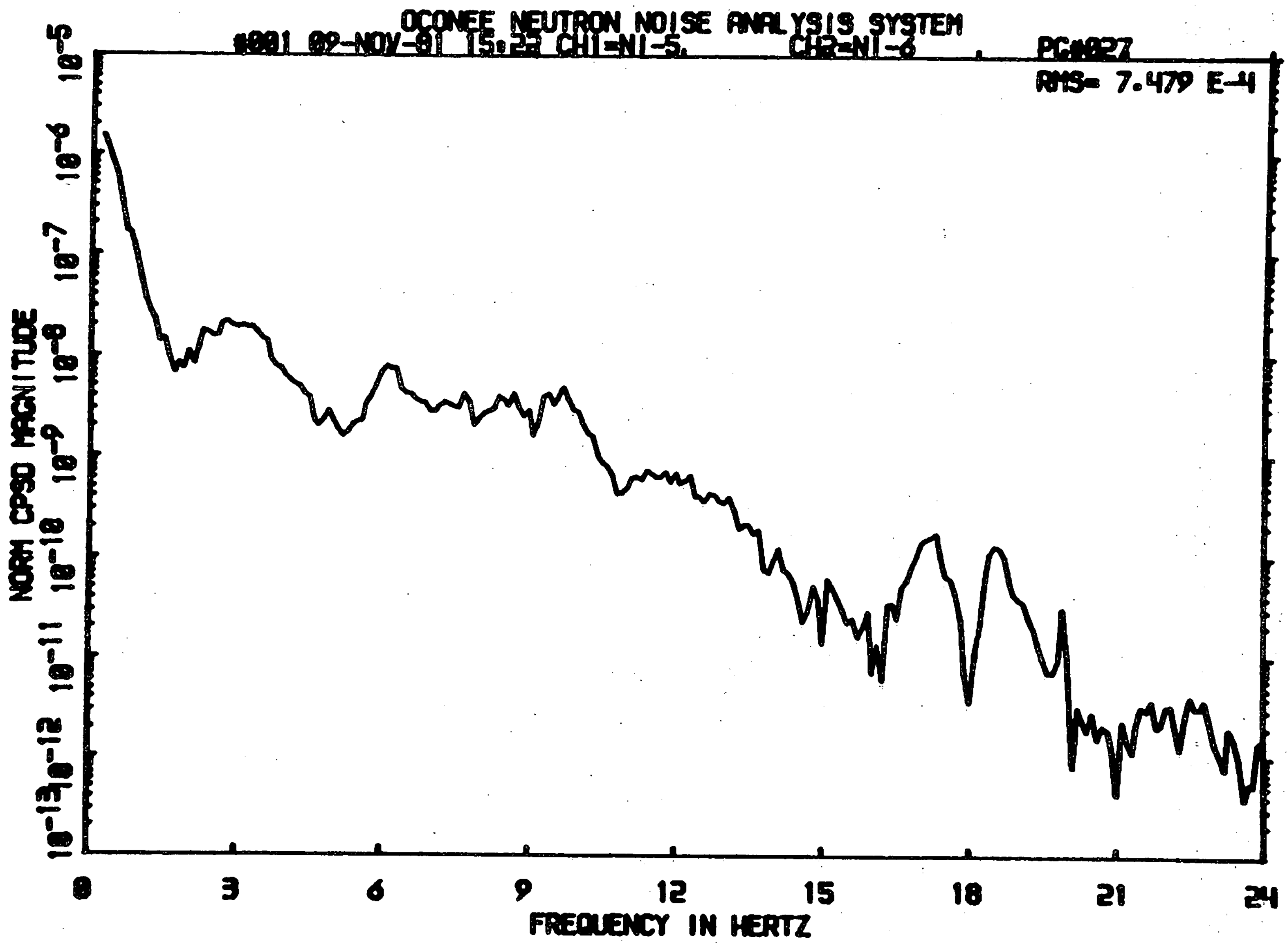
9
12
15
18
21
24
FREQUENCY IN HERTZ


OCONEE NEUTRON NOISE ANALYSIS SYSTEM
#001 09-NOV-81 15:22 CH1=NI-5, CH2=NI-6 PG#027
RMS= 7.479 E-4
NORM CPSD MAGNITUDE
10^-5
10^-6
10^-7
10^-8
10^-9
10^-10
10^-11
10^-12
10^-13
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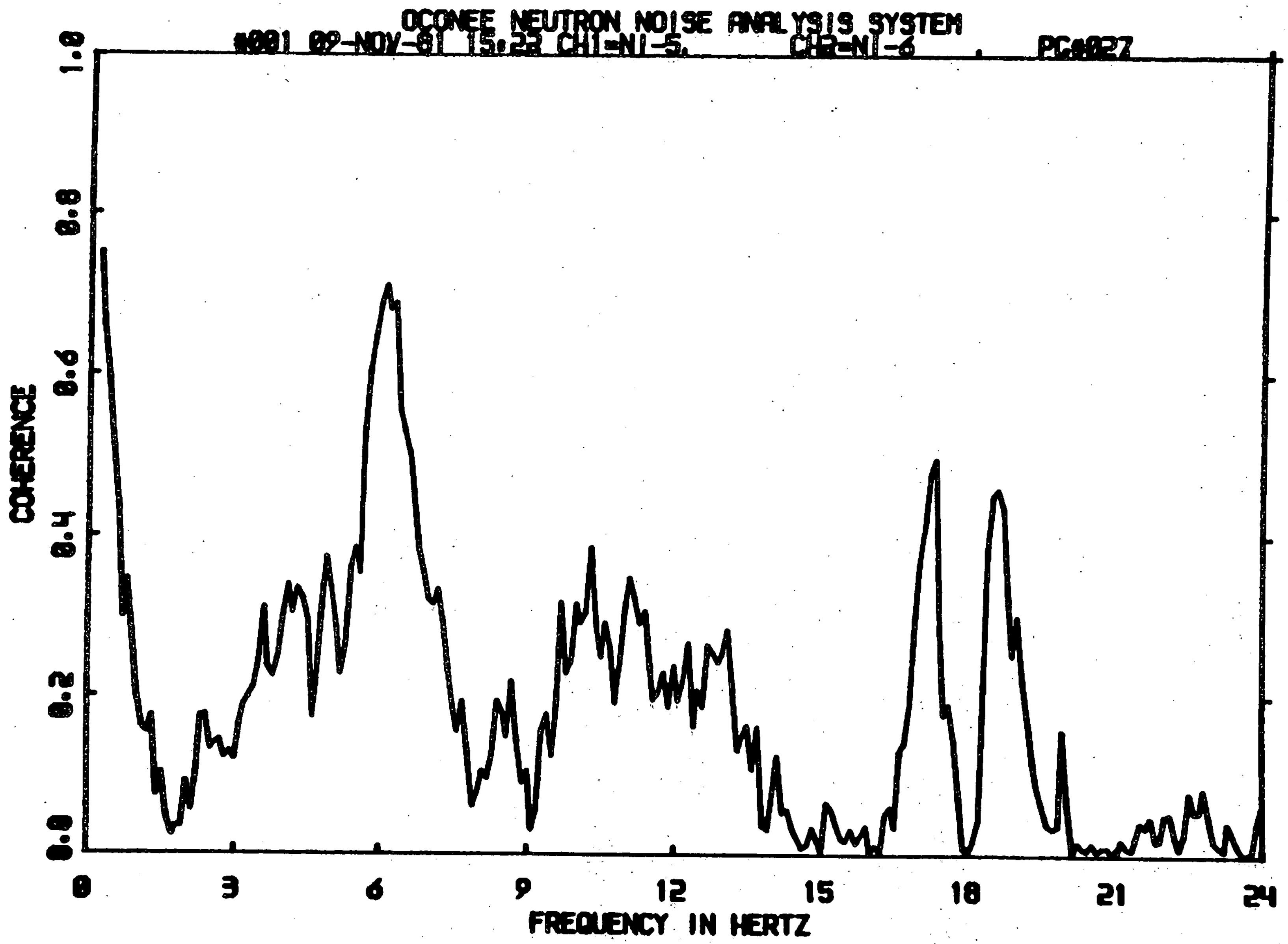
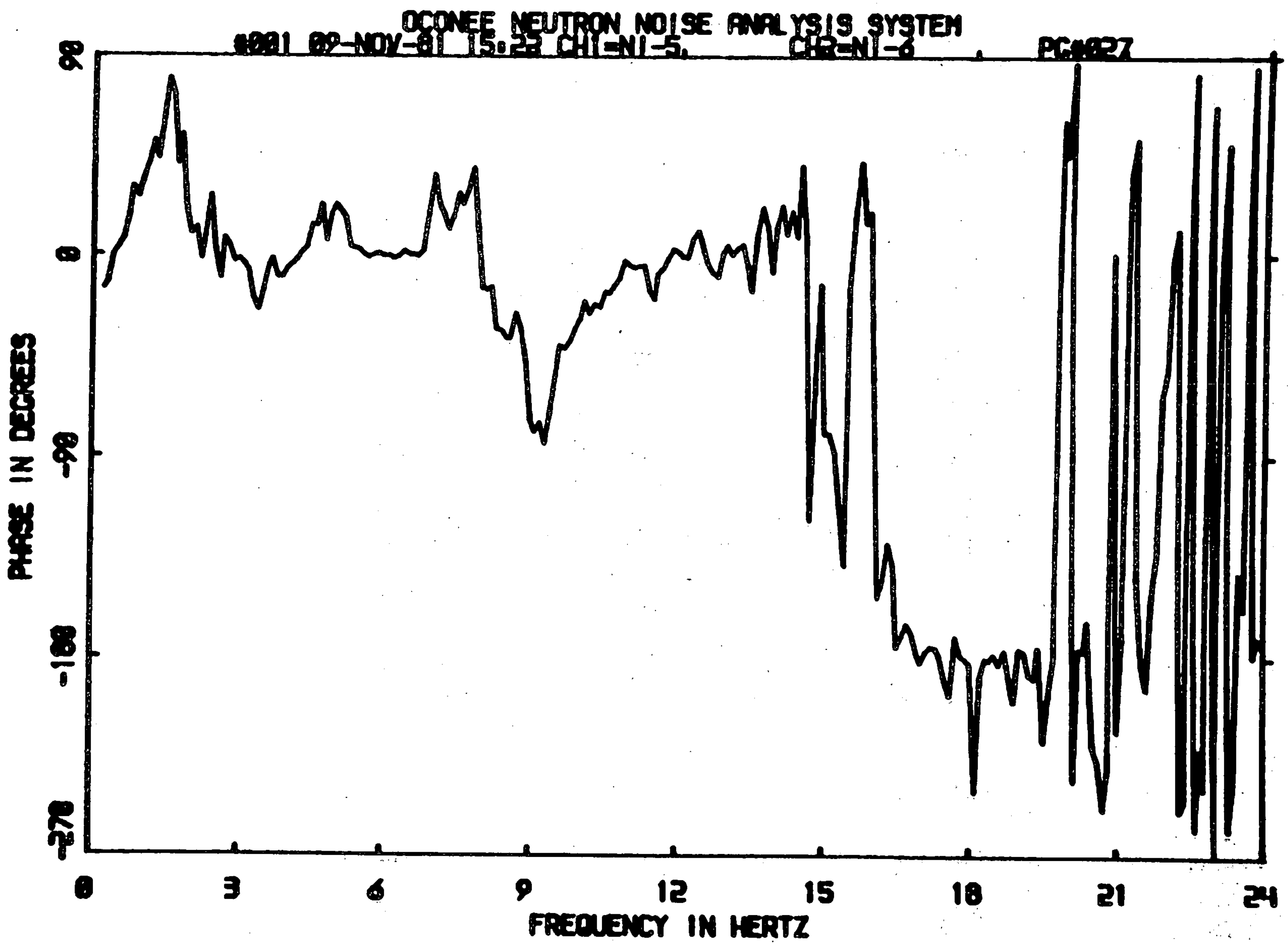
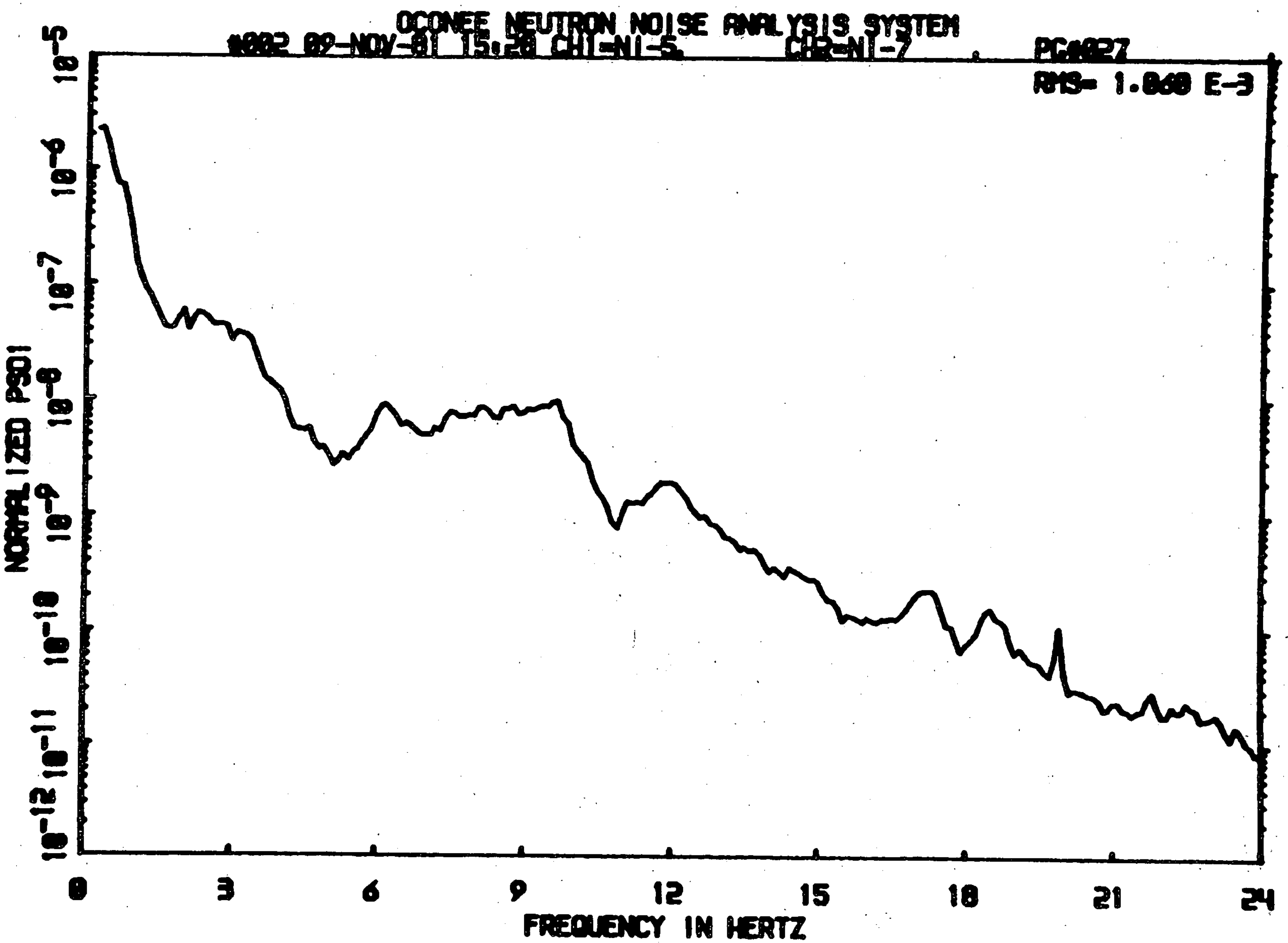
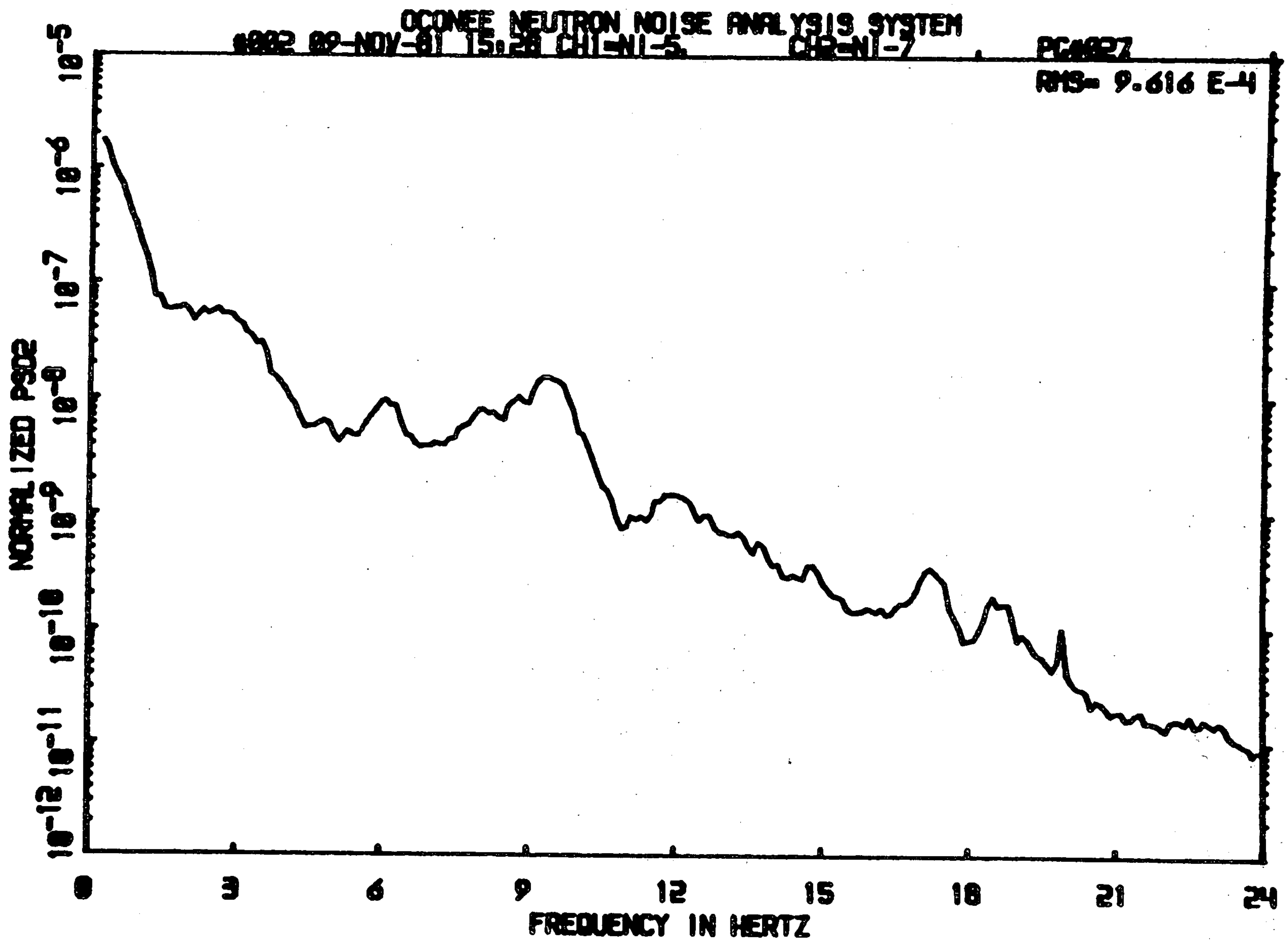
3
6
9
12
15
18
21
24
FREQUENCY IN HERTZ

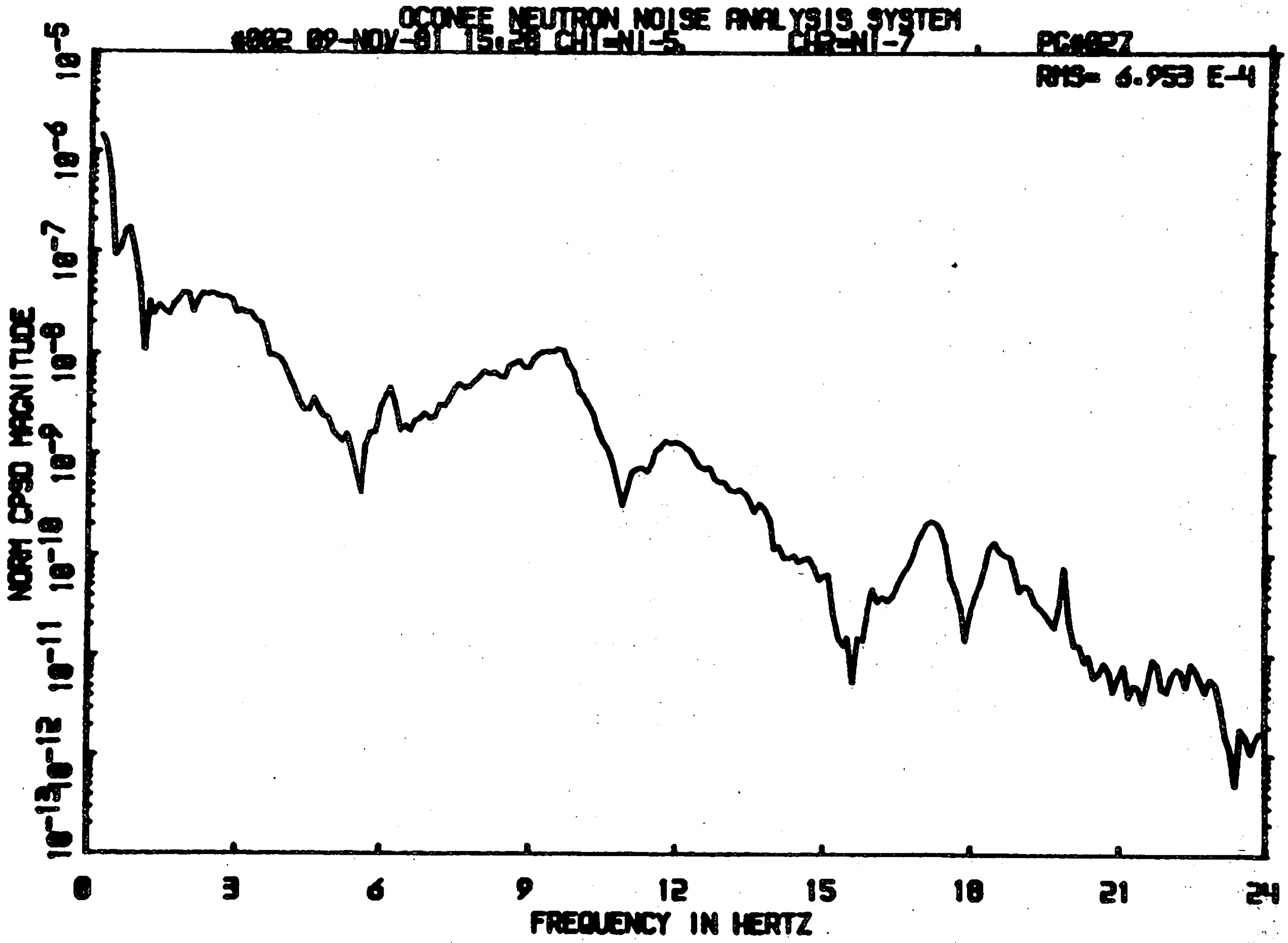

OCONEE NEUTRON NOISE ANALYSIS SYSTEM
#001 09-NOV-81 15:22 CH1=NI-5, CH2=NI-6 PG#027
COHERENCE
0.0
0.2
0.4
0.6
0.8
1.0
0
3
6
9
12
15
18
21
24
FREQUENCY IN HERTZ


OCONEE NEUTRON NOISE ANALYSIS SYSTEM
#001 09-NOV-81 15:22 CH1=NI-5, CH2=NI-6 PG#027
PHASE IN DEGREES
90
0
-90
-180
-270
0
3
6
9
12
15
18
21
24
FREQUENCY IN HERTZ



OCONEE NEUTRON NOISE ANALYSIS SYSTEM
#002 09-NOV-81 15:20 CH1=NI-5, CH2=NI-7
PG#027
RMS= 1.060 E-3
NORMALIZED PSD1
FREQUENCY IN HERTZ


OCONEE NEUTRON NOISE ANALYSIS SYSTEM
#002 09-NOV-81 15:28 CH1=NI-5. CH2=NI-7
PG#027
RMS= 9.616 E-4
NORMALIZED PSD2
FREQUENCY IN HERTZ



OCONEE NEUTRON NOISE ANALYSIS SYSTEM
#002 09-NOV-81 15:20 CH1=NI-5, CH2=NI-7
PG#027
RMS= 6.953 E-4
NORM CPSD MAGNITUDE
10^-5
10^-6
10^-7
10^-8
10^-9
10^-10
10^-11
10^-12
10^-13
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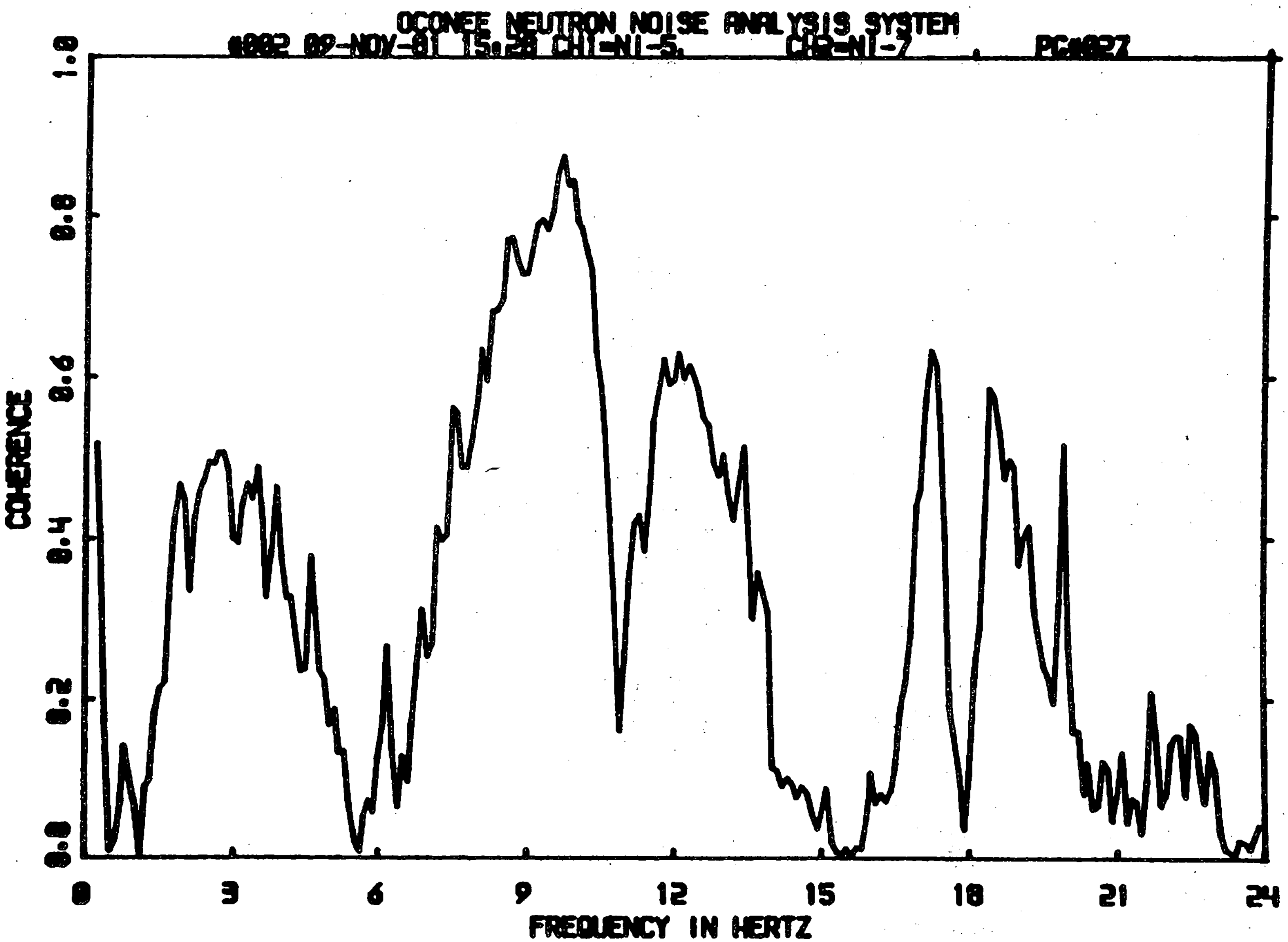
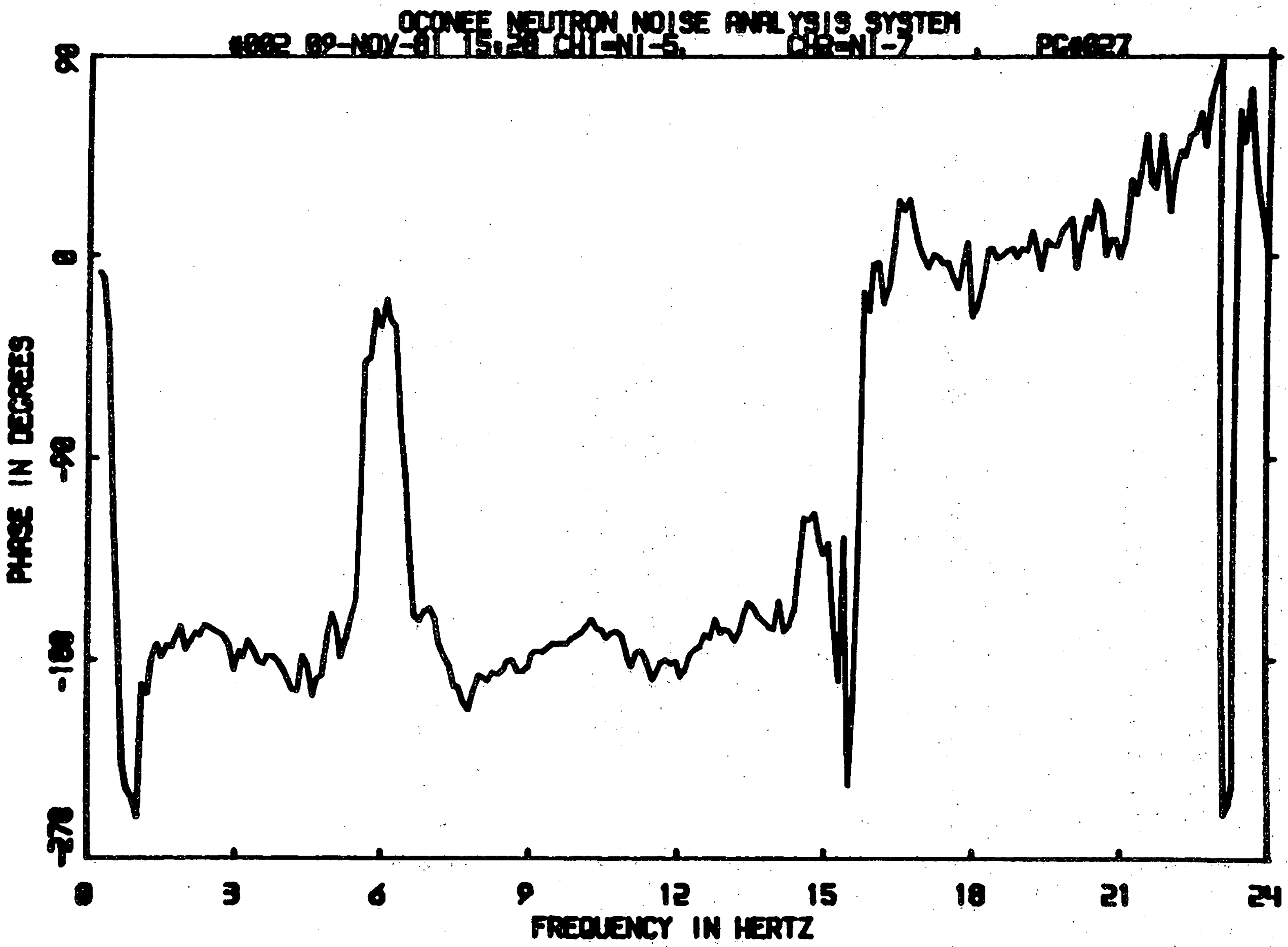
6
9
12
15
18
21
24
FREQUENCY IN HERTZ


OCONEE NEUTRON NOISE ANALYSIS SYSTEM
#002 09-NOV-81 15.28 CH1=NI-5. CH2=NI-7 PG#027
COHERENCE
0.0
0.2
0.4
0.6
0.8
1.0
0
3
6
9
12
15
18
21
24
FREQUENCY IN HERTZ


OCONEE NEUTRON NOISE ANALYSIS SYSTEM
#002 09-NOV-81 15:20 CH1=NI-5, CH2=NI-7 , PG#027
PHASE IN DEGREES
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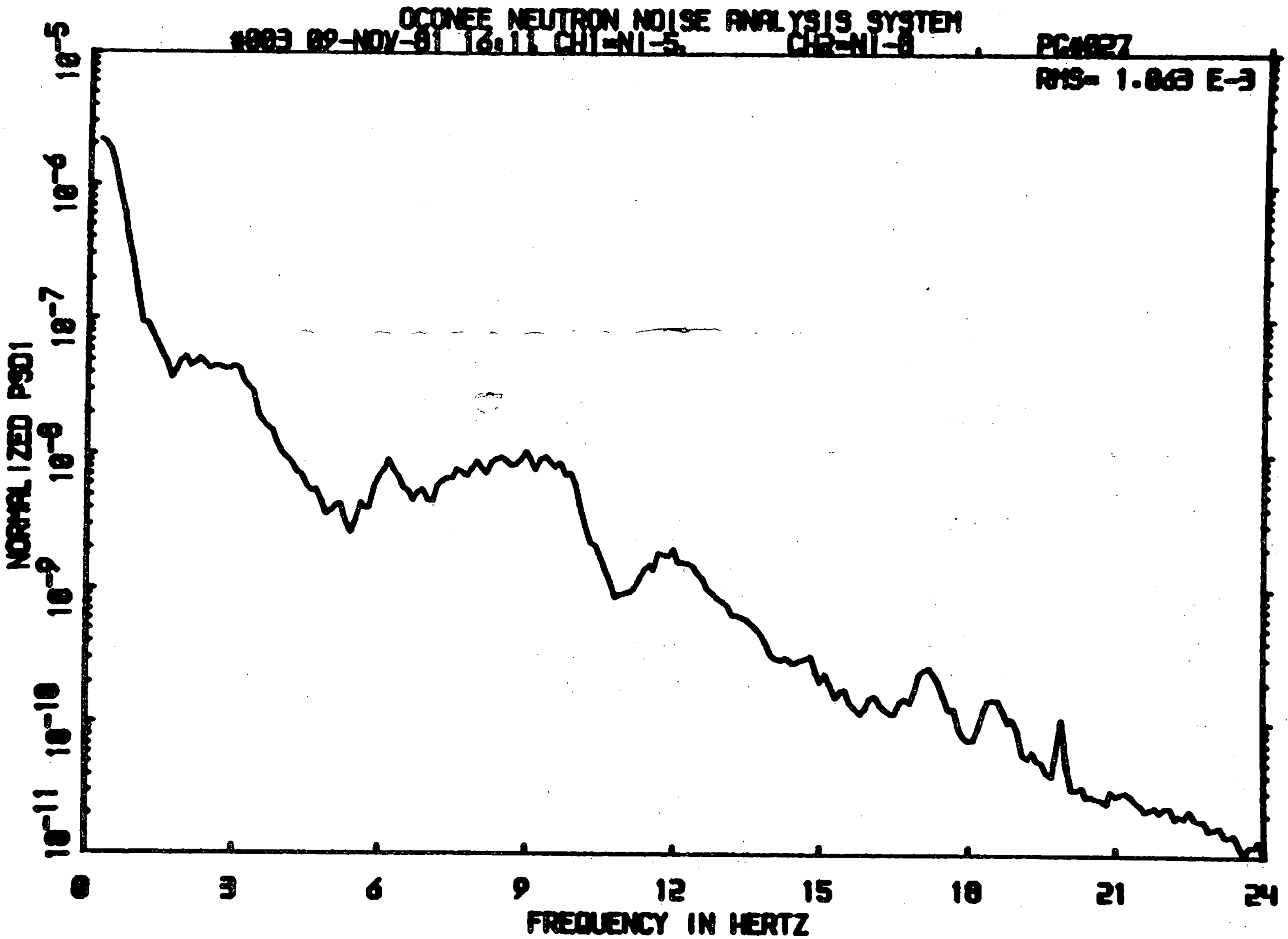
0
-90
-180
-270
0
3
6
9
12
15
18
21
24
FREQUENCY IN HERTZ


OCONEE NEUTRON NOISE ANALYSIS SYSTEM
#003 09-NOV-81 16:11 CH1=NI-5, CH2=NI-8
PG#027
RMS= 1.063 E-3
NORMALIZED PSD1
10^-5
10^-6
10^-7
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3
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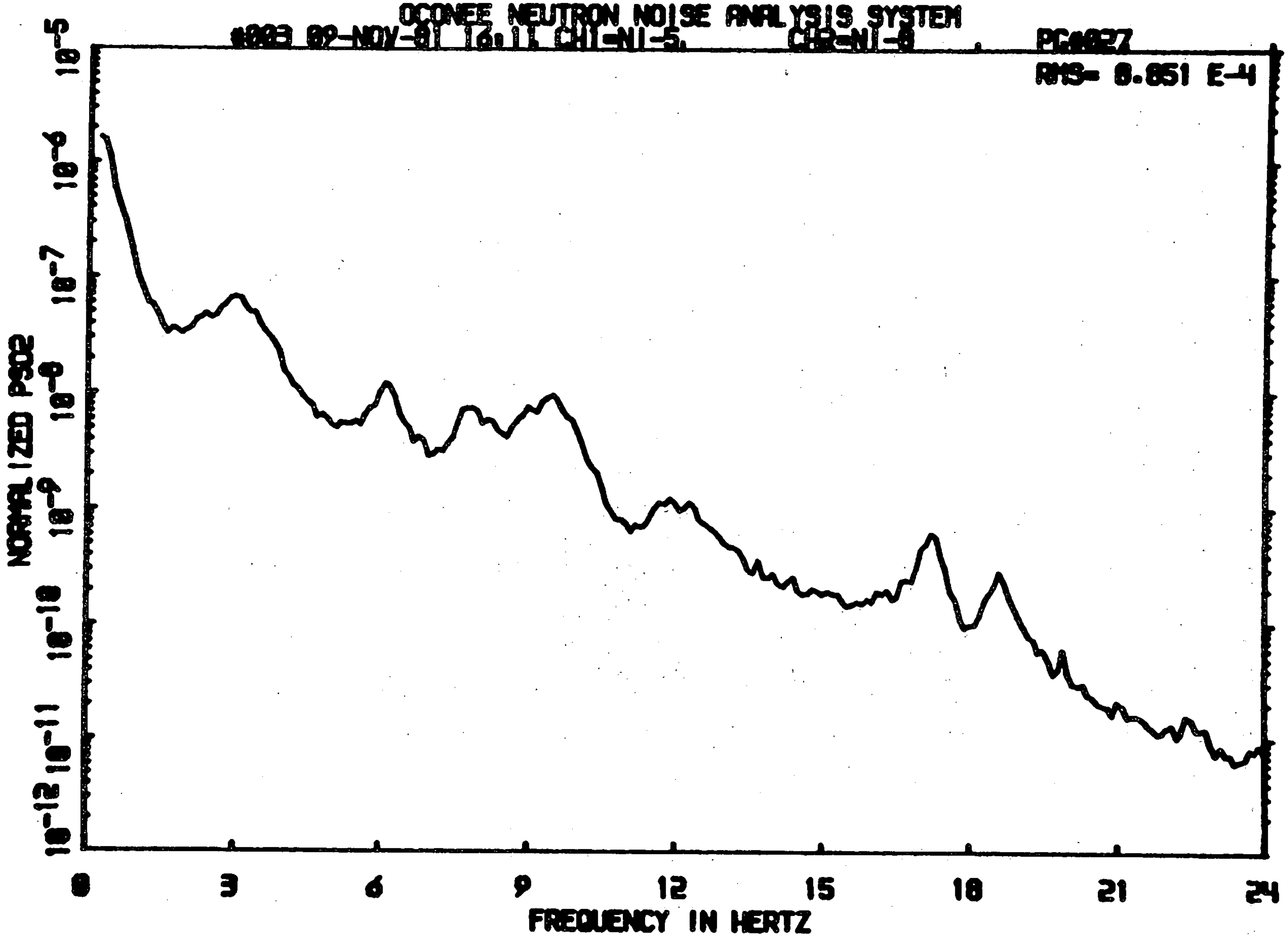
15
18
21
24
FREQUENCY IN HERTZ



OCONEE NEUTRON NOISE ANALYSIS SYSTEM
#003 09-NOV-81 16:11 CH1=NI-5, CH2=NI-8
PG#027
RMS= 0.851 E-4
NORMALIZED PSD2
10^-5
10^-6
10^-7
10^-8
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10^-11
10^-12
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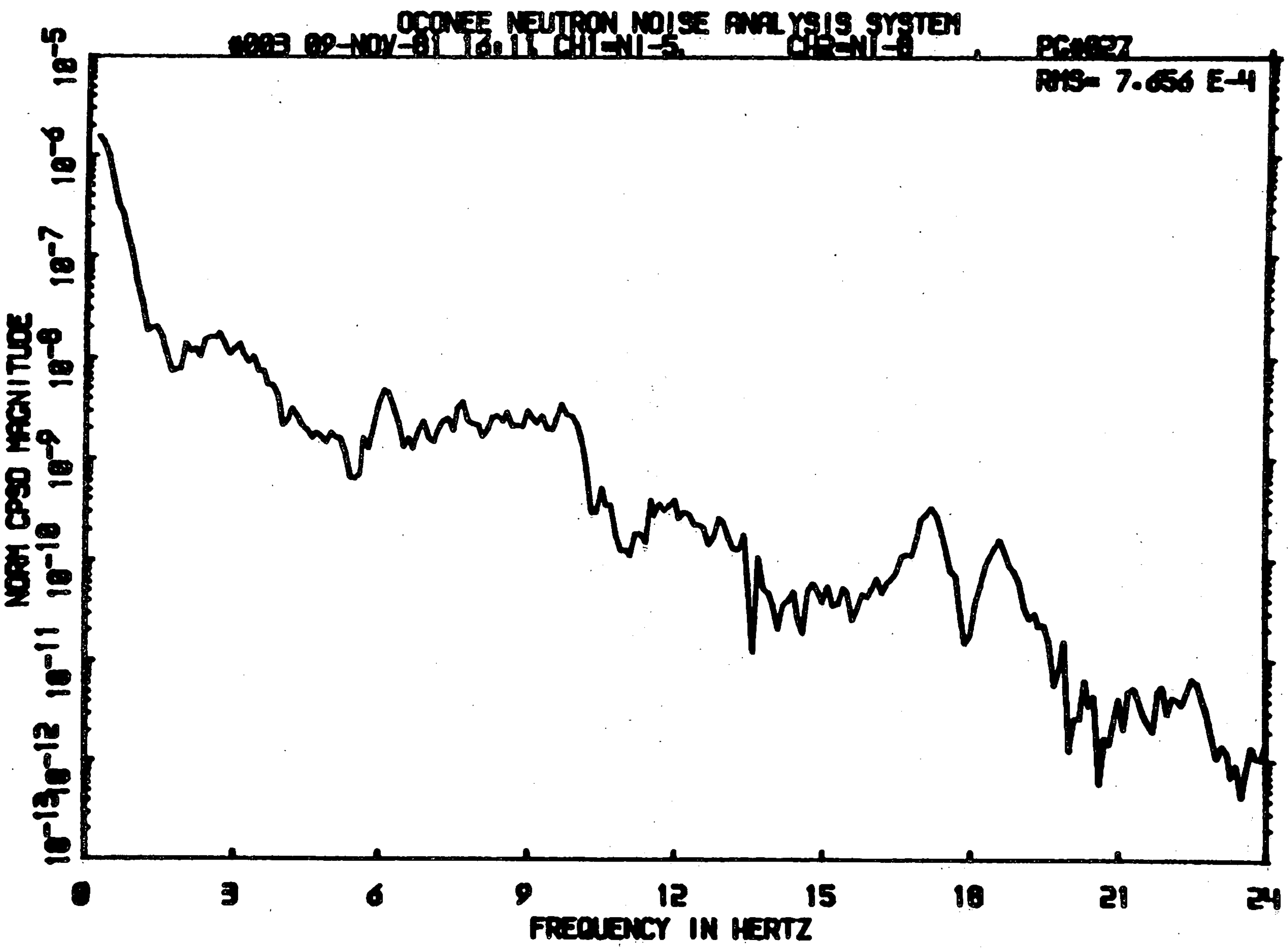
15
18
21
24
FREQUENCY IN HERTZ



OCONEE NEUTRON NOISE ANALYSIS SYSTEM
#003 09-NOV-81 16:11 CH1=NI-5, CH2=NI-6 PC#027
RMS= 7.656 E-4
NORM CPSD MAGNITUDE
10^-5
10^-6
10^-7
10^-8
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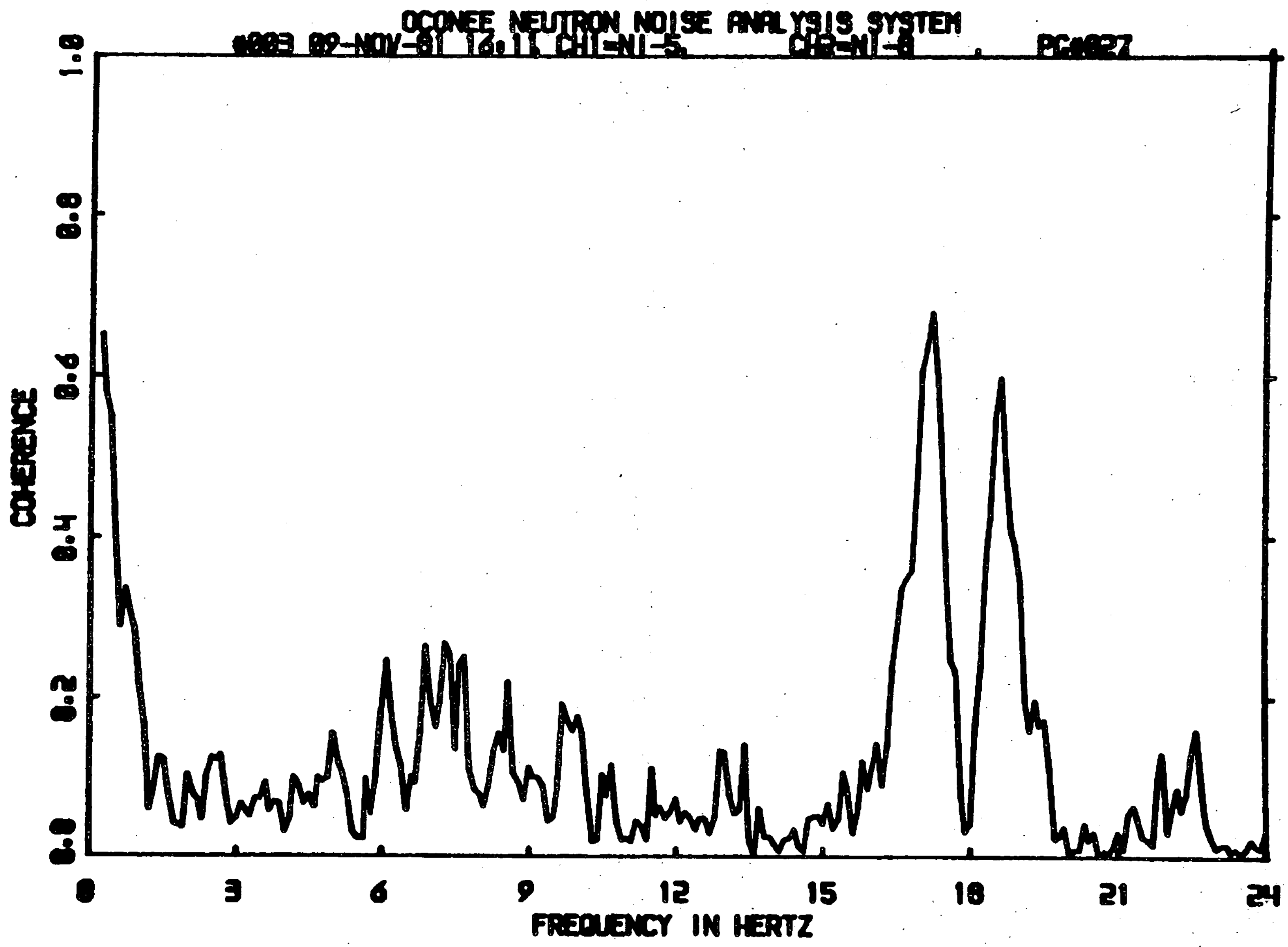
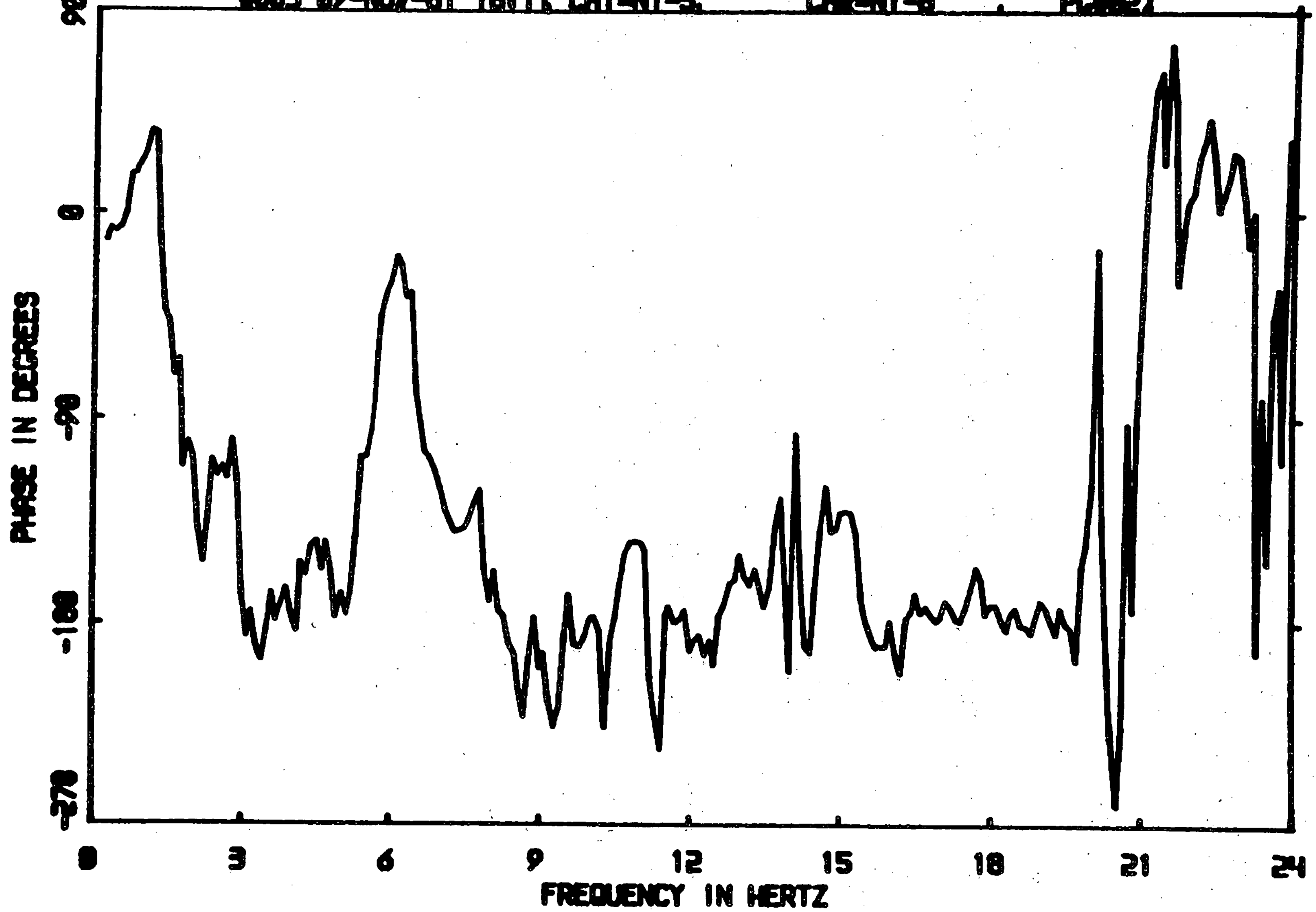
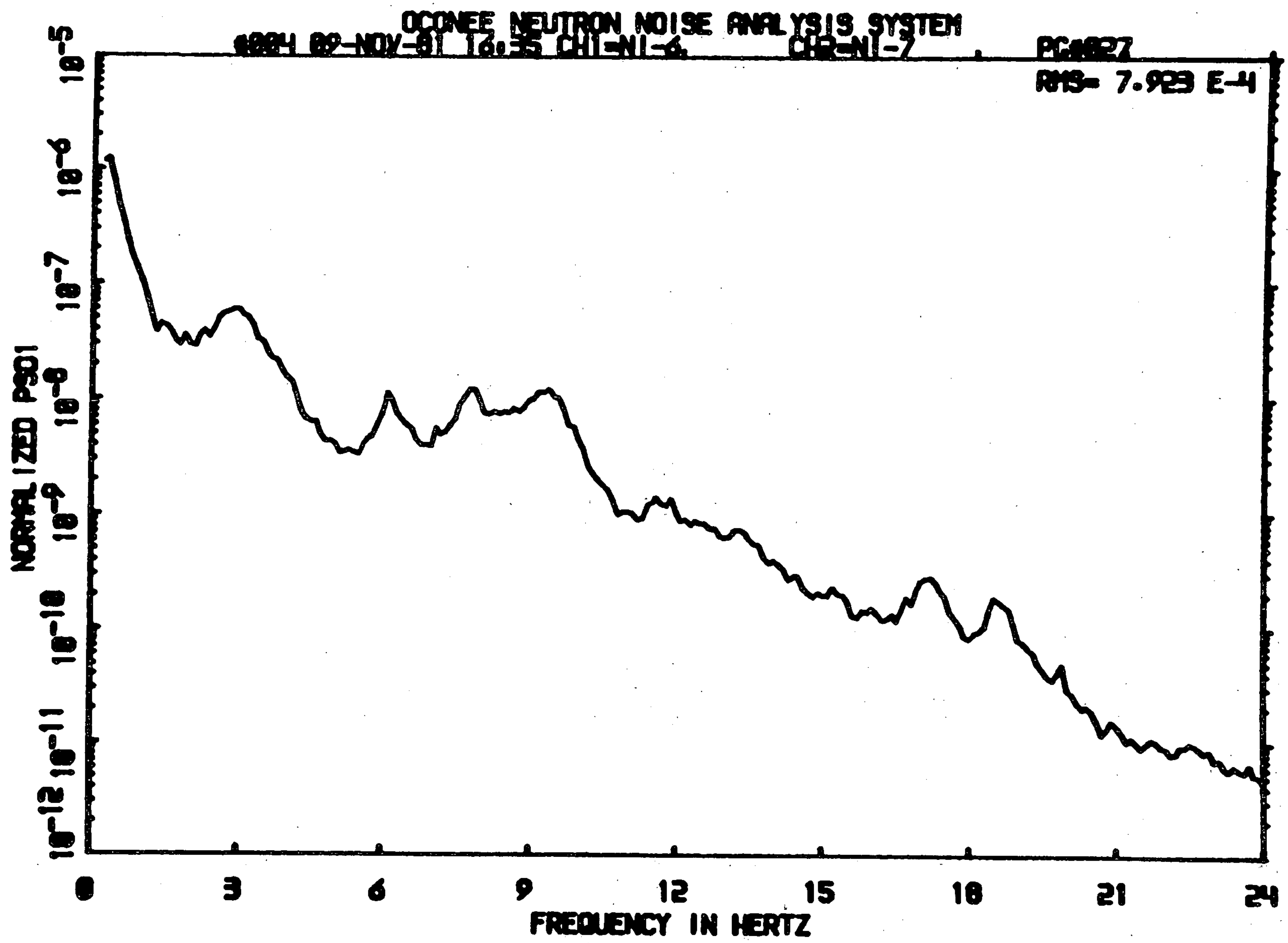
21
24
FREQUENCY IN HERTZ


OCONEE NEUTRON NOISE ANALYSIS SYSTEM
#003 09-NOV-81 16:11 CH1=NI-5, CH2=NI-8 , PC#027
COHERENCE
0.0
0.2
0.4
0.6
0.8
1.0
0
3
6
9
12
15
18
21
24
FREQUENCY IN HERTZ

OCONEE NEUTRON NOISE ANALYSIS SYSTEM

#003 09-NOV-81 16.11 CH1=NI-5, CH2=NI-8 PG#027





OCONEE NEUTRON NOISE ANALYSIS SYSTEM
#004 09-NOV-81 16:35 CH1=NI-6, CH2=NI-7
PC#027
RMS= 7.923 E-4
NORMALIZED PSD1
10^-5
10^-6
10^-7
10^-8
10^-9
10^-10
10^-11
10^-12
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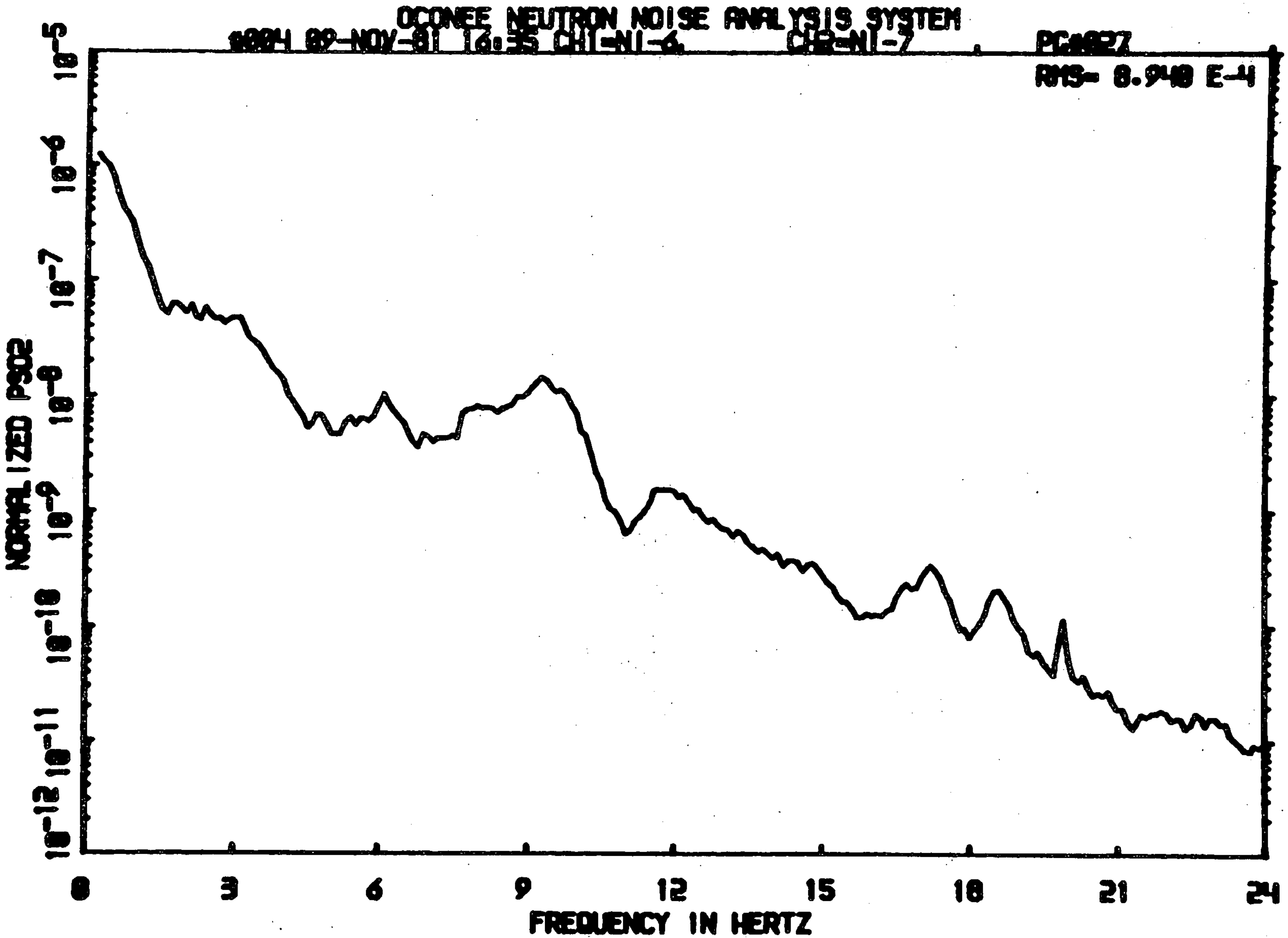
3
6
9
12
15
18
21
24
FREQUENCY IN HERTZ



OCONEE NEUTRON NOISE ANALYSIS SYSTEM
#004 09-NOV-81 16:35 CH1=NI-6, CH2=NI-7
PG#027
RMS= 8.940 E-4
NORMALIZED PSD2
10^-5
10^-6
10^-7
10^-8
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3
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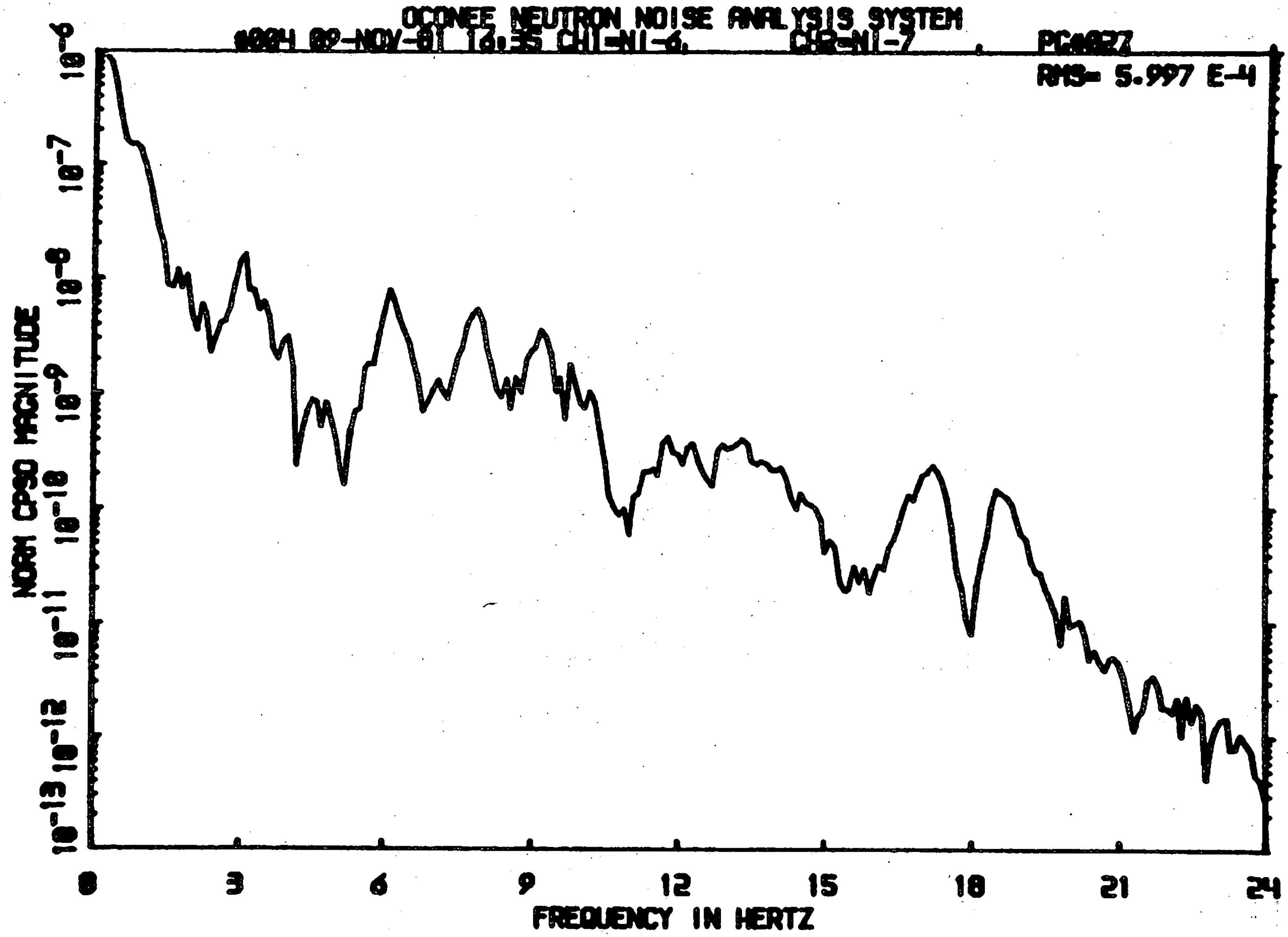
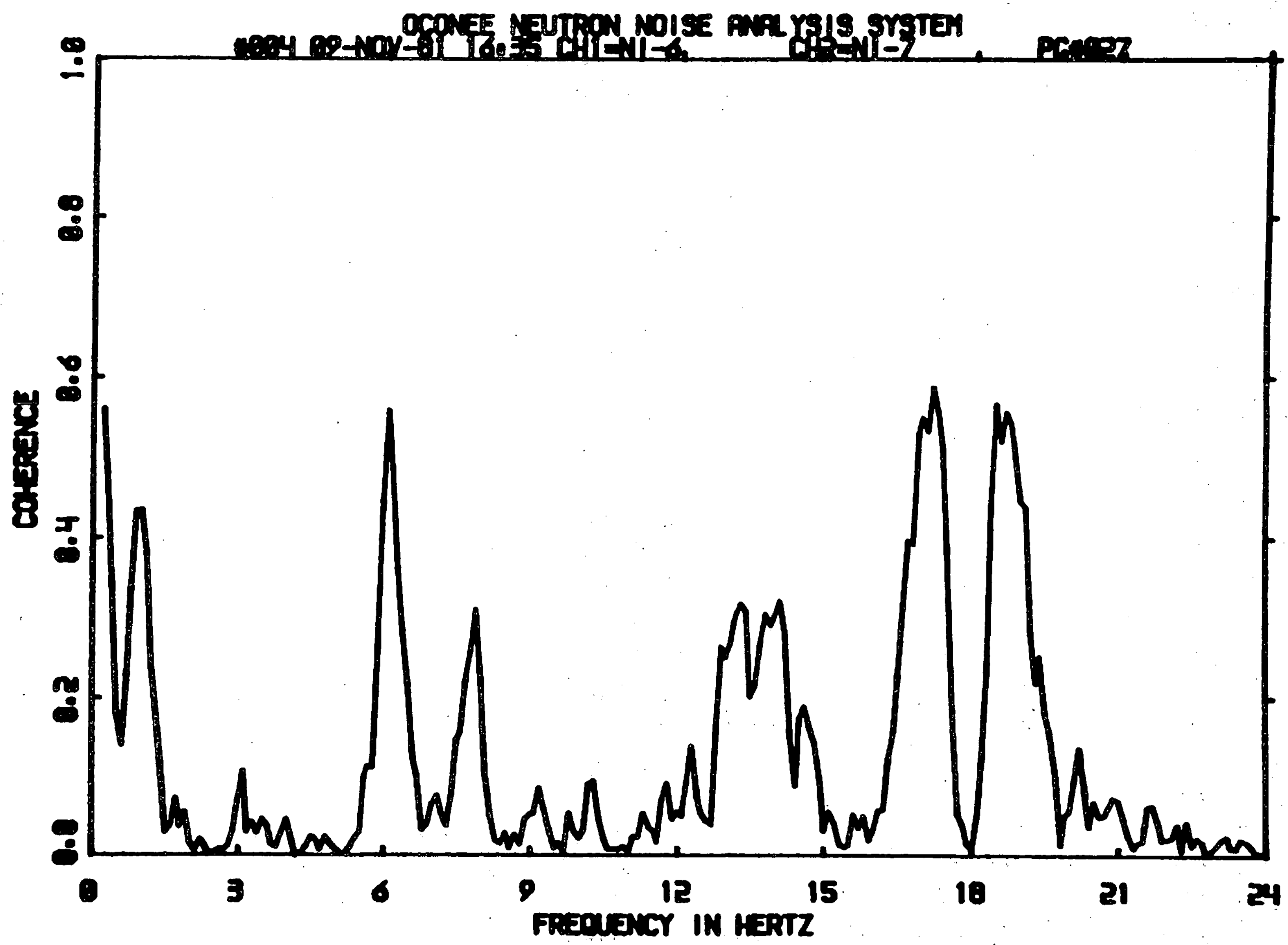
12
15
18
21
24
FREQUENCY IN HERTZ



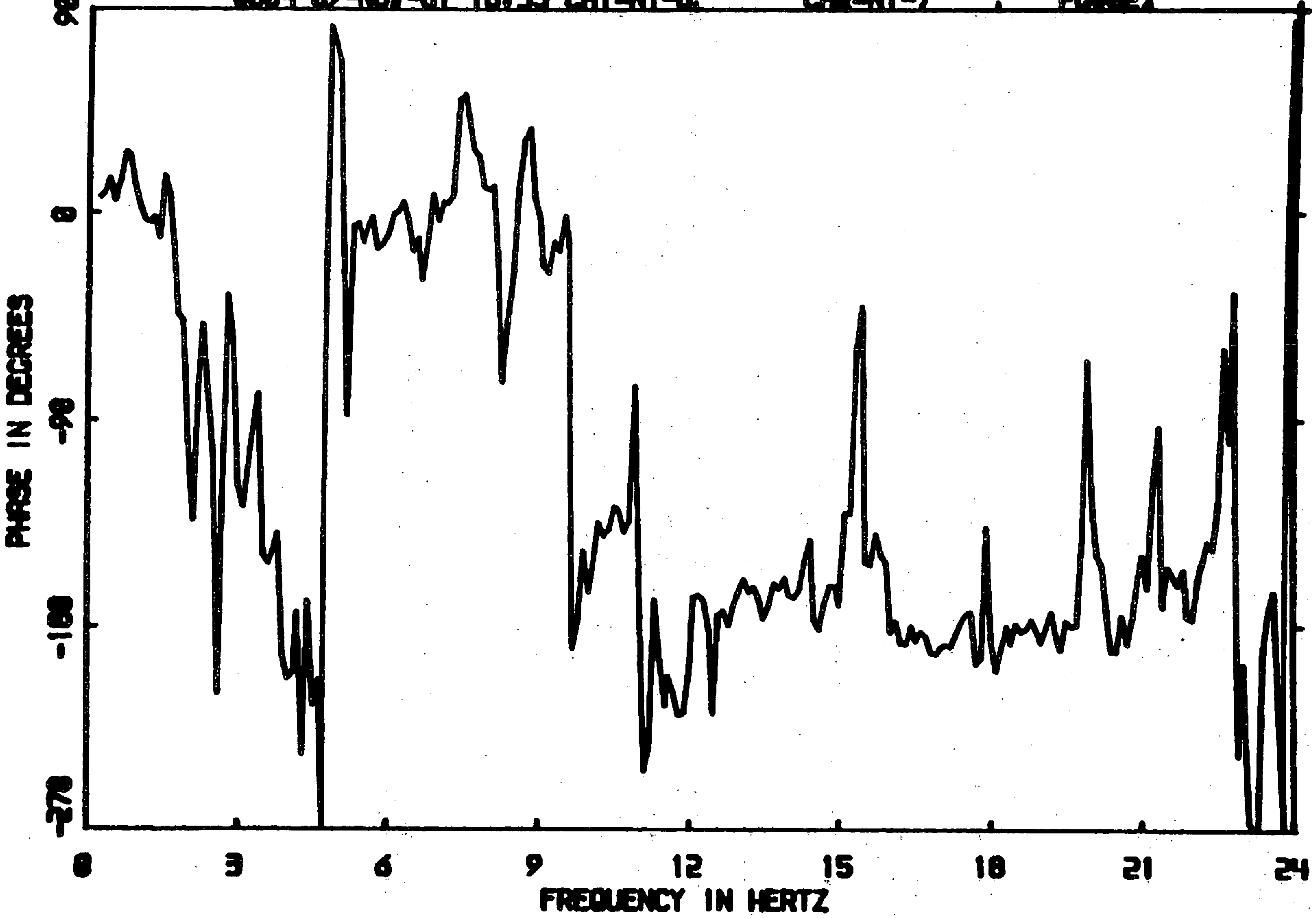
OCONEE NEUTRON NOISE ANALYSIS SYSTEM
#004 09-NOV-81 16:35 CH1=NI-6, CH2=NI-7 , PC#027
RMS= 5.997 E-4
NORM CPSD MAGNITUDE
FREQUENCY IN HERTZ

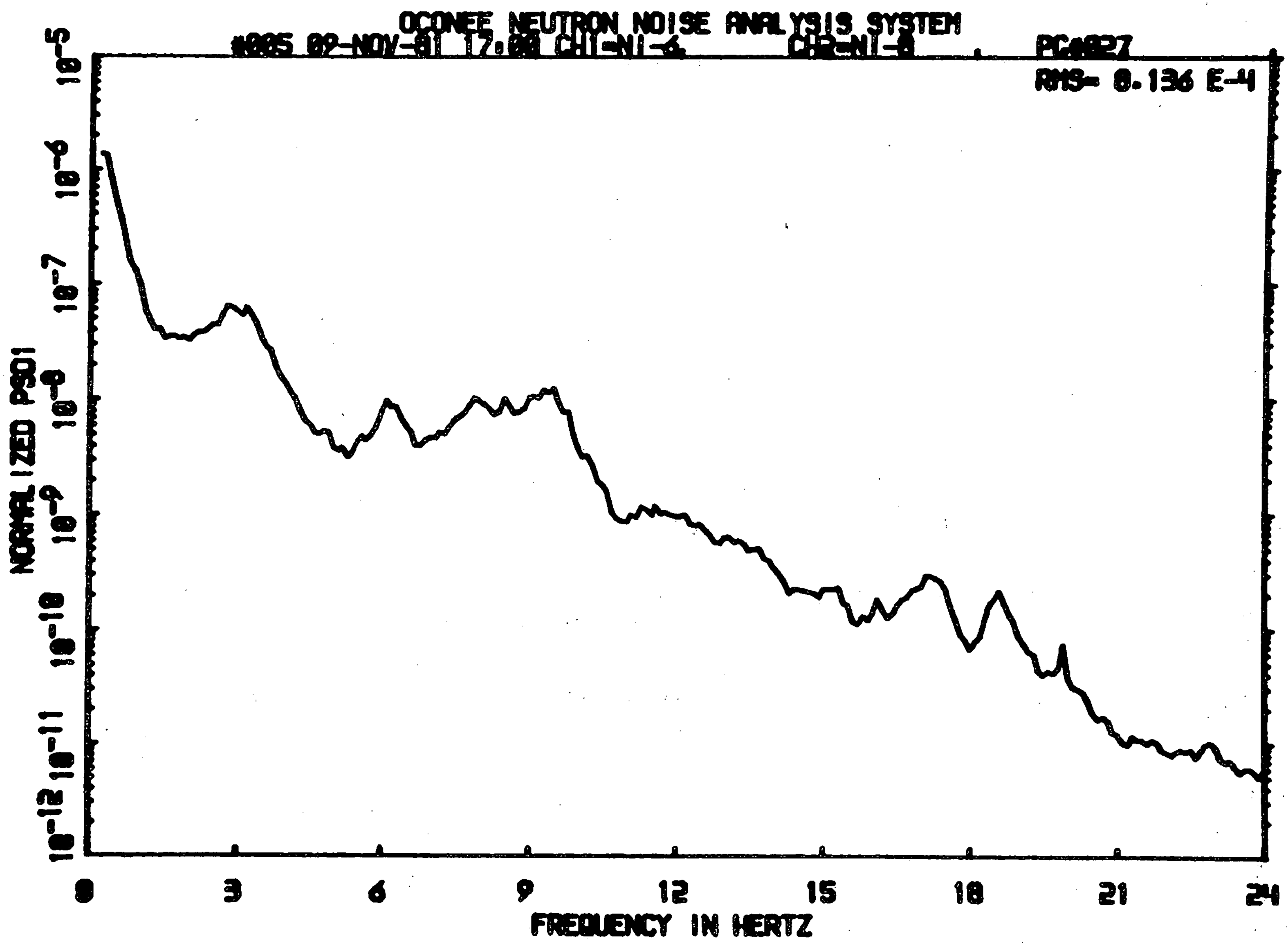


OCONEE NEUTRON NOISE ANALYSIS SYSTEM
#004 09-NOV-81 16:35 CH1=NI-6, CH2=NI-7 PG#027
COHERENCE
0.0
0.2
0.4
0.6
0.8
1.0
0
3
6
9
12
15
18
21
24
FREQUENCY IN HERTZ

OCONEE NEUTRON NOISE ANALYSIS SYSTEM

#004 09-NOV-81 16:35 CH1=NI-6. CH2=NI-7 . PC#027





OCONEE NEUTRON NOISE ANALYSIS SYSTEM
#005 09-NOV-81 17.00 CH1=NI-6 CH2=NI-8 PG#027
RMS= 0.136 E-4
NORMALIZED PSD1
10^-5
10^-6
10^-7
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10^-11
10^-12
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3
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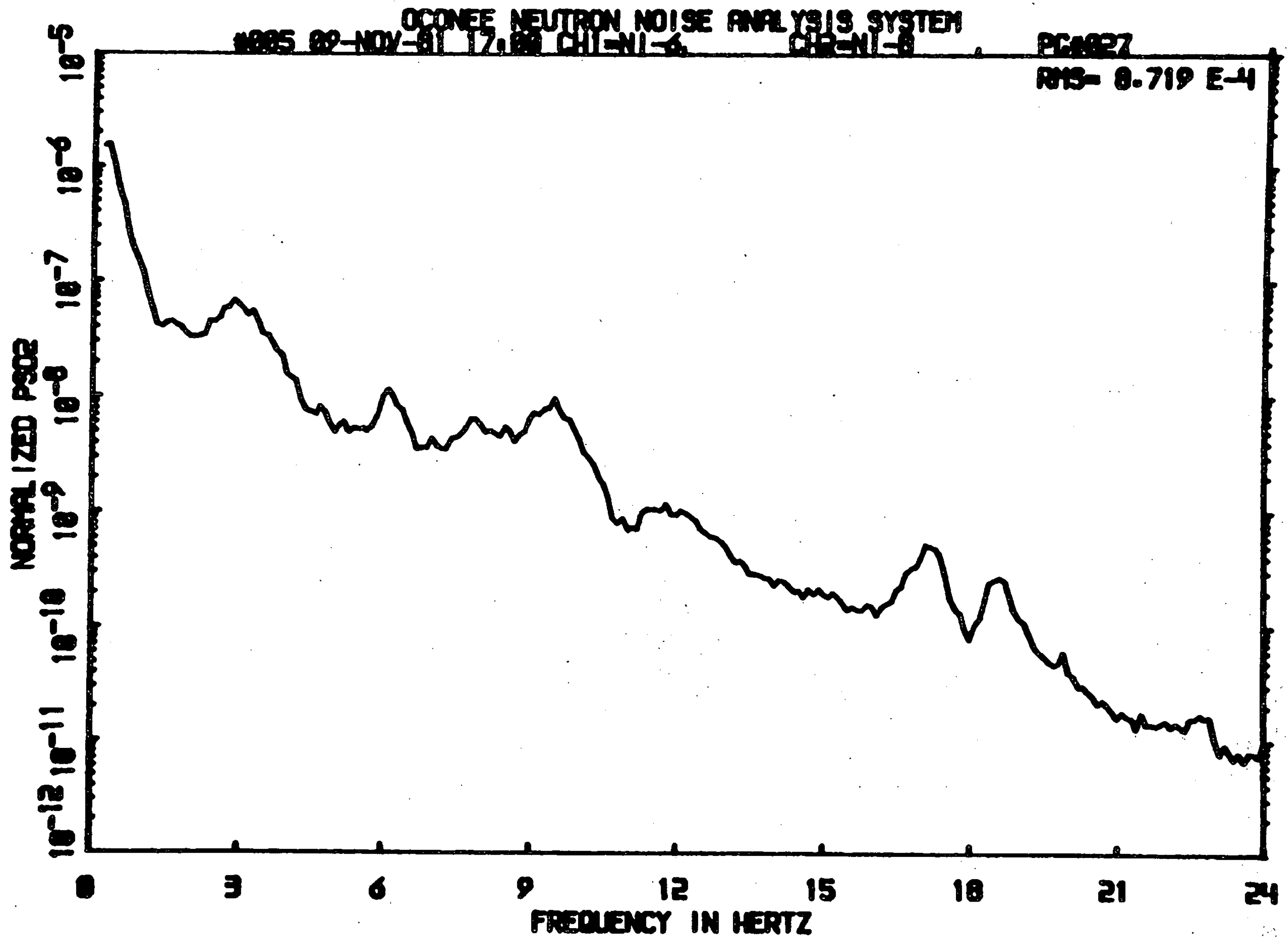
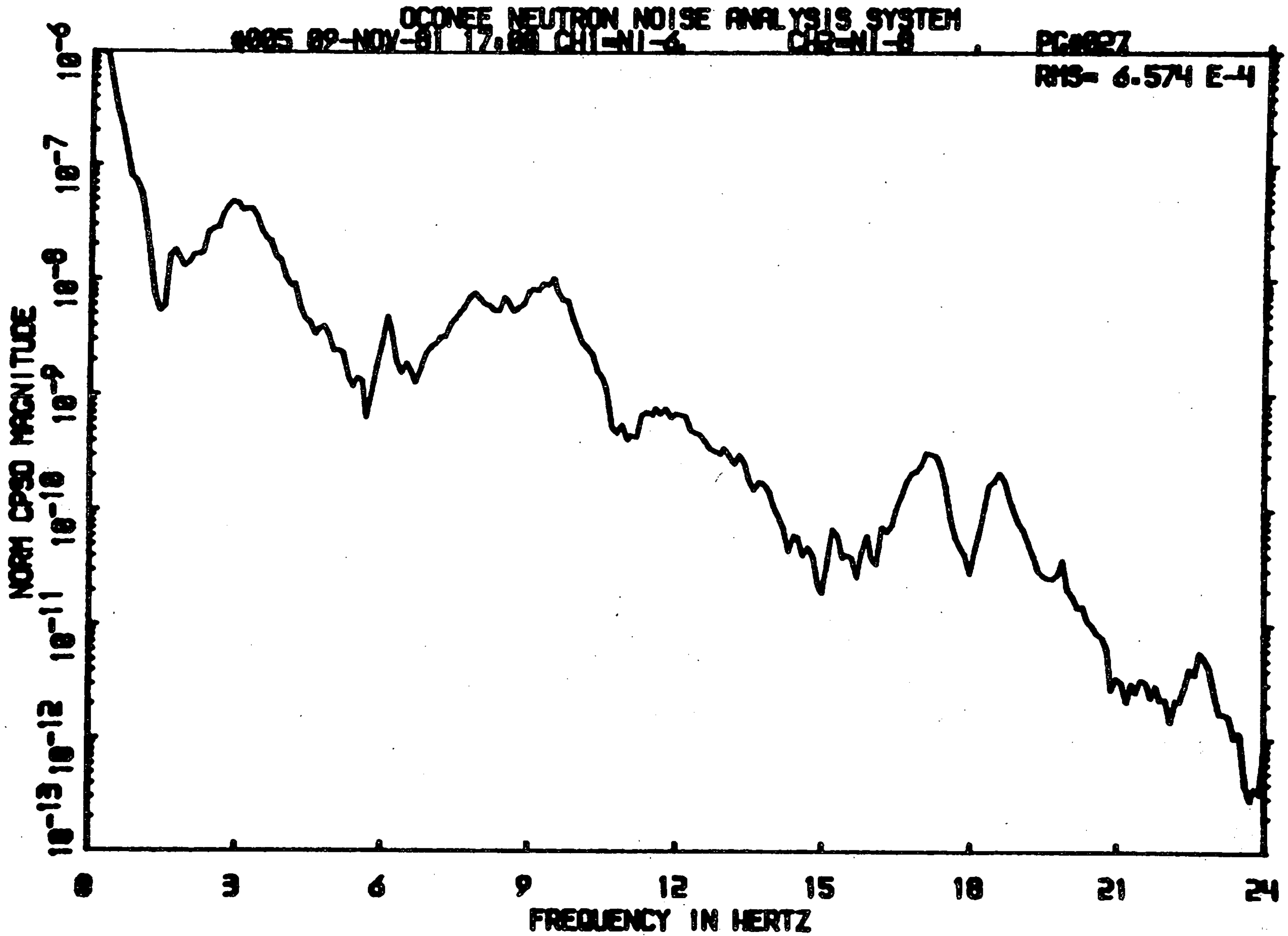
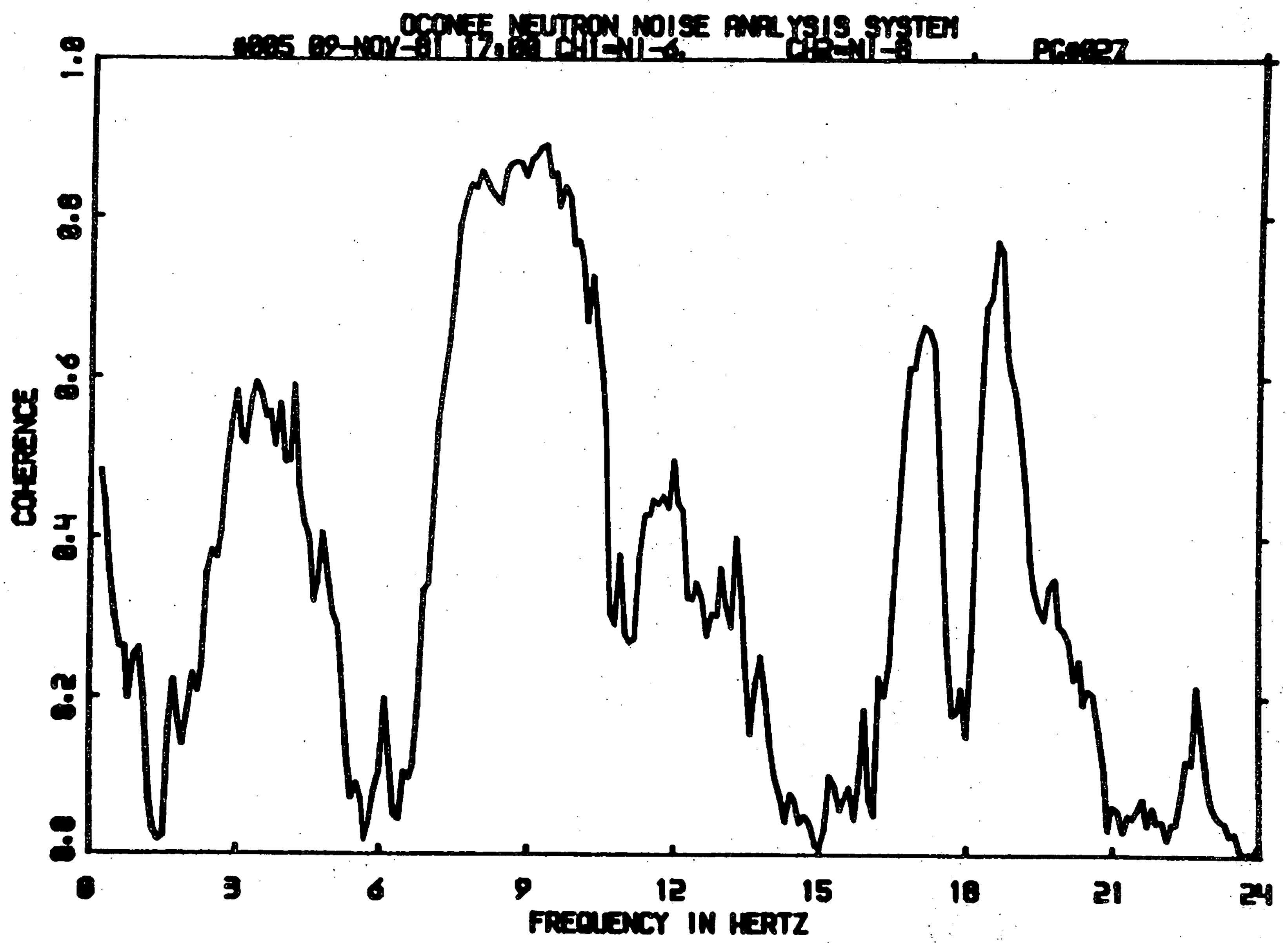
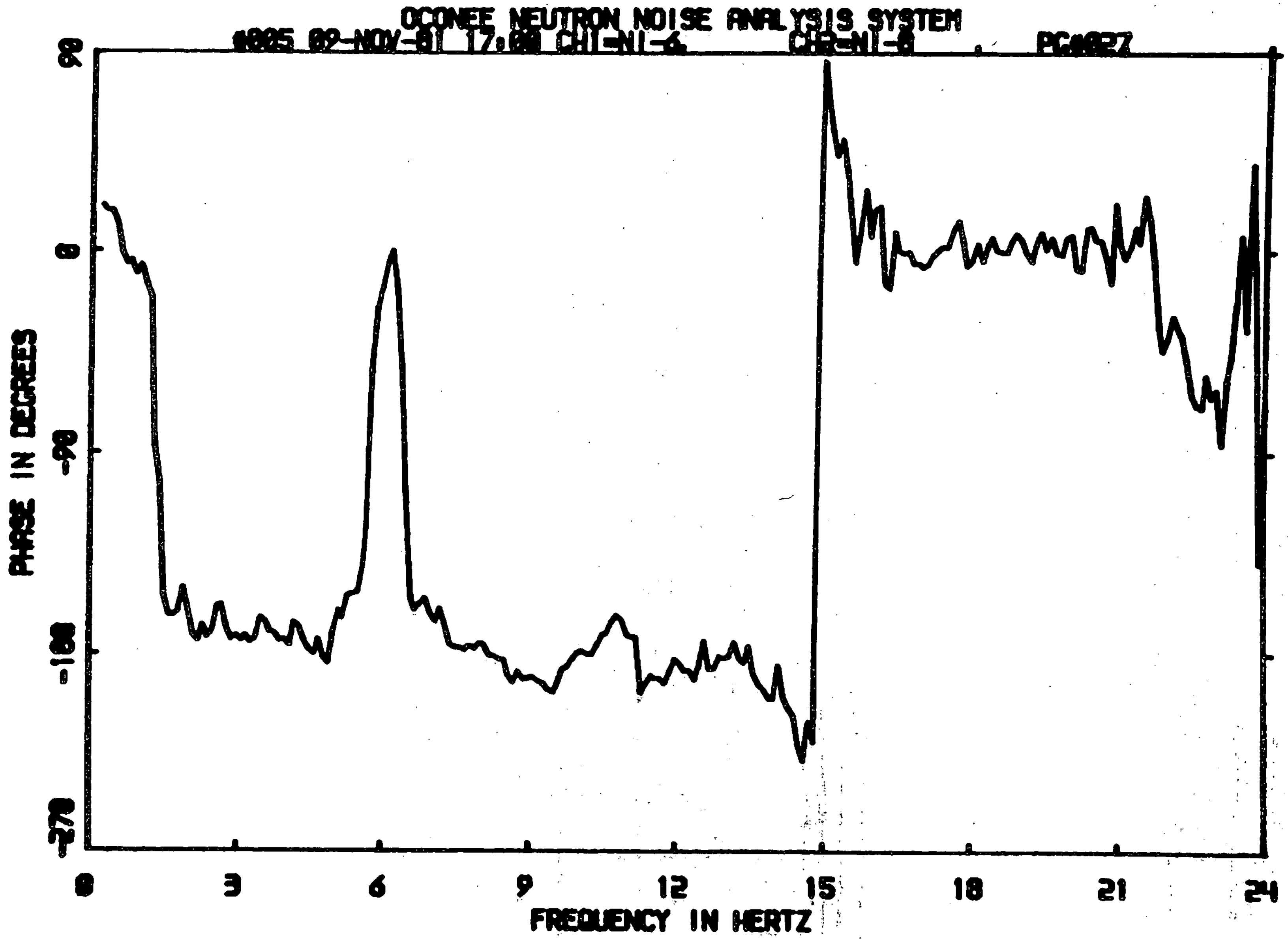
12
15
18
21
24
FREQUENCY IN HERTZ

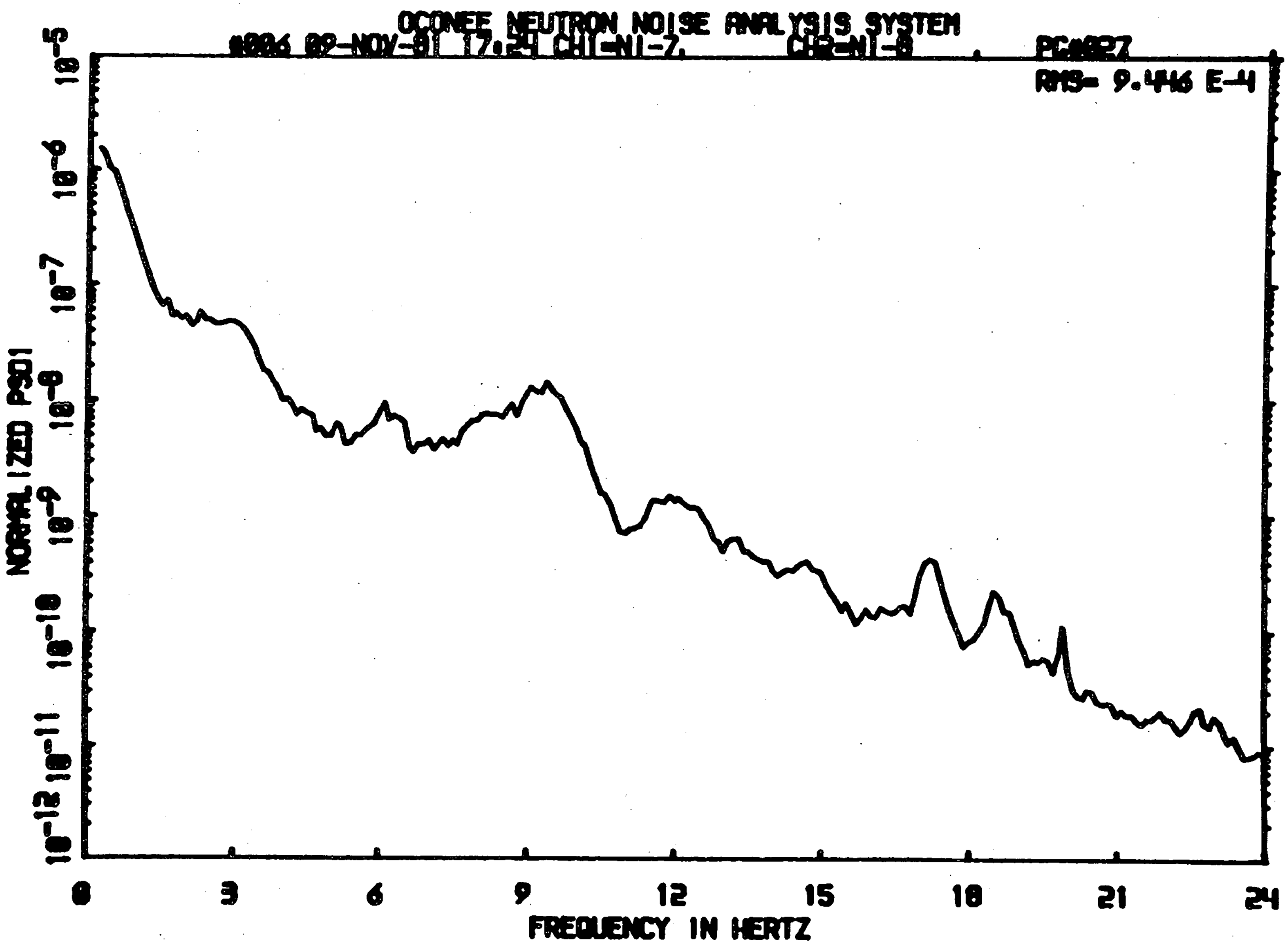

OCONEE NEUTRON NOISE ANALYSIS SYSTEM
#005 09-NOV-81 17:00 CH1=NI-6, CH2=NI-8
PC#027
RMS= 0.719 E-4
NORMALIZED PSD2
10^-5
10^-6
10^-7
10^-8
10^-9
10^-10
10^-11
10^-12
0
3
6
9
12
15
18
21
24
FREQUENCY IN HERTZ

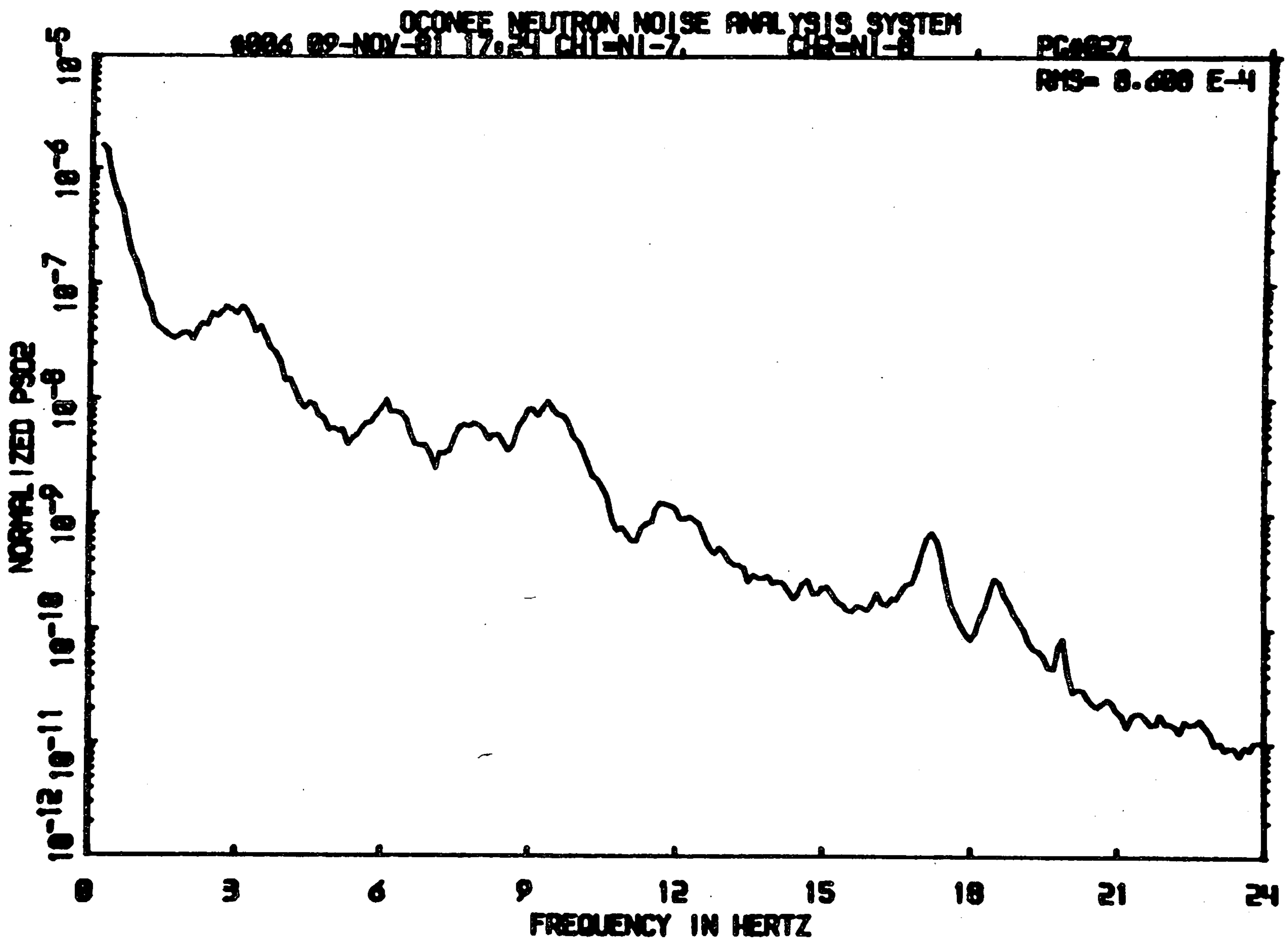


OCONEE NEUTRON NOISE ANALYSIS SYSTEM
#005 09-NOV-81 17,00 CH1=NI-6 CH2=NI-8
PG#027
RMS= 6.574 E-4
NORM CPSD MAGNITUDE
10^-6
10^-7
10^-8
10^-9
10^-10
10^-11
10^-12
10^-13
0
3
6
9
12
15
18
21
24
FREQUENCY IN HERTZ

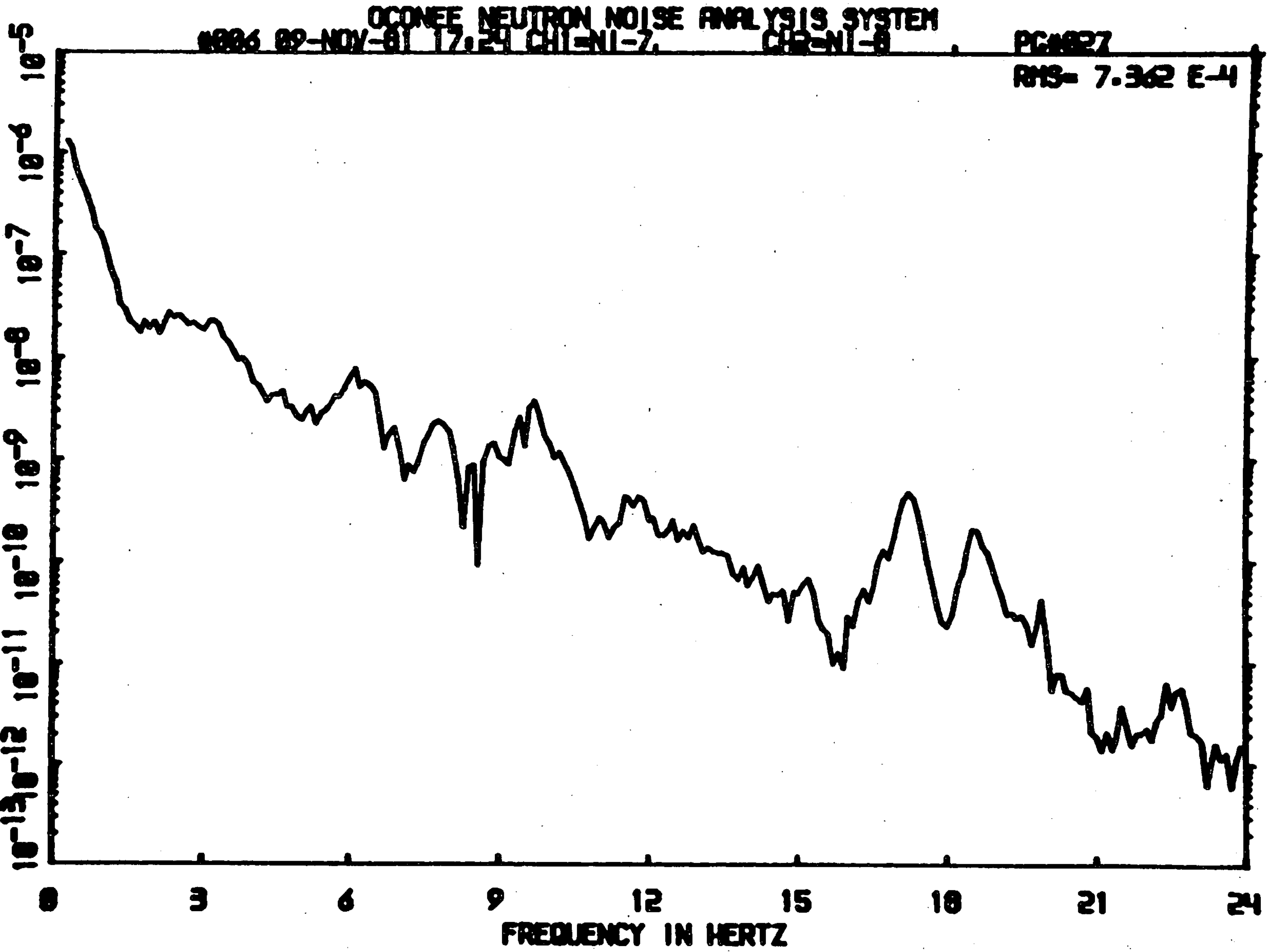

OCONEE NEUTRON NOISE ANALYSIS SYSTEM
#005 09-NOV-81 17.00 CH1=NI-6. CH2=NI-8 PG#027
COHERENCE
0.0
0.2
0.4
0.6
0.8
1.0
0
3
6
9
12
15
18
21
24
FREQUENCY IN HERTZ

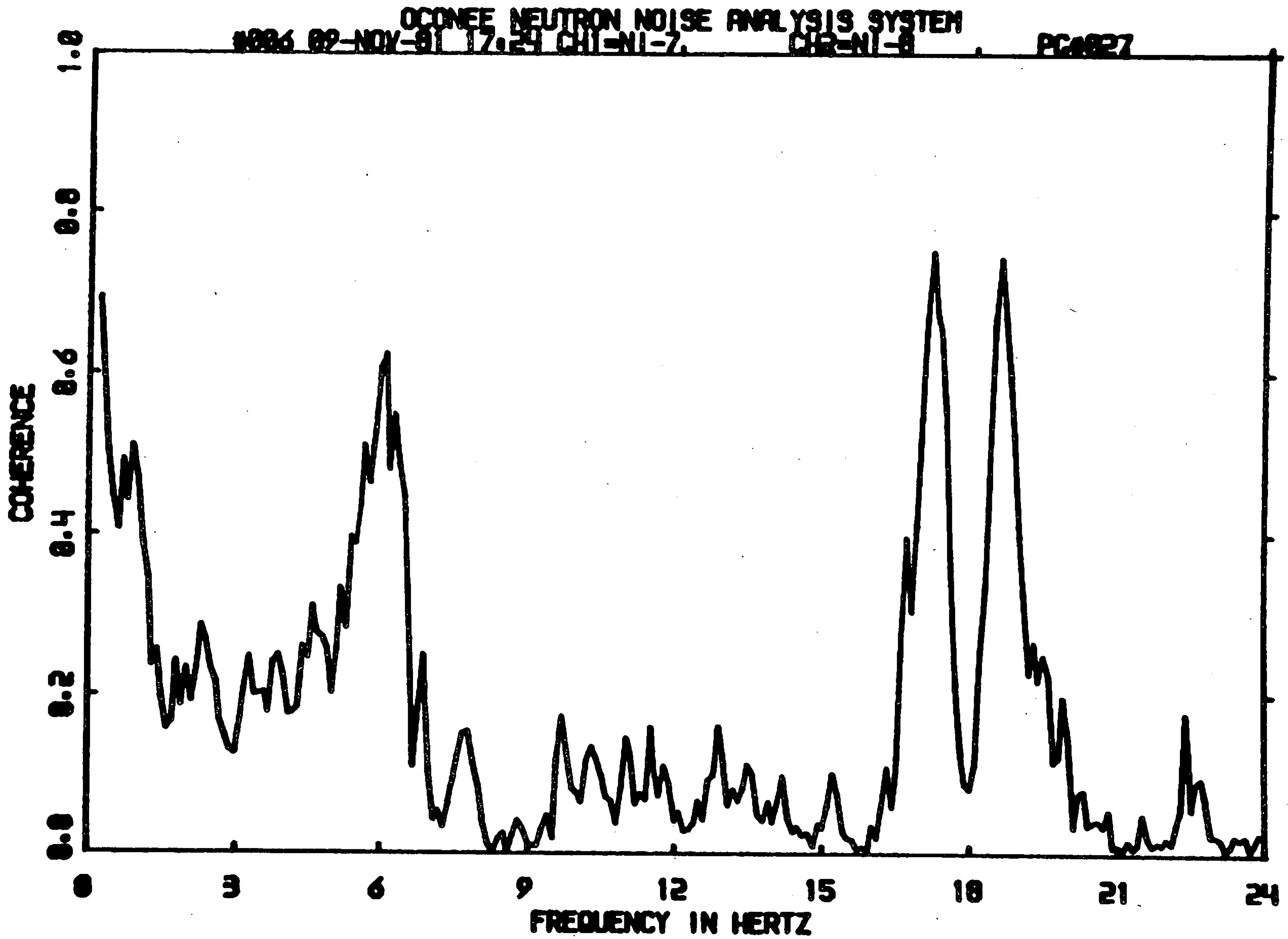

OCONEE NEUTRON NOISE ANALYSIS SYSTEM
#005 09-NOV-81 17:00 CH1=NI-6 CH2=NI-8 PG#027
90
0
-90
-180
-270
PHASE IN DEGREES
0
3
6
9
12
15
18
21
24
FREQUENCY IN HERTZ

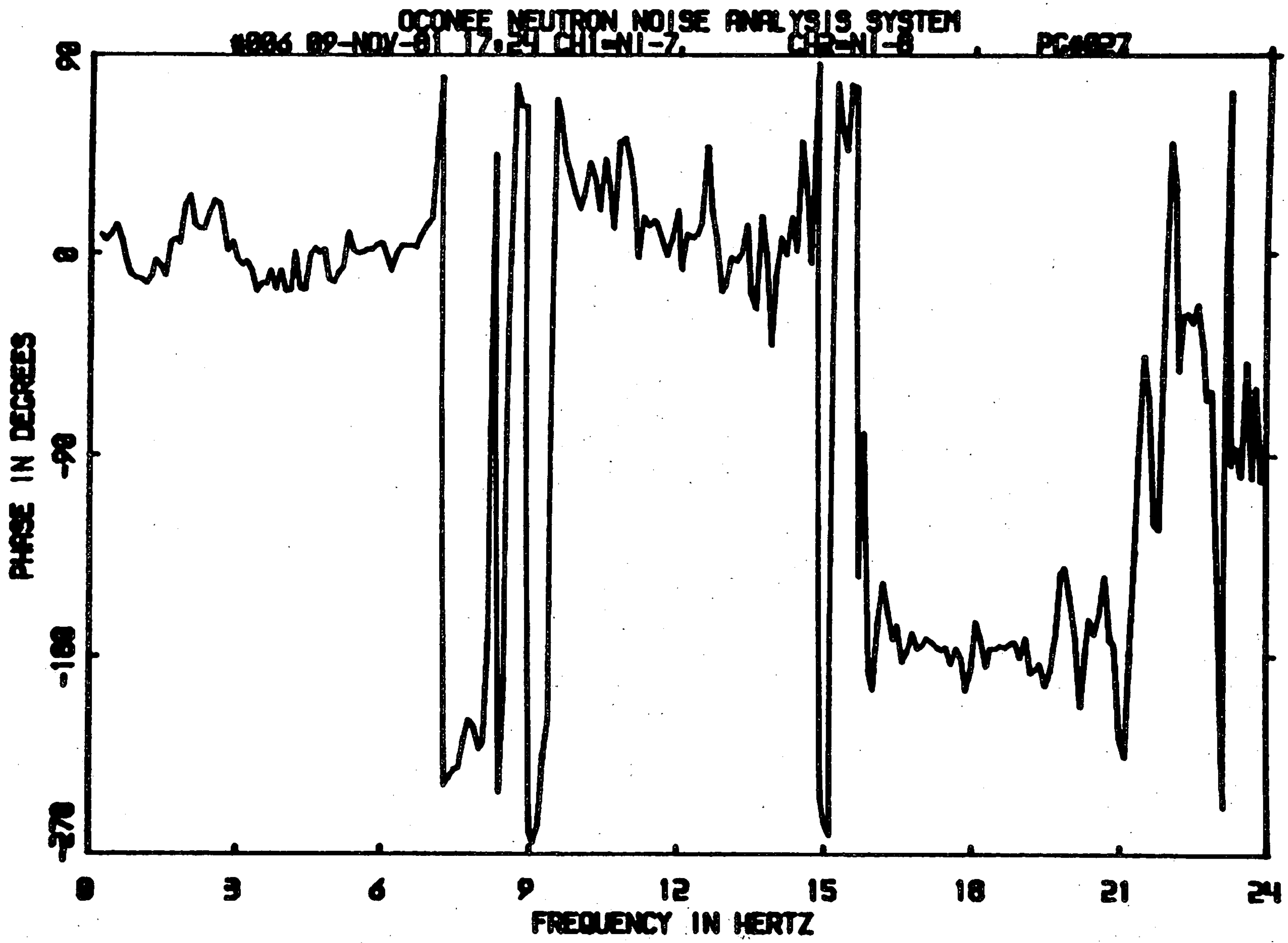

OCONEE NEUTRON NOISE ANALYSIS SYSTEM
#006 09-NOV-81 17.24 CH1=NI-7, CH2=NI-8 , PC#027
RMS= 9.446 E-4
NORMALIZED PSD1
10^-5
10^-6
10^-7
10^-8
10^-9
10^-10
10^-11
10^-12
0
3
6
9
12
15
18
21
24
FREQUENCY IN HERTZ



OCONEE NEUTRON NOISE ANALYSIS SYSTEM
#006 09-NOV-81 17:24 CH1=NI-7, CH2=NI-8
PG#027
RMS= 8.600 E-4
NORMALIZED PSD2
10^-5
10^-6
10^-7
10^-8
10^-9
10^-10
10^-11
10^-12
0
3
6
9
12
15
18
21
24
FREQUENCY IN HERTZ


OCONEE NEUTRON NOISE ANALYSIS SYSTEM
#006 09-NOV-81 17:24 CH1=NI-7, CH2=NI-8 , PG#027
RMS= 7.362 E-4
NORM CPSD MAGNITUDE
10^{-5} 10^{-6} 10^{-7} 10^{-8} 10^{-9} 10^{-10} 10^{-11} 10^{-12} 10^{-13}
0 3 6 9 12 15 18 21 24
FREQUENCY IN HERTZ


OCONEE NEUTRON NOISE ANALYSIS SYSTEM
#006 09-NOV-81 17:24 CH1=NI-7, CH2=NI-8 , PC#027
COHERENCE
0.0
0.2
0.4
0.6
0.8
1.0
0
3
6
9
12
15
18
21
24
FREQUENCY IN HERTZ



OCONEE NEUTRON NOISE ANALYSIS SYSTEM
#006 09-NOV-81 17.24 CH1=NI-7, CH2=NI-8 , PG#027
PHASE IN DEGREES
90
0
-90
-180
-270
0
3
6
9
12
15
18
21
24
FREQUENCY IN HERTZ