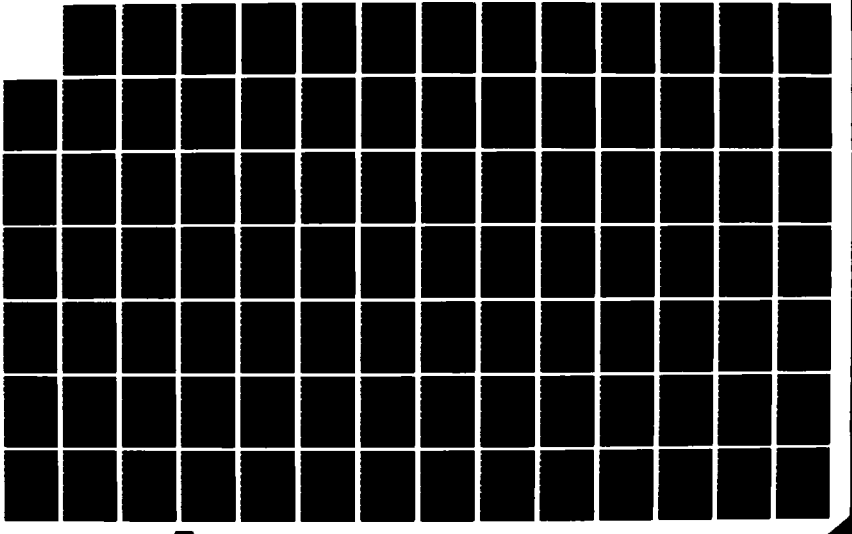
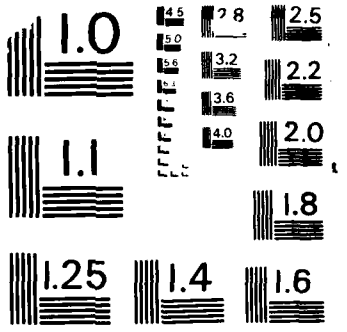
AD-A181 164 CATALOG OF LOW RESOLUTION INFRARED SPECTRA: 1/4
FIELD-WIDENED INTERFEROMETER (U) UTAH STATE UNIV LOGAN
SPACE DYNAMICS LABS R H HAYCOCK ET AL 26 JUN 85
UNCLASSIFIED SDL/85-046 AFGL-TR-85-0162 F19628-83-C-0056 F/G 20/6 NL





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AD-A181 164

AFGL-TR-85-0162

Catalog of Low Resolution Infrared Spectra: Field-Widened Interferometer - Sergeant A30.276

by

R.H. Haycock, V.A. Thurgood, A.J. Steed, and C.R. Harris

Space Dynamics Laboratories
Utah State University UMC-4140
Logan, Utah 84322

26 June 1985

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Prepared for:

Air Force Geophysics Laboratory
Air Force Systems Command
United States Air Force
Hanscom AFB, Massachusetts 01731

"This technical report has been reviewed and is approved for publication"

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Infrared Technology Division

FOR THE COMMANDER

RANDALL E. MURPHY, Director
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18 SUBJECT TERMS (Continue on reverse if necessary and identify by block number)

Low Resolution, Atmsopheric Emission, IR Spectra, [illegible]

19 ABSTRACT (Continue on reverse if necessary and identify by block number)

A Sergeant Rocket (A30.[illegible]) instrumented with a cryogenically-cooled, Michelson IR Interferometer was launched 13 April 19[illegible] from the Poker Flat, Alaska Research Range. The purpose of the flight was to measure IR emission spectra in the 2 - 7.5 μm region. The flight was extremely successful and provided first-resolved spectra of carbon monoxide (CO) near 4.[illegible] μm and [illegible] near 4.[illegible] μm. Further, the data from this flight provided the [illegible] of atmospheric emitters as a function of altitude. [illegible] μm, carbon dioxide (CO_2) near 4.[illegible] μm, and [illegible] μm.

[illegible] the spectra [illegible]

20 DISTRIBUTION/AVAILABILITY OF ABSTRACT UNCLASSIFIED/UNLIMITED [illegible] SAME AS RPT. ☒ DTIC USERS ☐	21 ABSTRACT SECURITY CLASSIFICATION [illegible]
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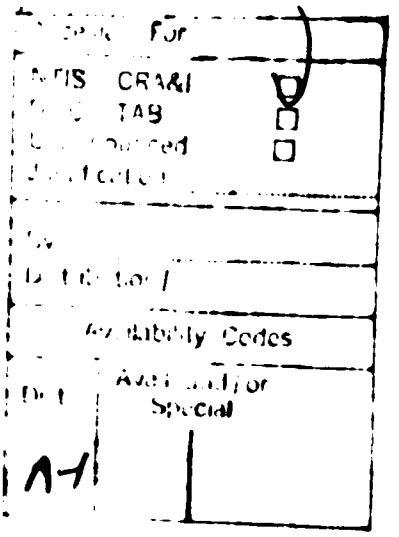

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* Denotes high quality spectra.
** Denotes lower quality spectra.
† Data files not designated with * or ** are poor quality.

1. INTRODUCTION

In recent years, the United States Air Force has supported several programs which have investigated the chemistry and physics of upper atmospheric energy dynamics. One such program is the Rocketborne Field-Widened Interferometer (RBFWI) program, in which Space Dynamics Laboratories (SDL) at Utah State University participated under contract no. F19628-81-C-0056.

The RBFWI program included the flight of a Sergeant rocket (A30.276) which was launched on 13 April 1983 from Poker Flat Research Range, Alaska into an IBC Class II aurora. The purpose of the flight was to measure emissions from the disturbed atmosphere with high spectral resolution and sensitivity to allow characterization of atmospheric emitters and excitation mechanisms. Specifically, researchers hoped to obtain vertical profiles, time histories, densities, and rotational/vibrational temperatures of certain atmospheric constituents. The prime instrument aboard the payload of A30.276 was a field-widened interferometer designed and fabricated by SDL and sponsored by the Defense Nuclear Agency (DNA) and the Air Force Geophysics Laboratory (AFGL).

The purpose of this scientific report is to catalog the data obtained by the interferometer during the flight of A30.276. It is one of two such catalogs which are in turn members of a series of scientific reports regarding the flight of A30.276 and its related instrumentation.

Other scientific reports prepared under contract F19628-81-C-0056 contain detailed information regarding the field-widened interferometer and other payload and ground based instrumentation used for the flight of A30.276.

Scientific Report No. 5 [Harris et al., 1984] discusses the field-widened interferometer design, data processing, calibration of instrument response, wavenumber calibration, rocket altitude, and chemical compound analyses.

Scientific Report No. 7 [Ulwick et al., 1985] discusses the support instruments aboard A30.276 (the atomic oxygen detector, energy deposition scintillator, and photometers) and data from the supporting ground based instruments.

Scientific Report No. 8 [Zachor et al., 1985] discusses linear least-squares and other data reduction techniques used to analyze spectral data obtained in the RBFWI experiment.

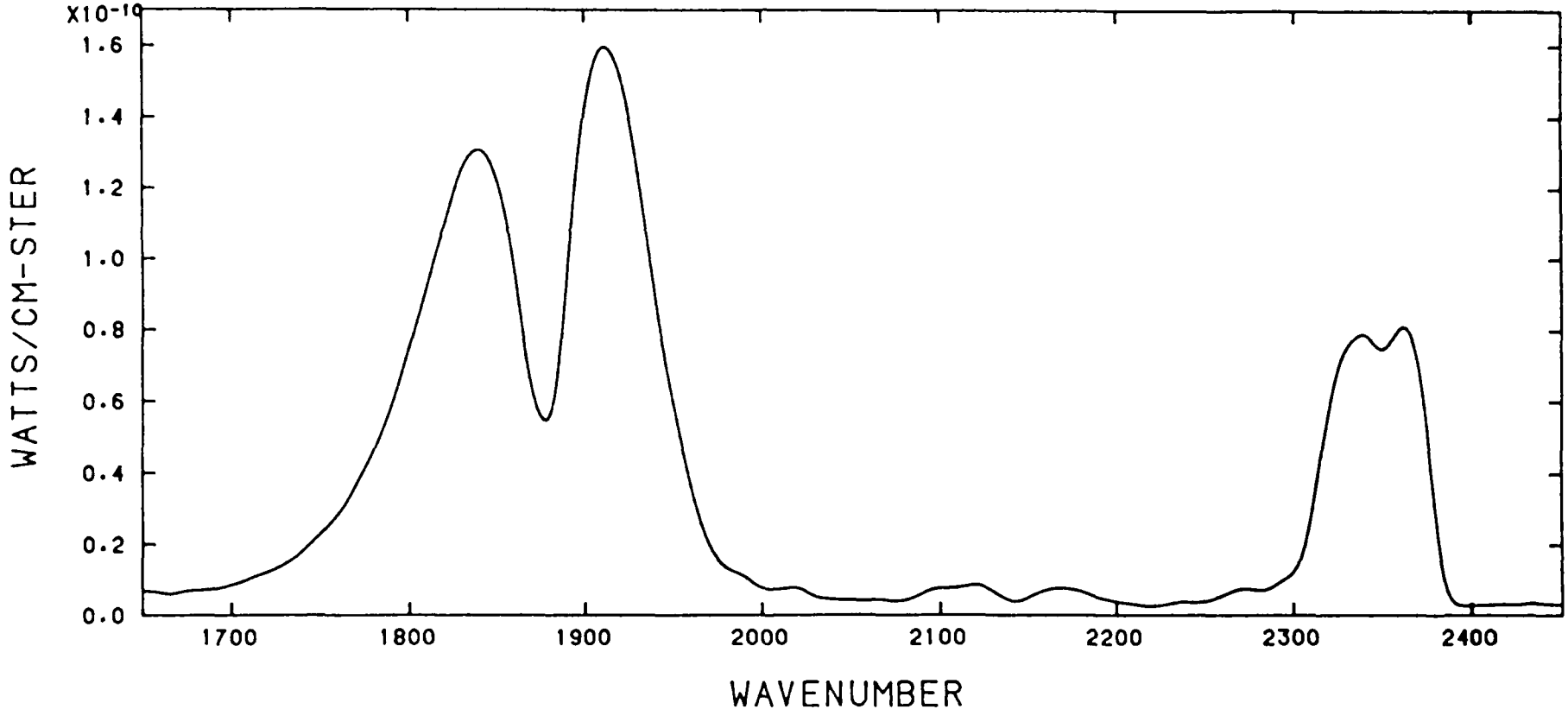
Scientific Report No. 10 [Harris et al., 1985] also catalogs the data obtained during the flight of A30.276. In contrast to this report, Scientific Report No. 10 presents the spectra at a higher resolution.

1.1 DATA OVERVIEW

The data cataloged in this report represents the results of performing an 8,000-point Fourier transform on the raw data and then apodizing it using a Hamming function which yielded a full width at half maximum resolution of 13.1 cm^{-1}. Each spectrum contained herein constitutes a data file and is composed of two graphs of intensity (watts/cm-ster) vs. wavenumber (cm^{-1}). The second of the two graphs clarifies the lower intensities by exhibiting a factor of ten enhancement on the vertical scale. Each file also includes the data file number, altitude of the interferometer at the time of data acquisition, and the date and time the data was plotted.

Due to an instrument malfunction during flight, only the following data files are of high quality: 1-15, 17, 23, 26, 27, 81, 115, 116, 127, and 133. Files 16, 38, 40, 46, 47, 57, 75, 78, 114, 117, and 131 are of lower quality; the remaining files are of poor quality.

INTERFEROMETER DATA



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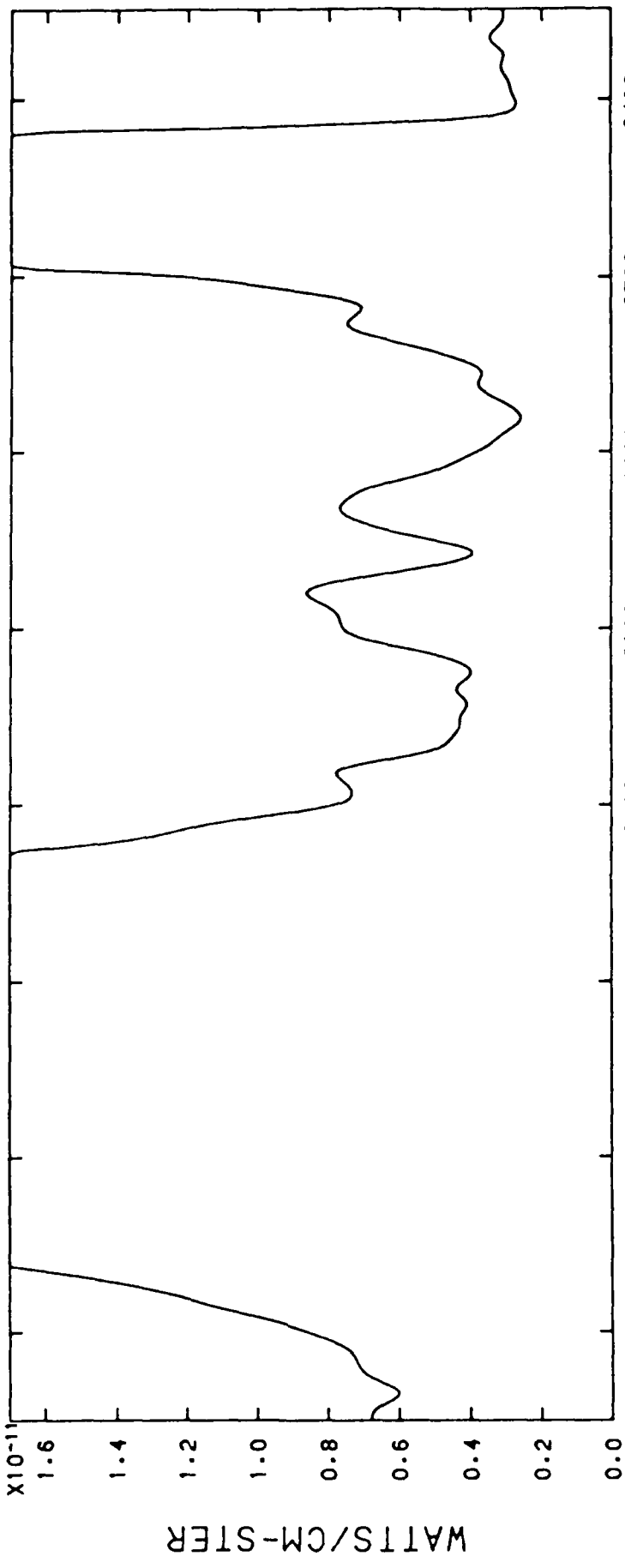

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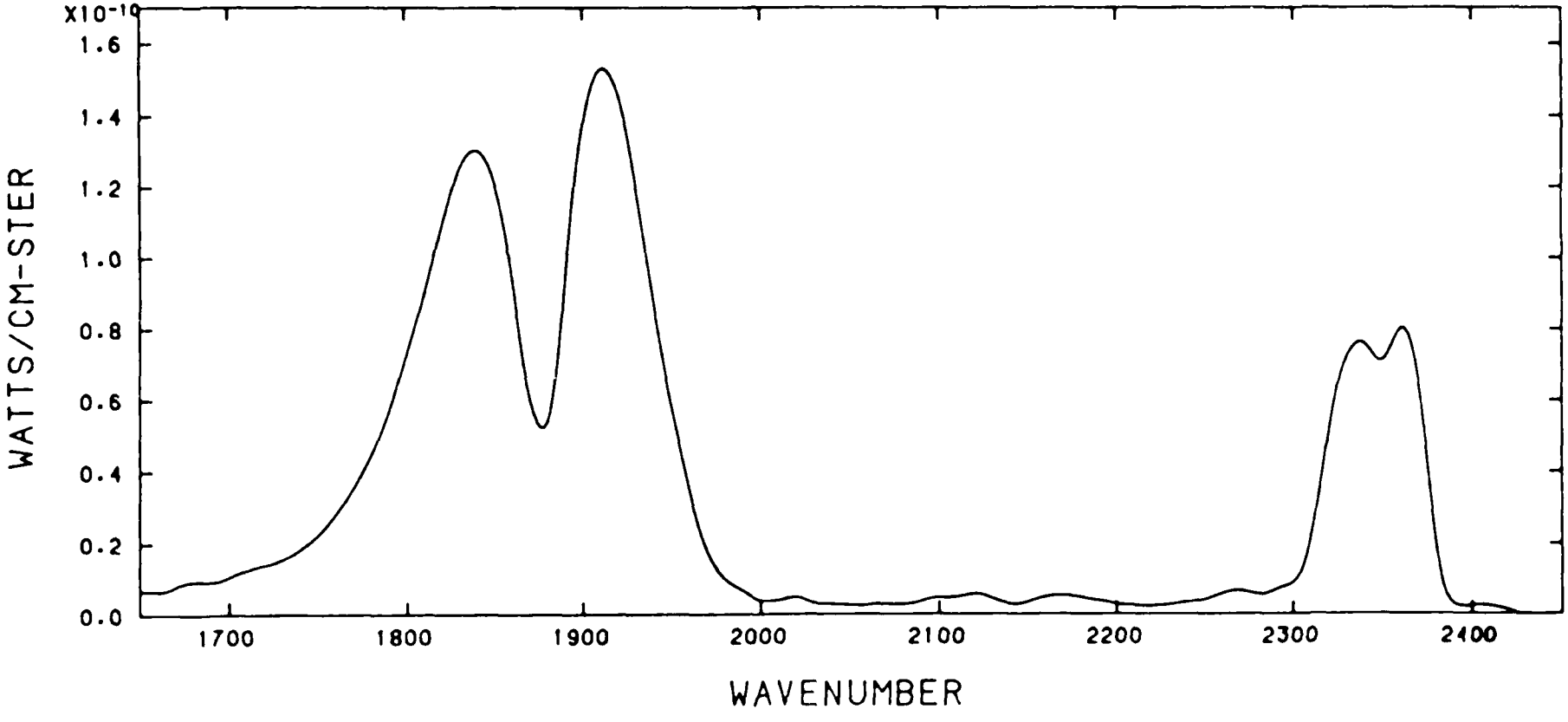

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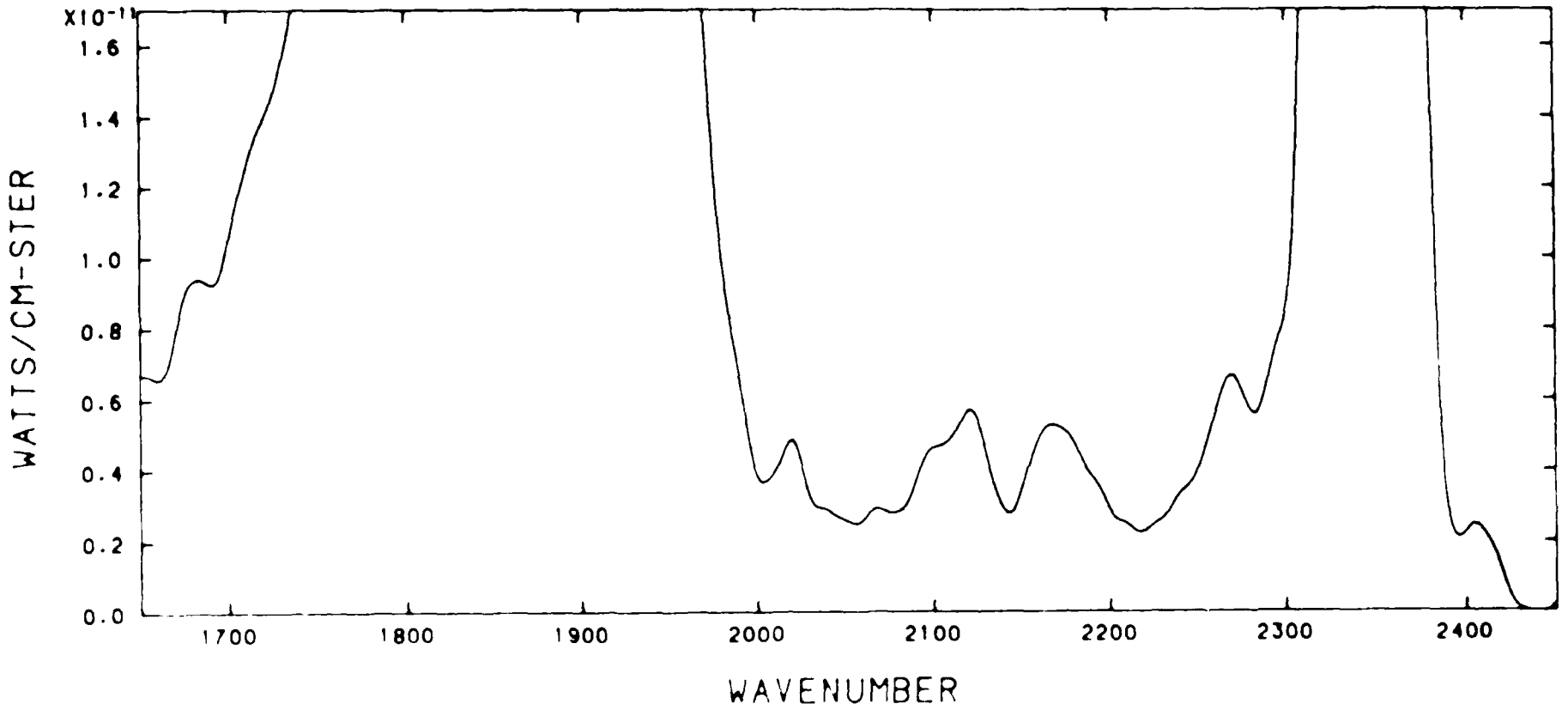

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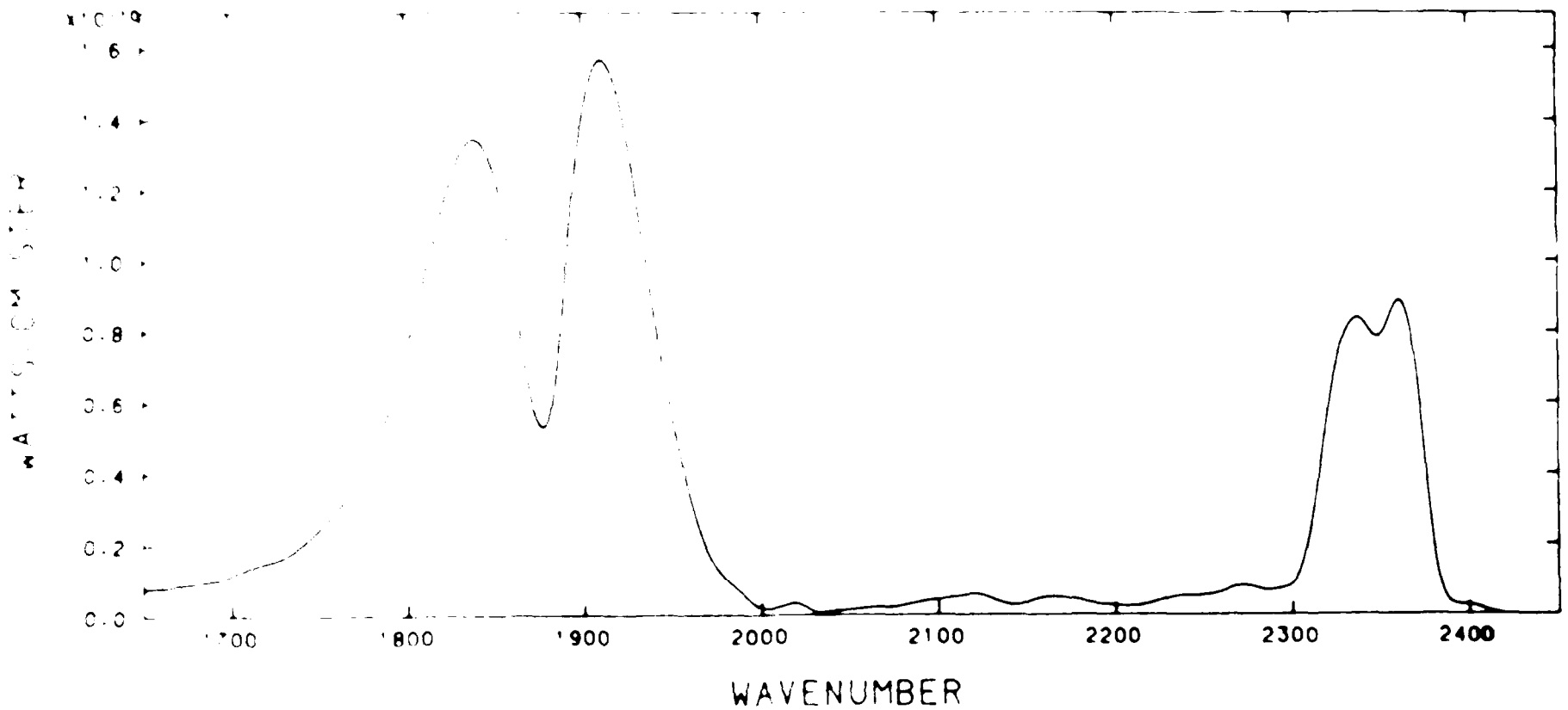

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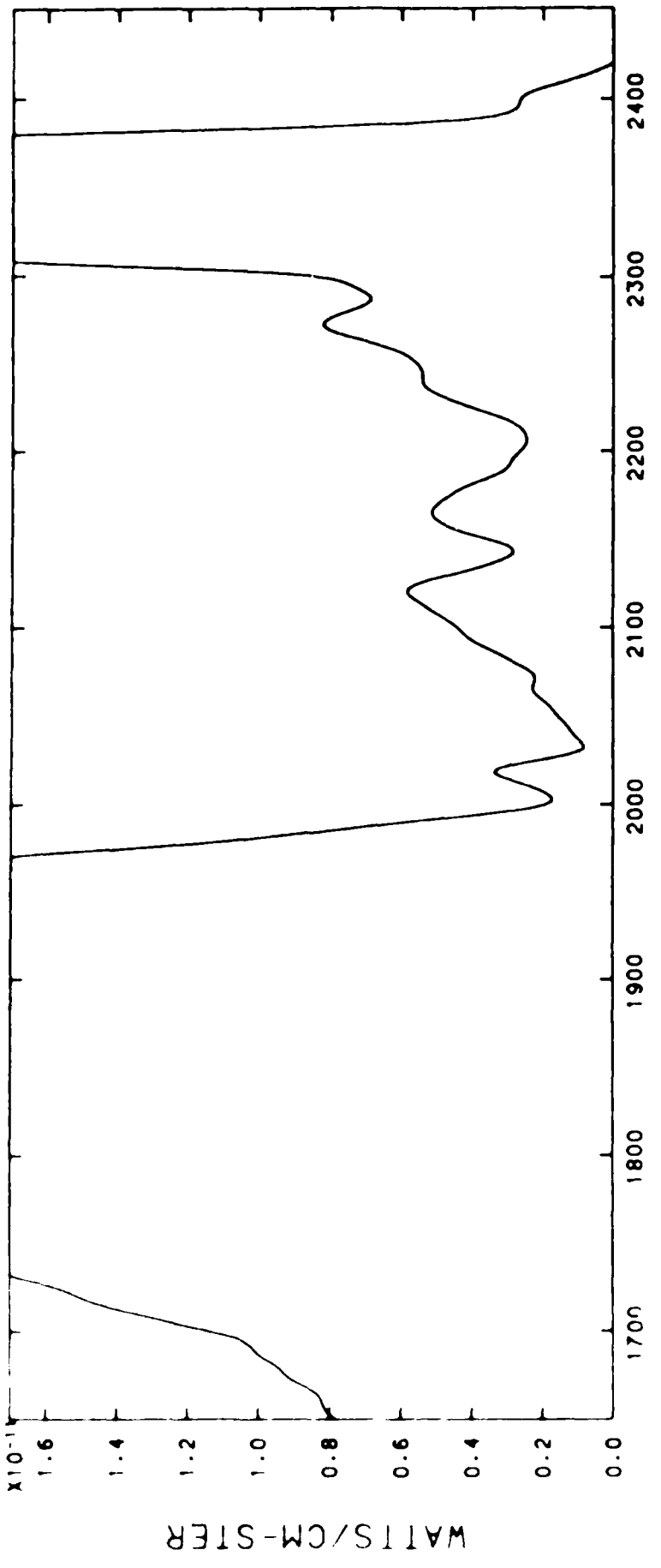

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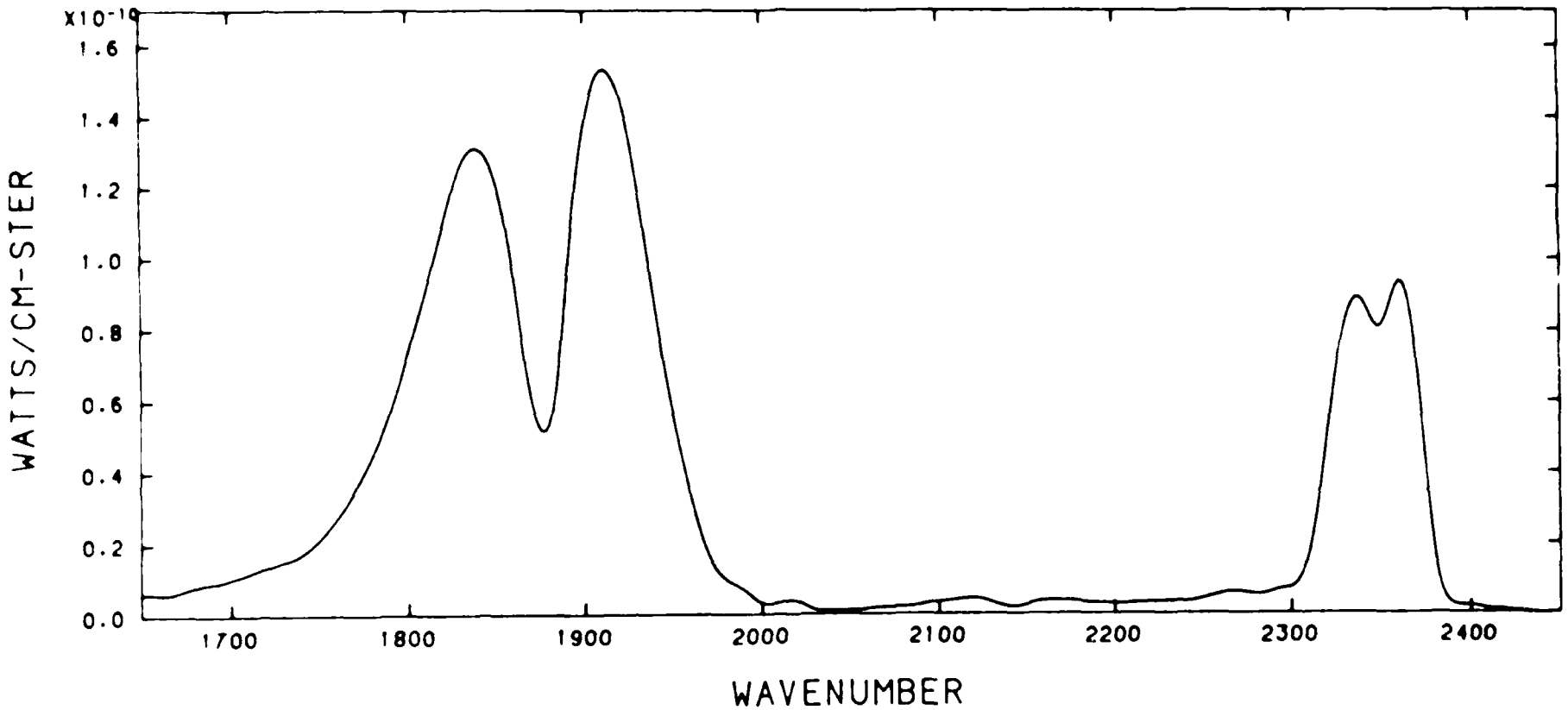

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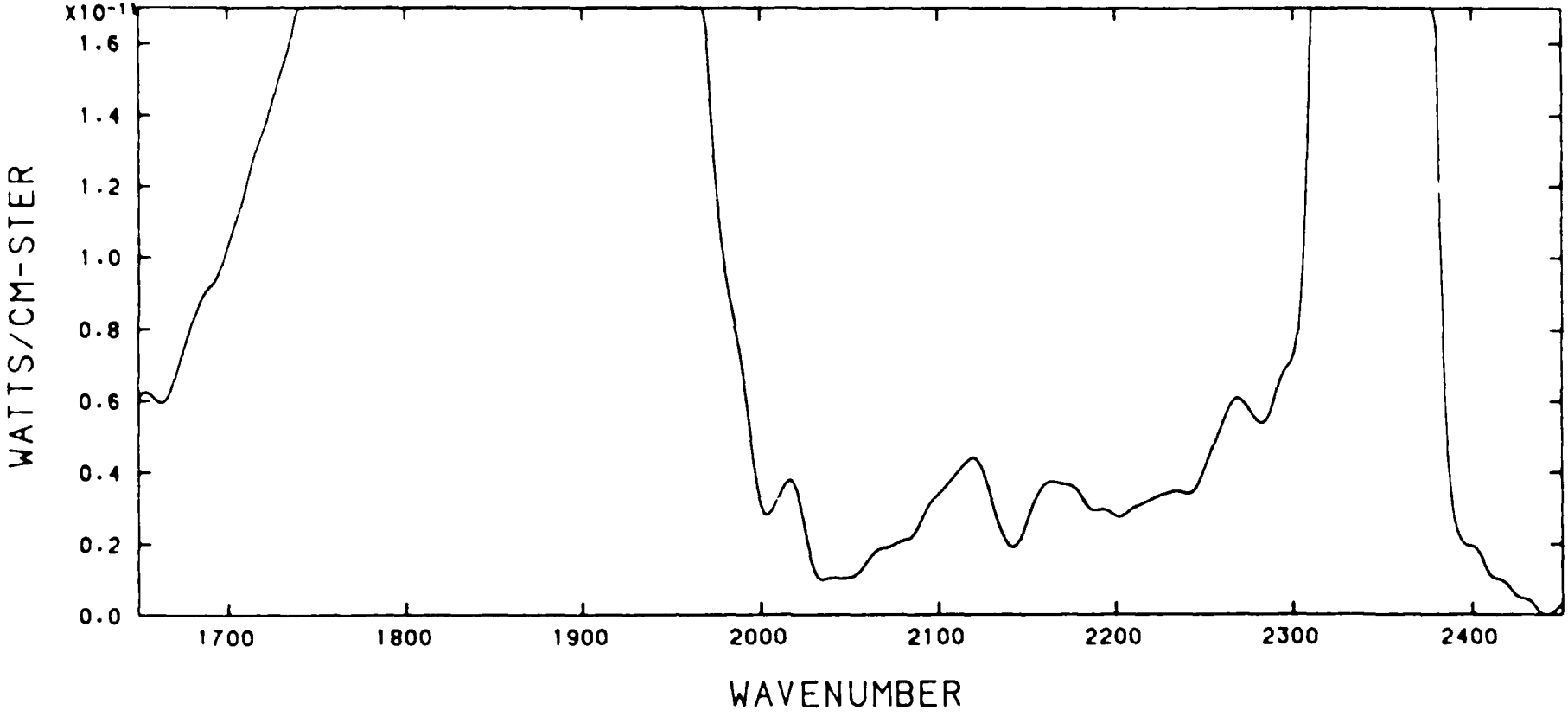

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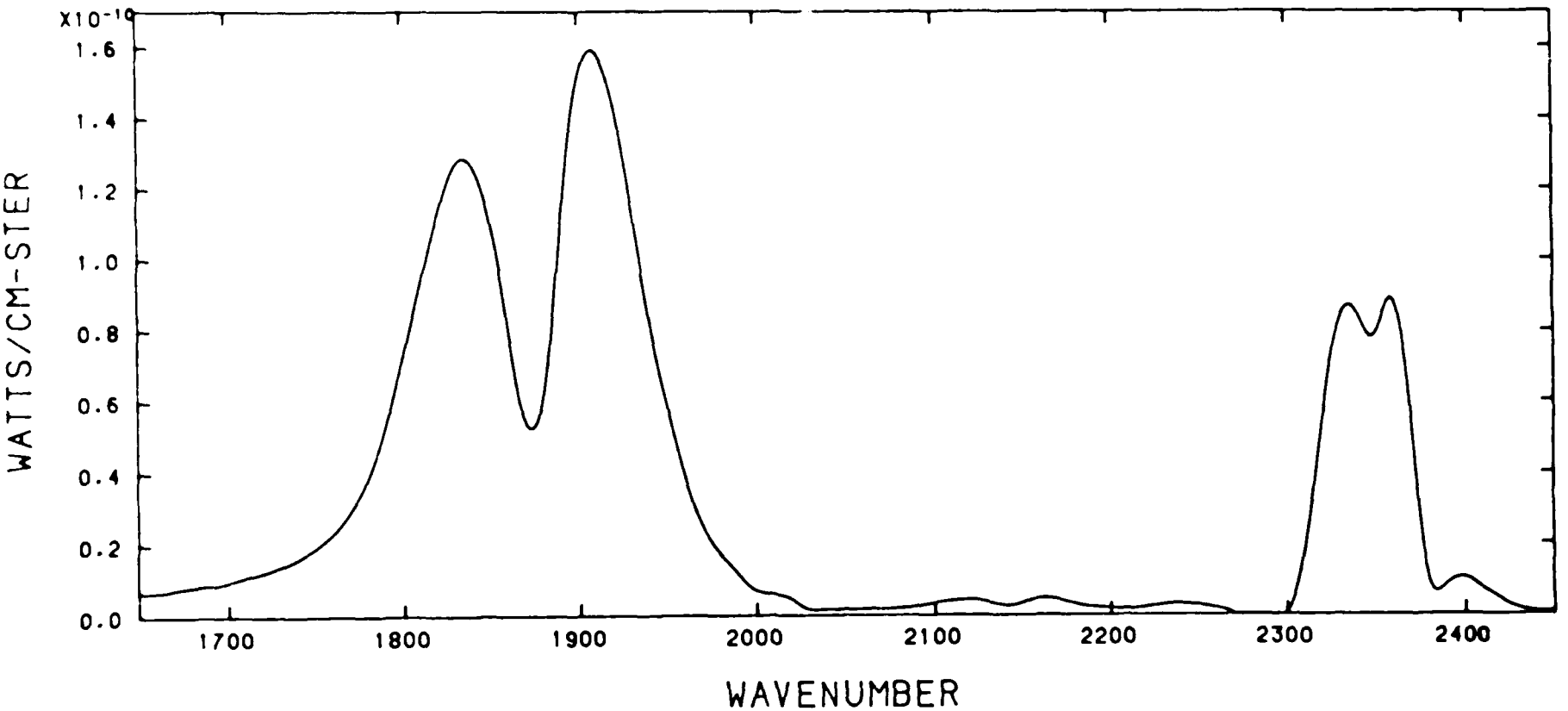

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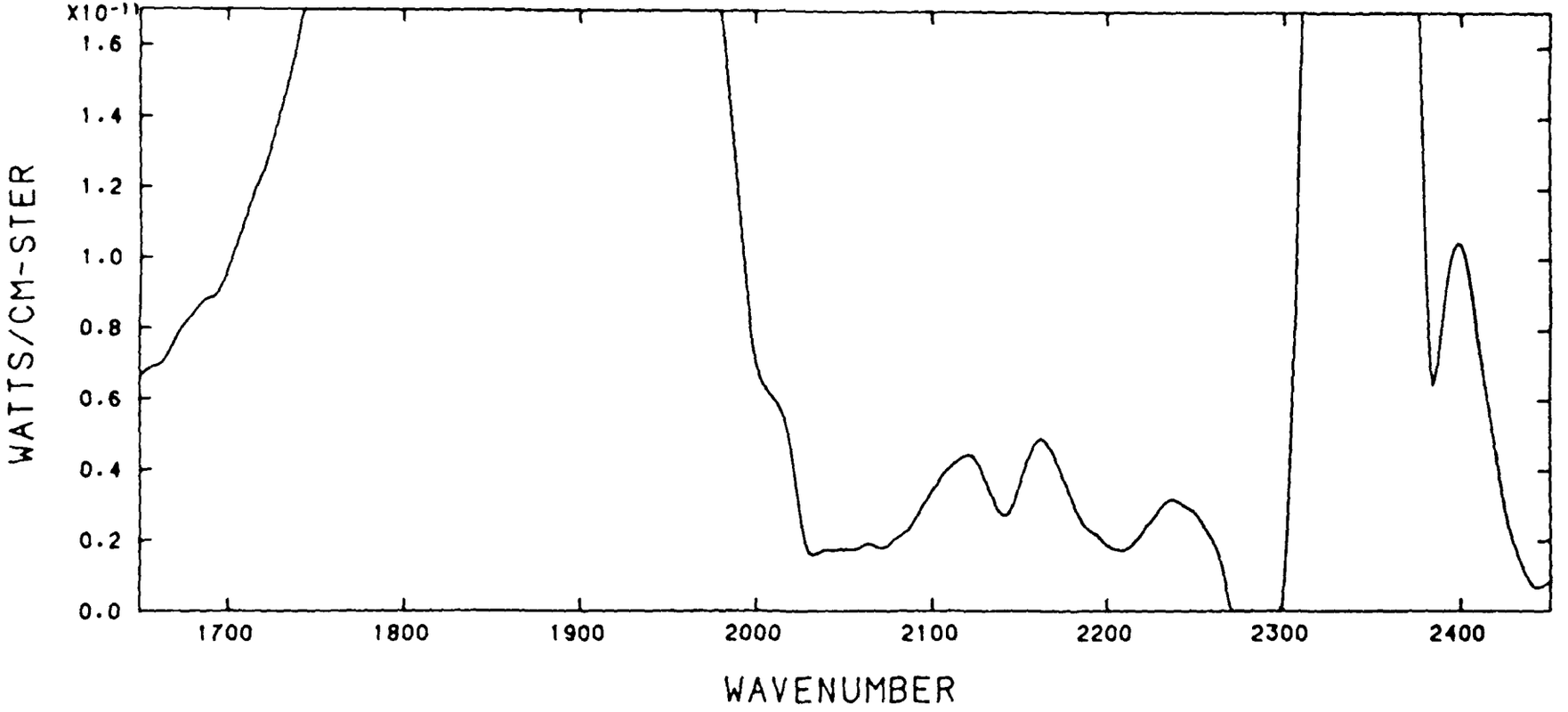

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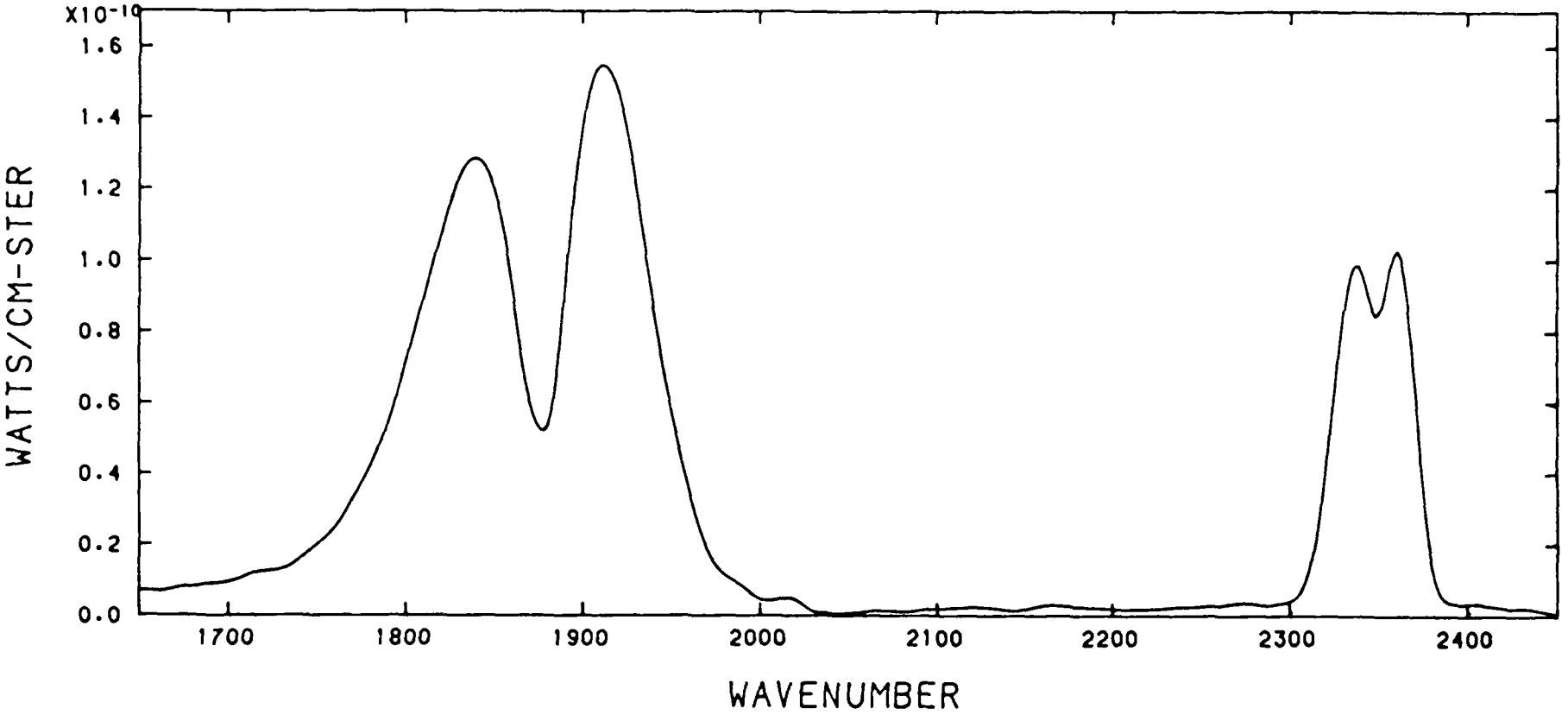

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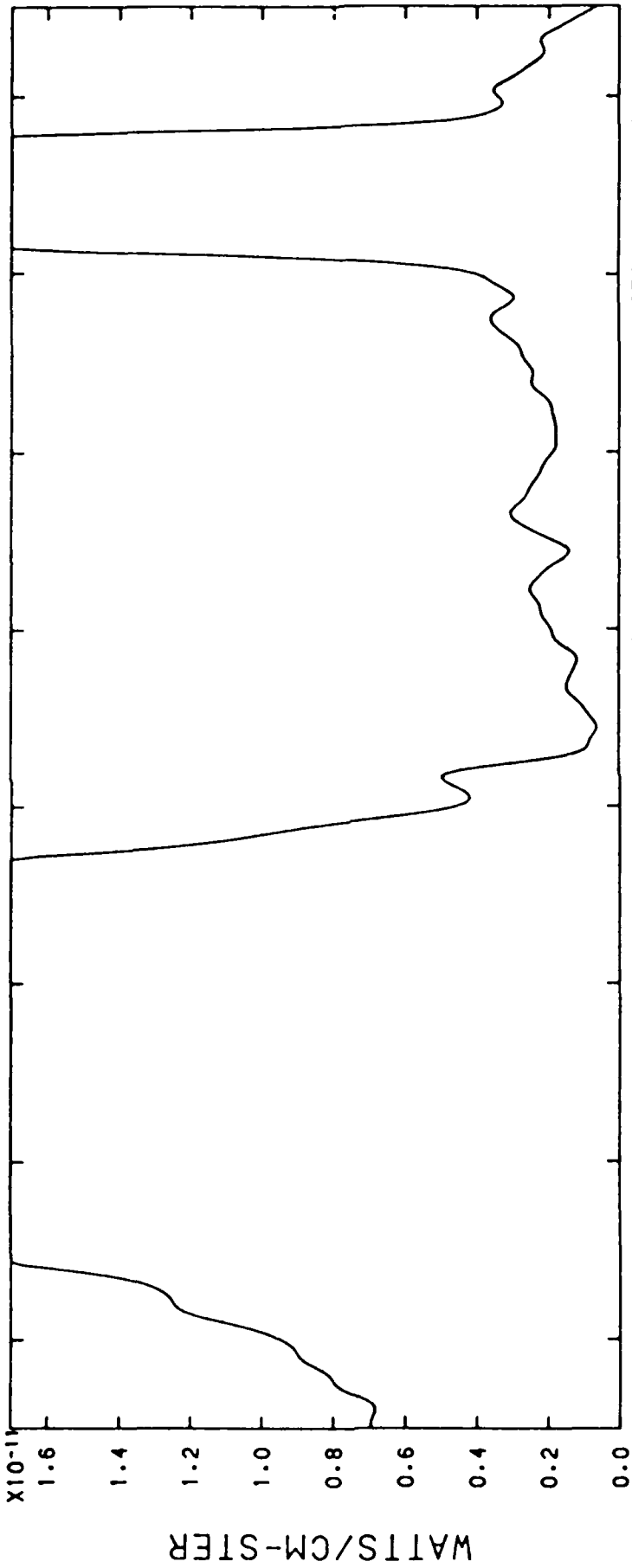

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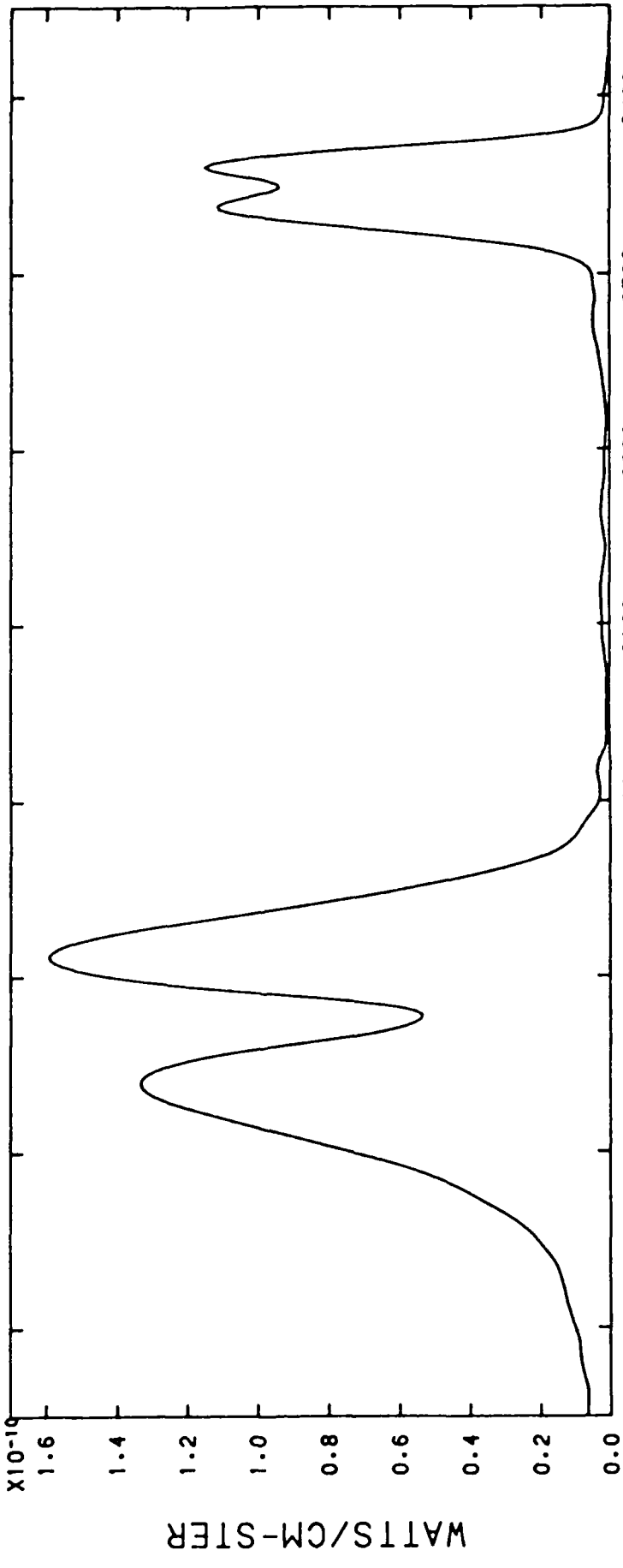
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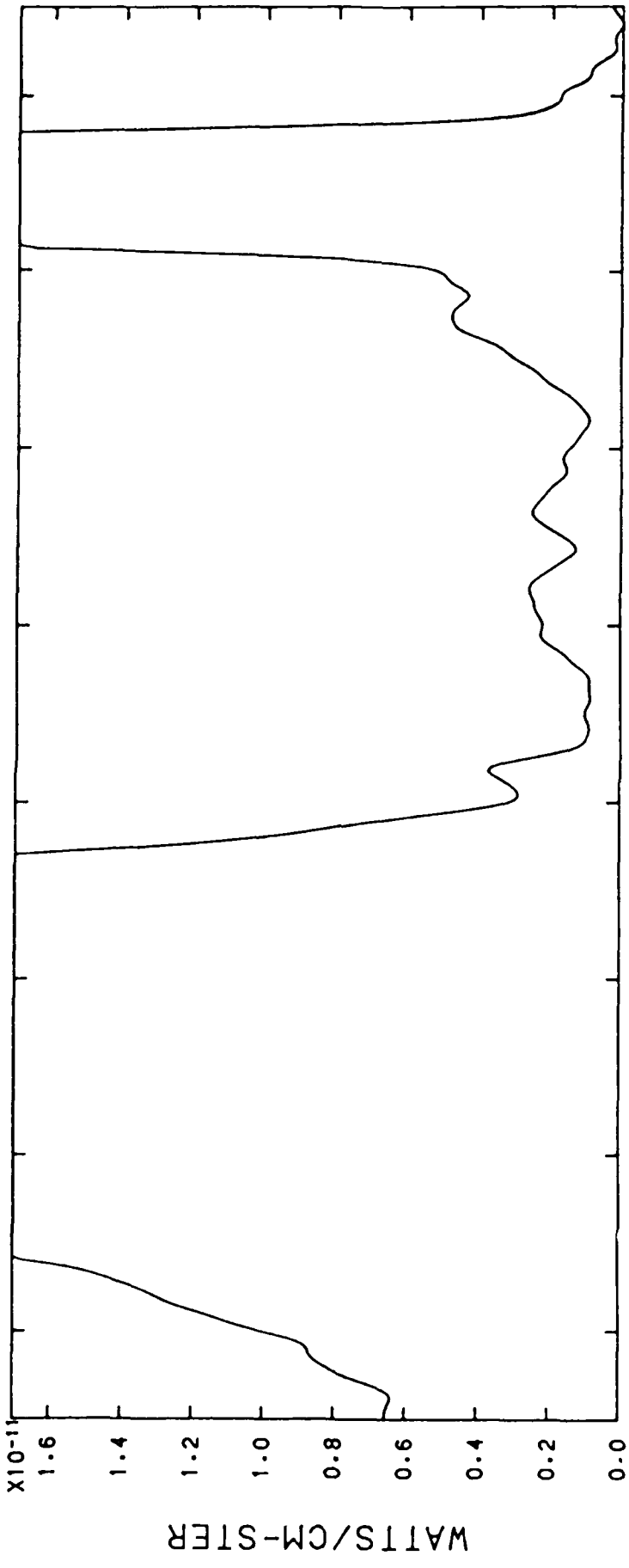

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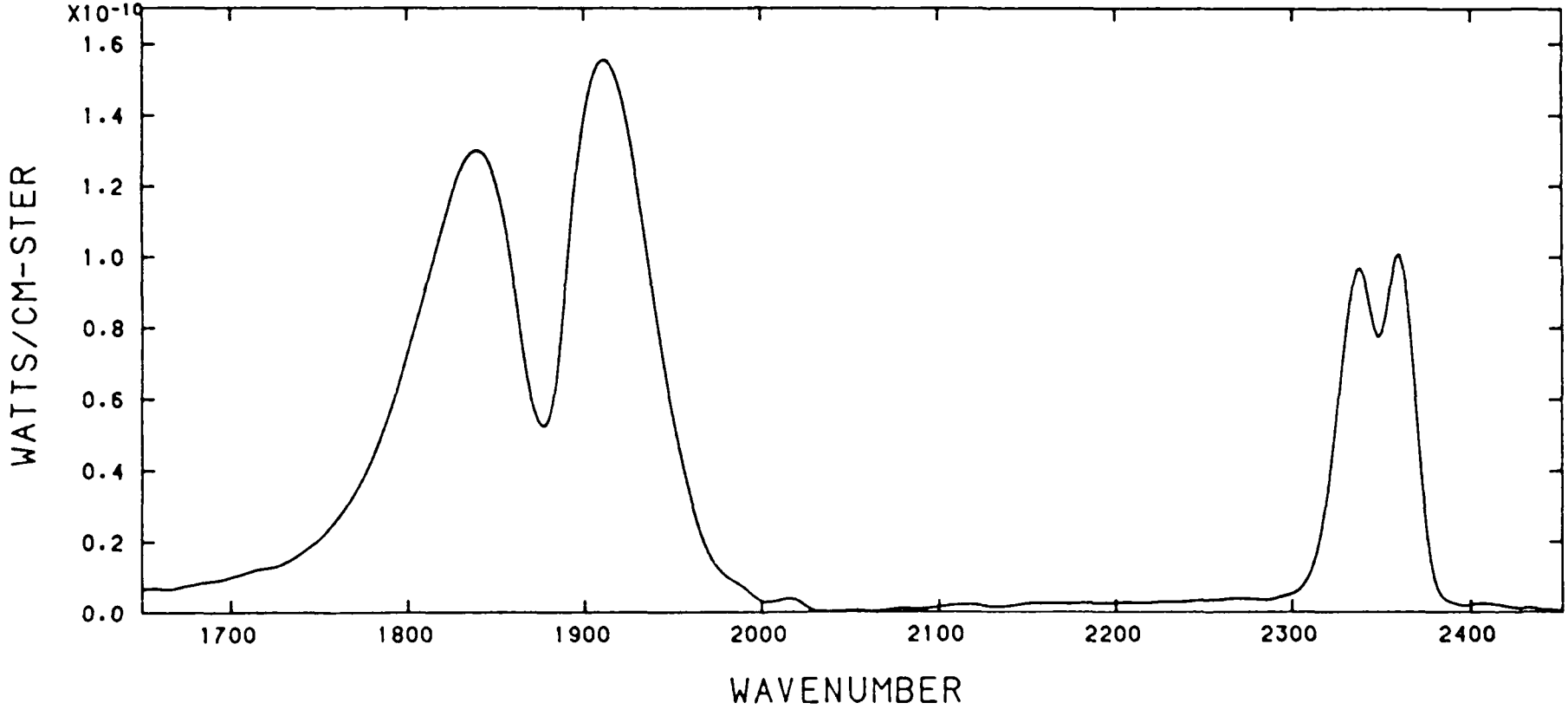

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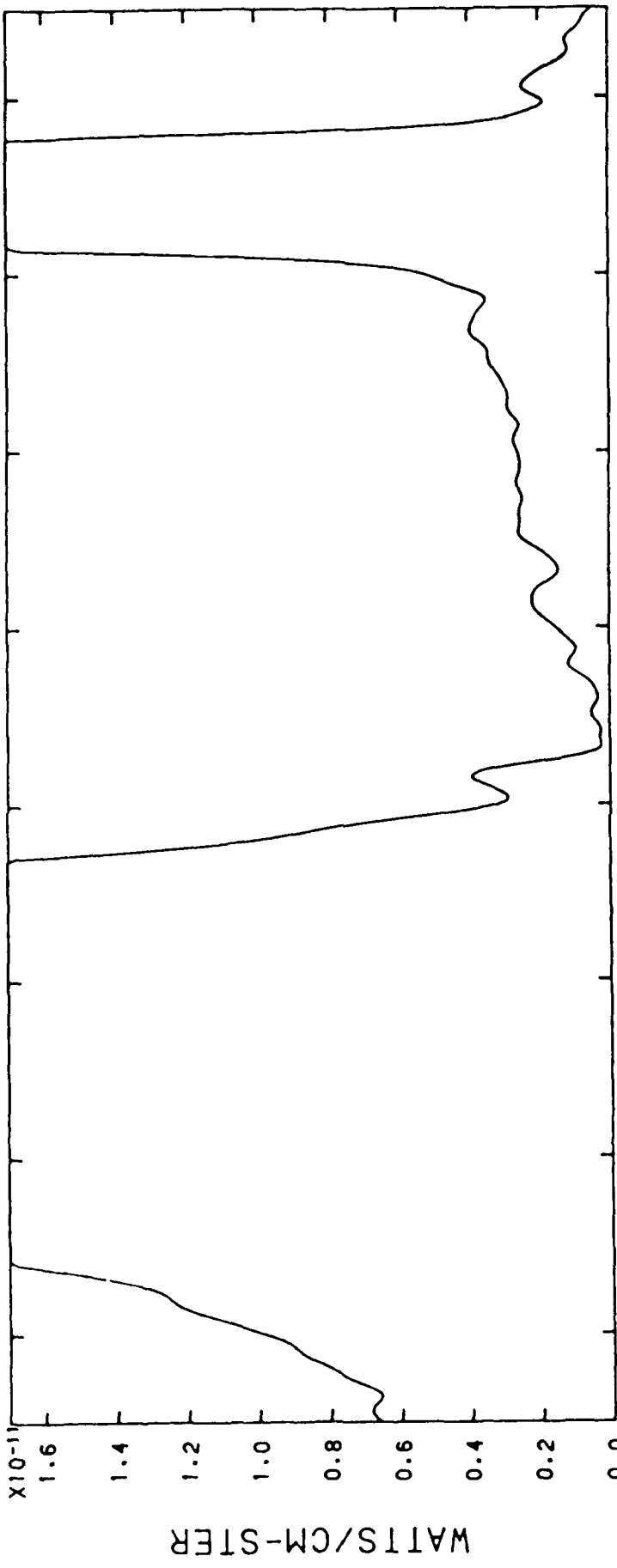

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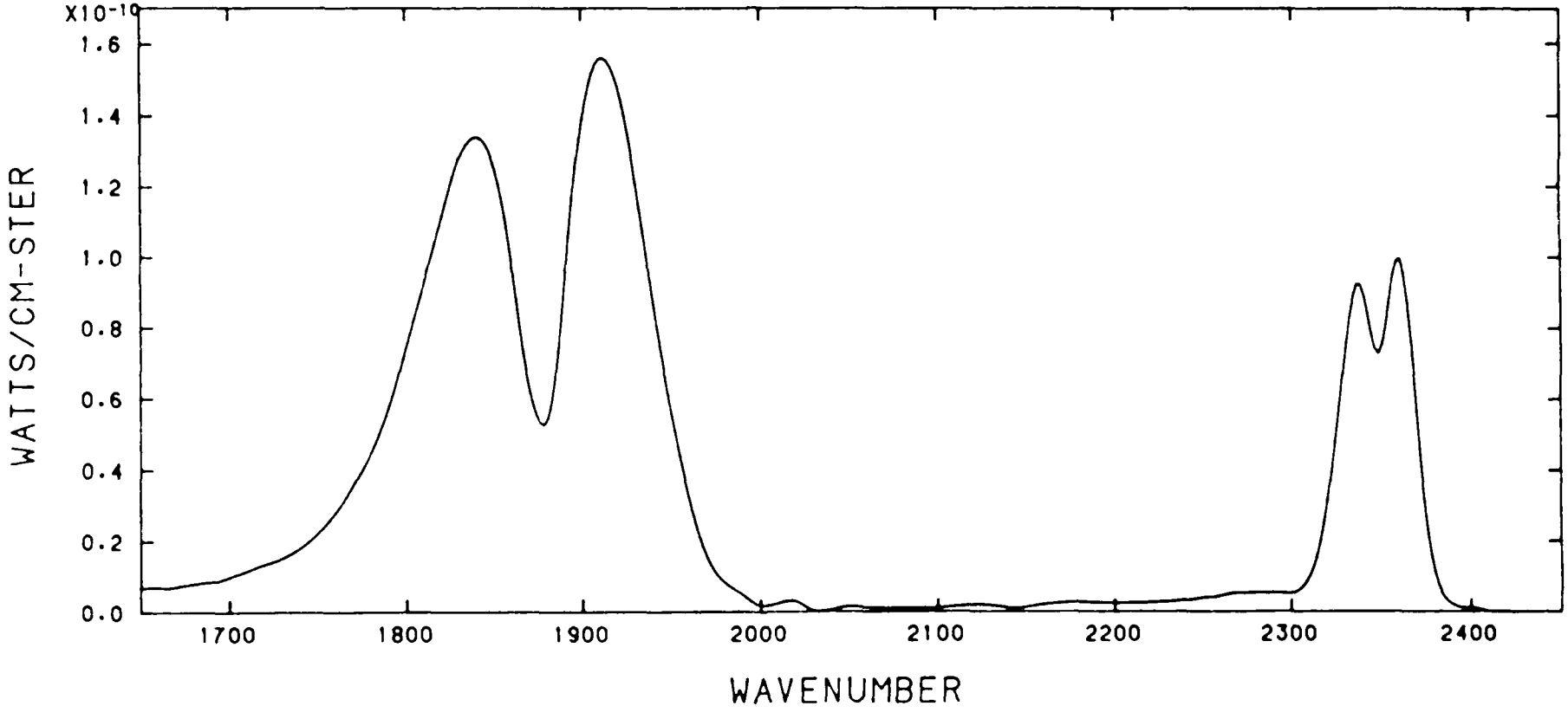

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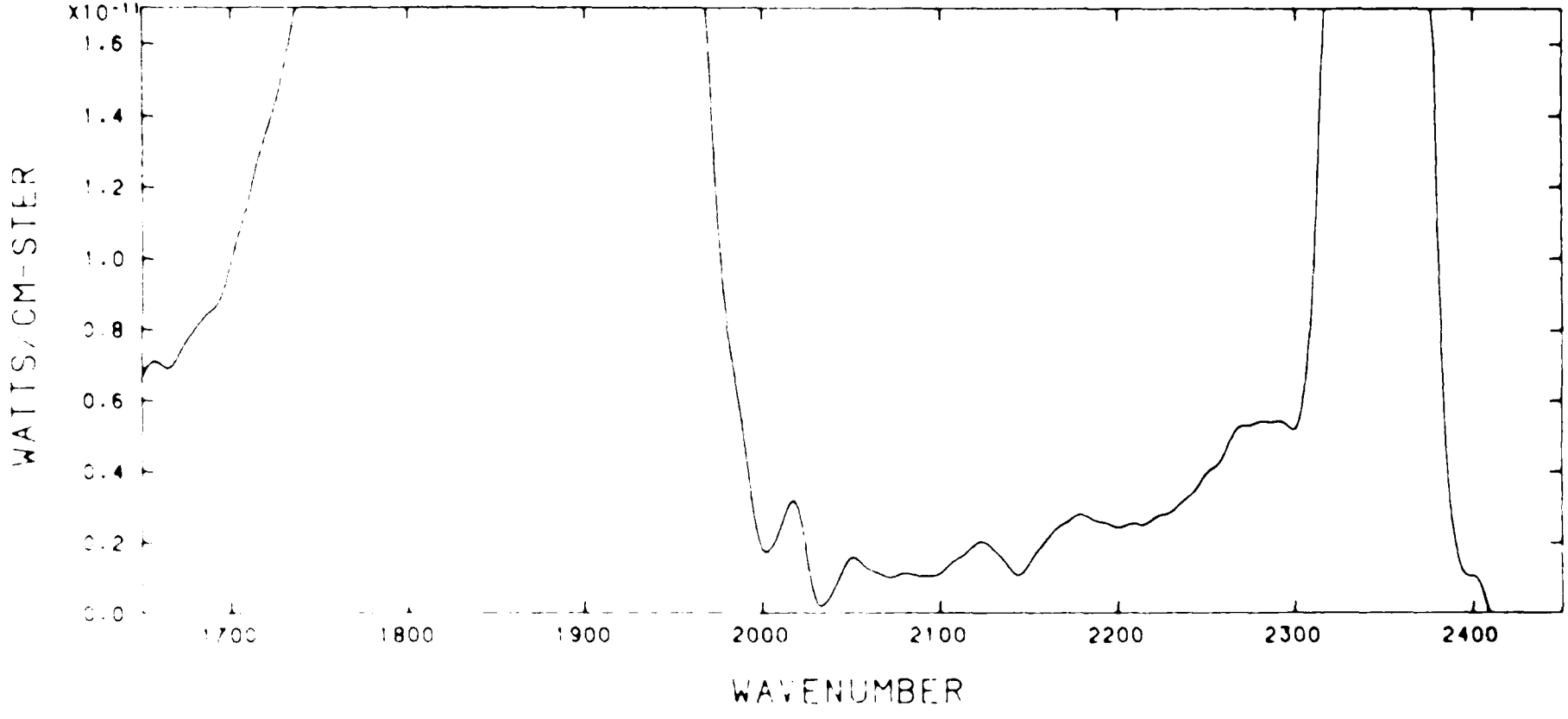

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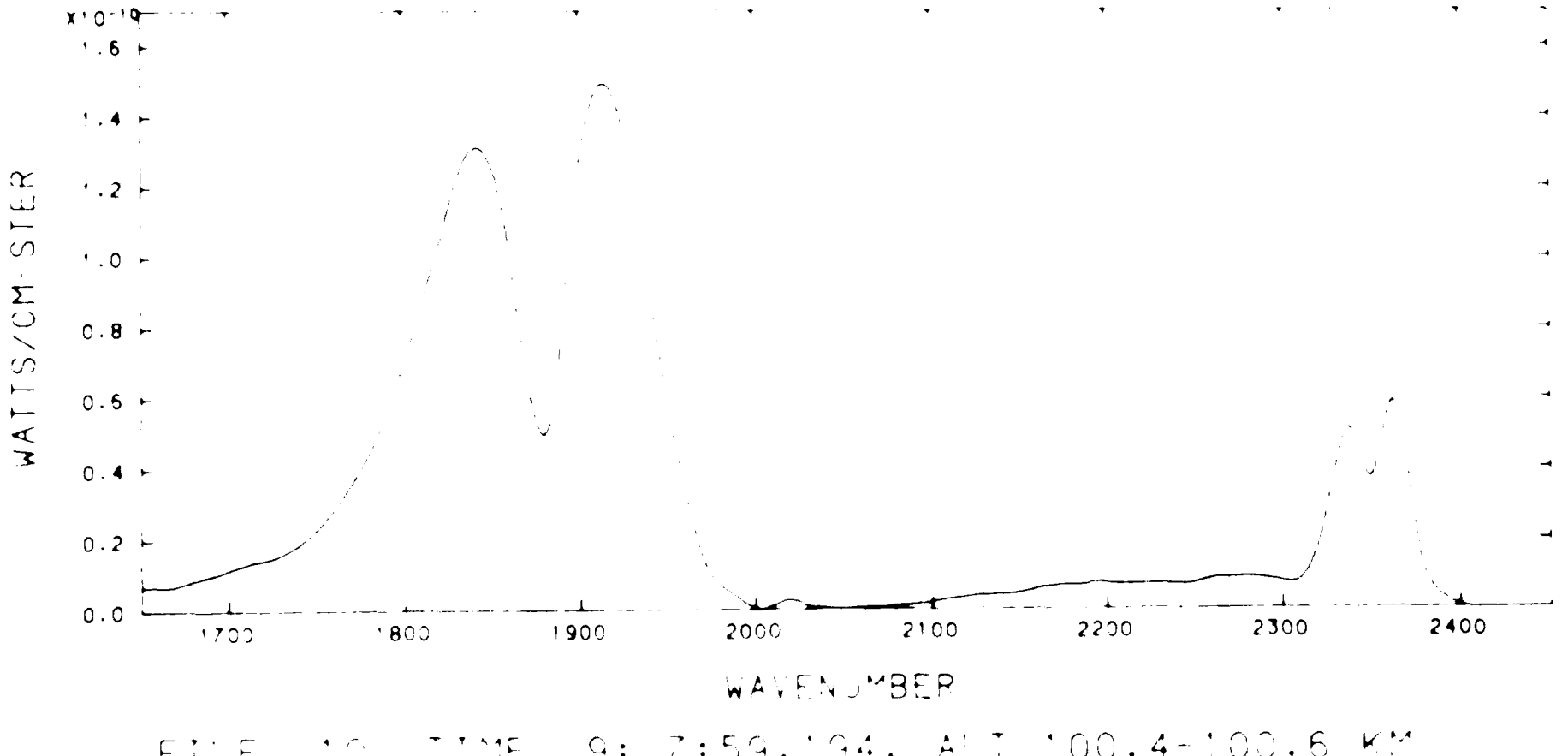
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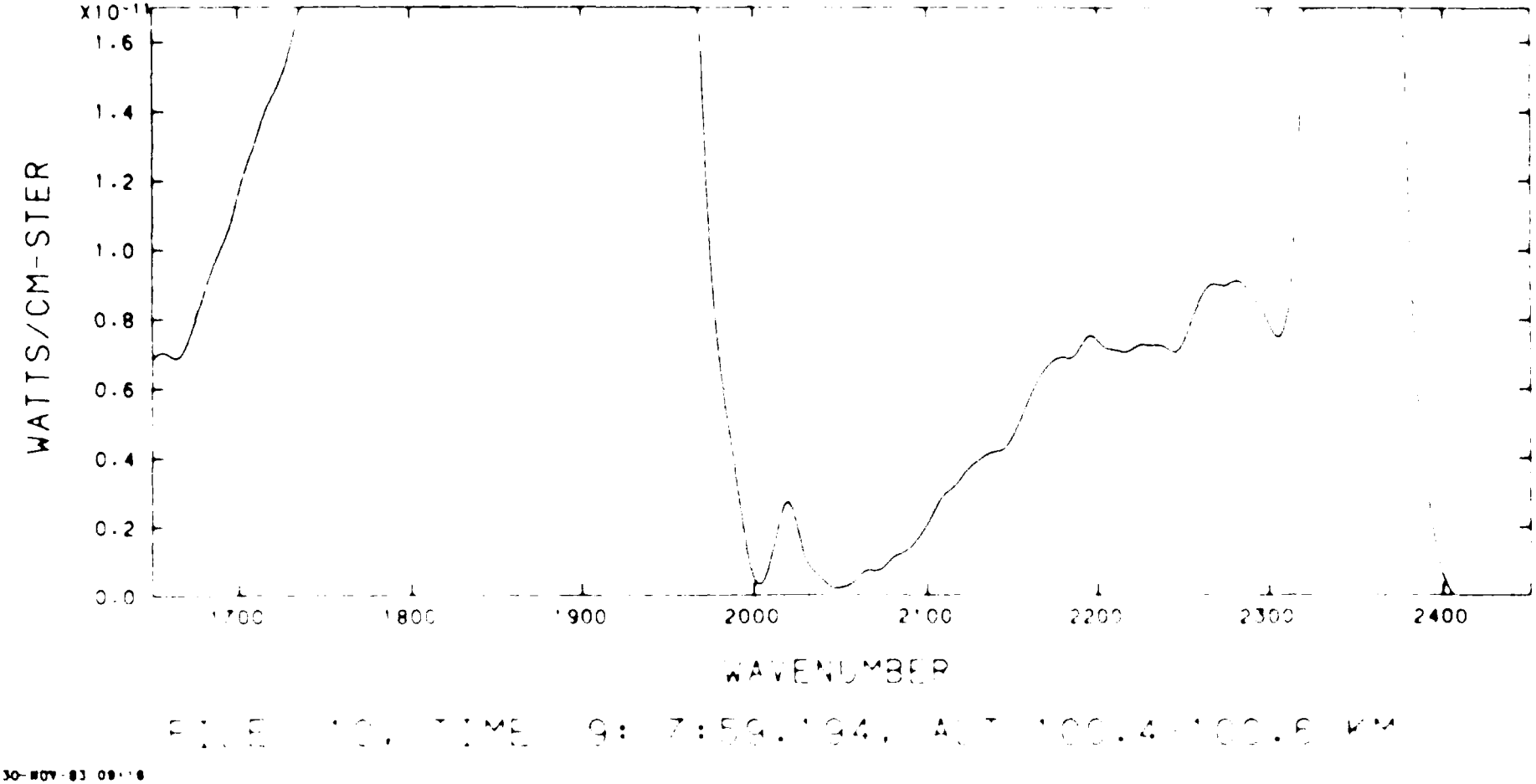

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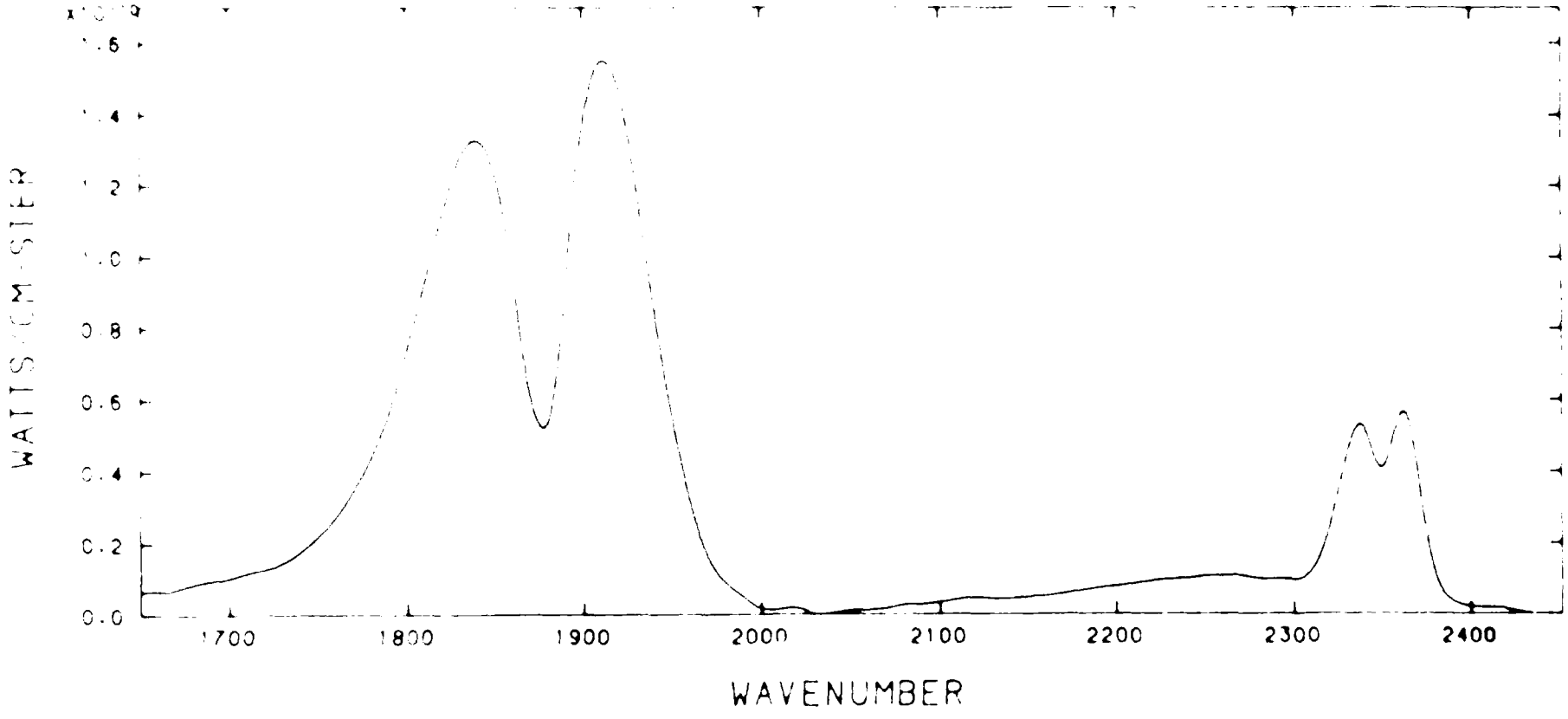

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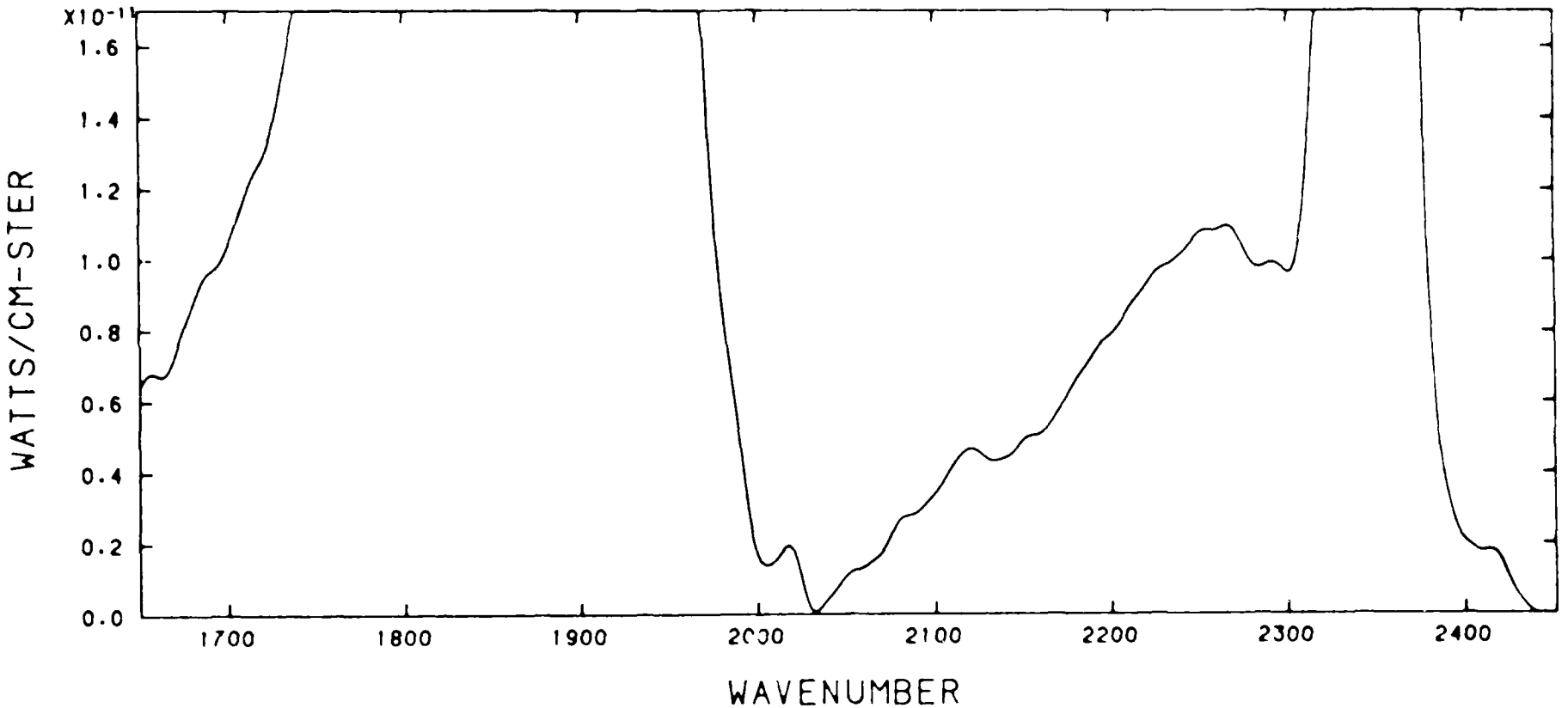

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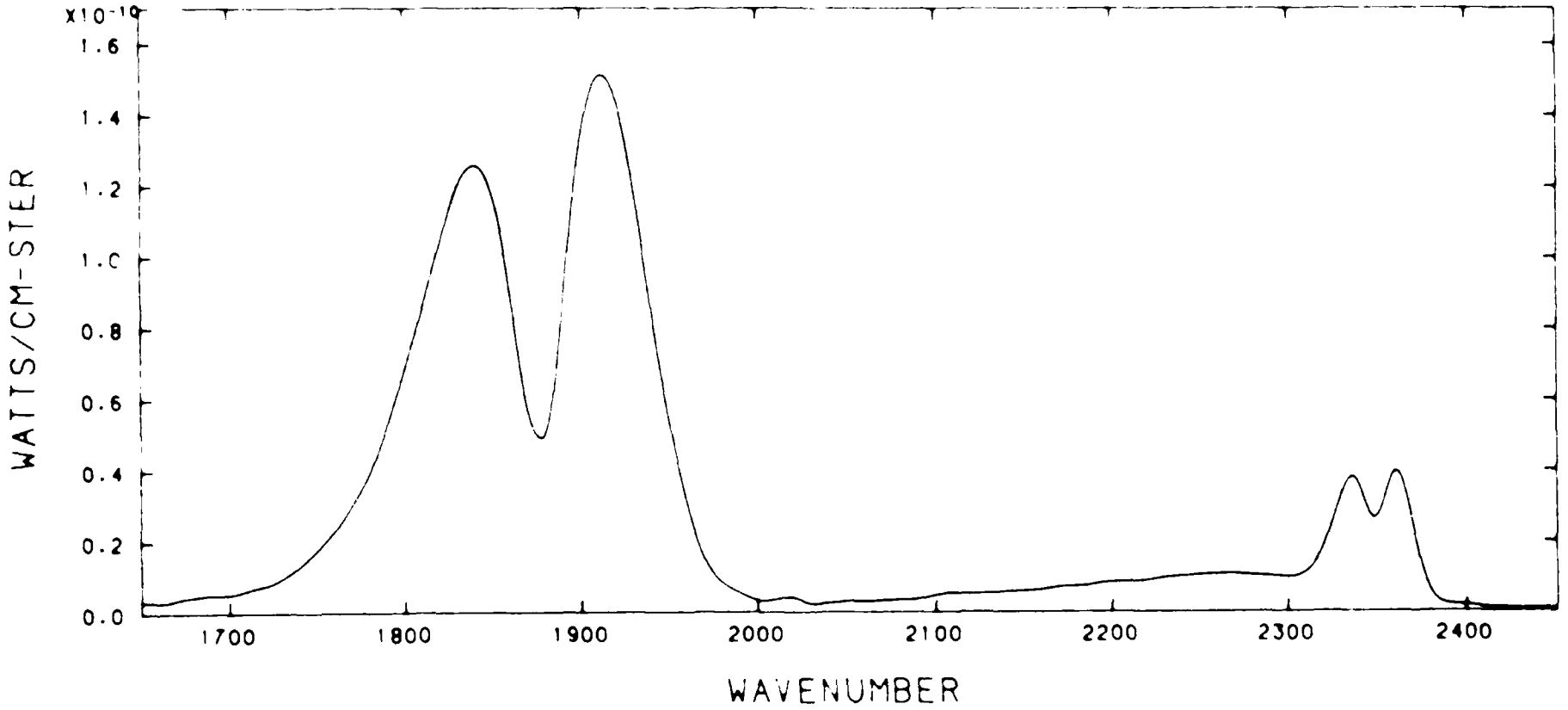

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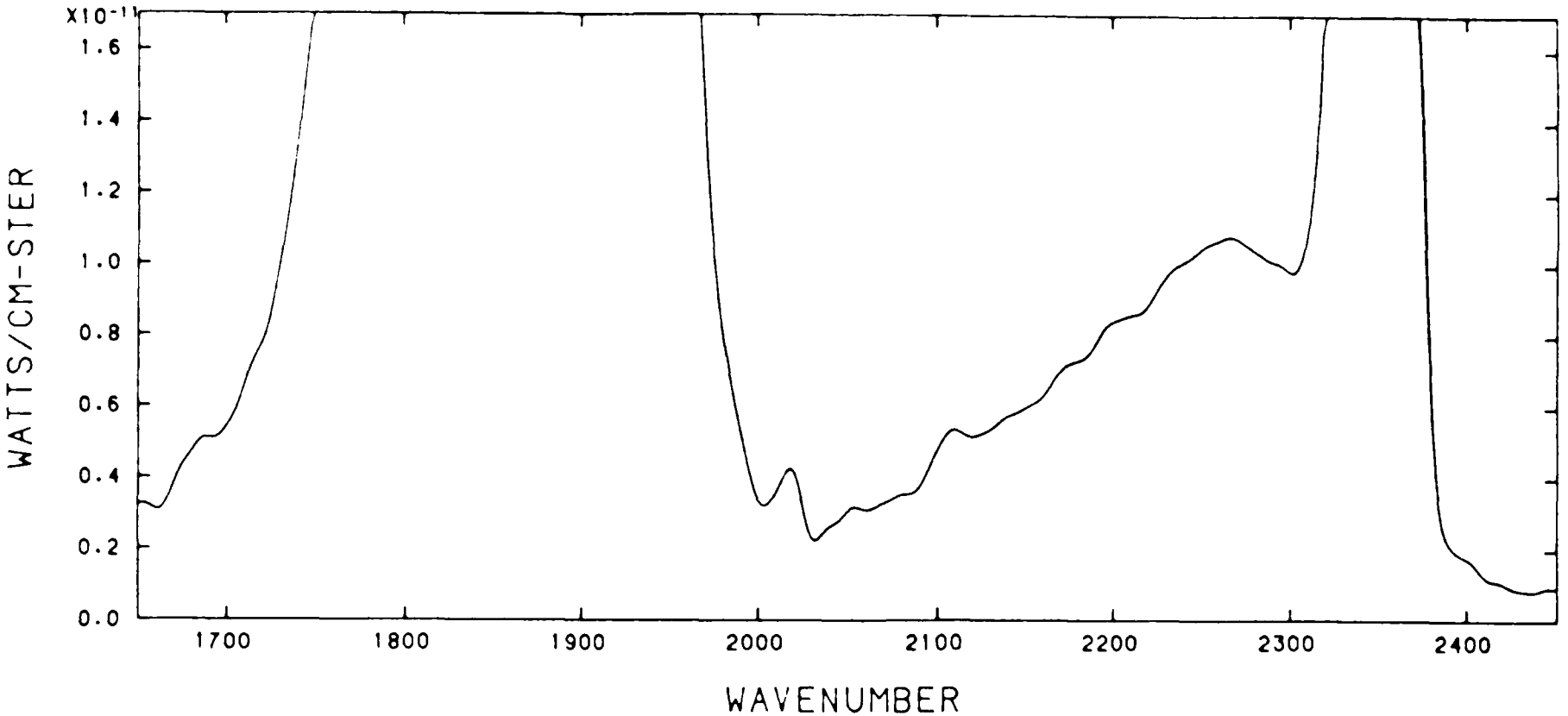

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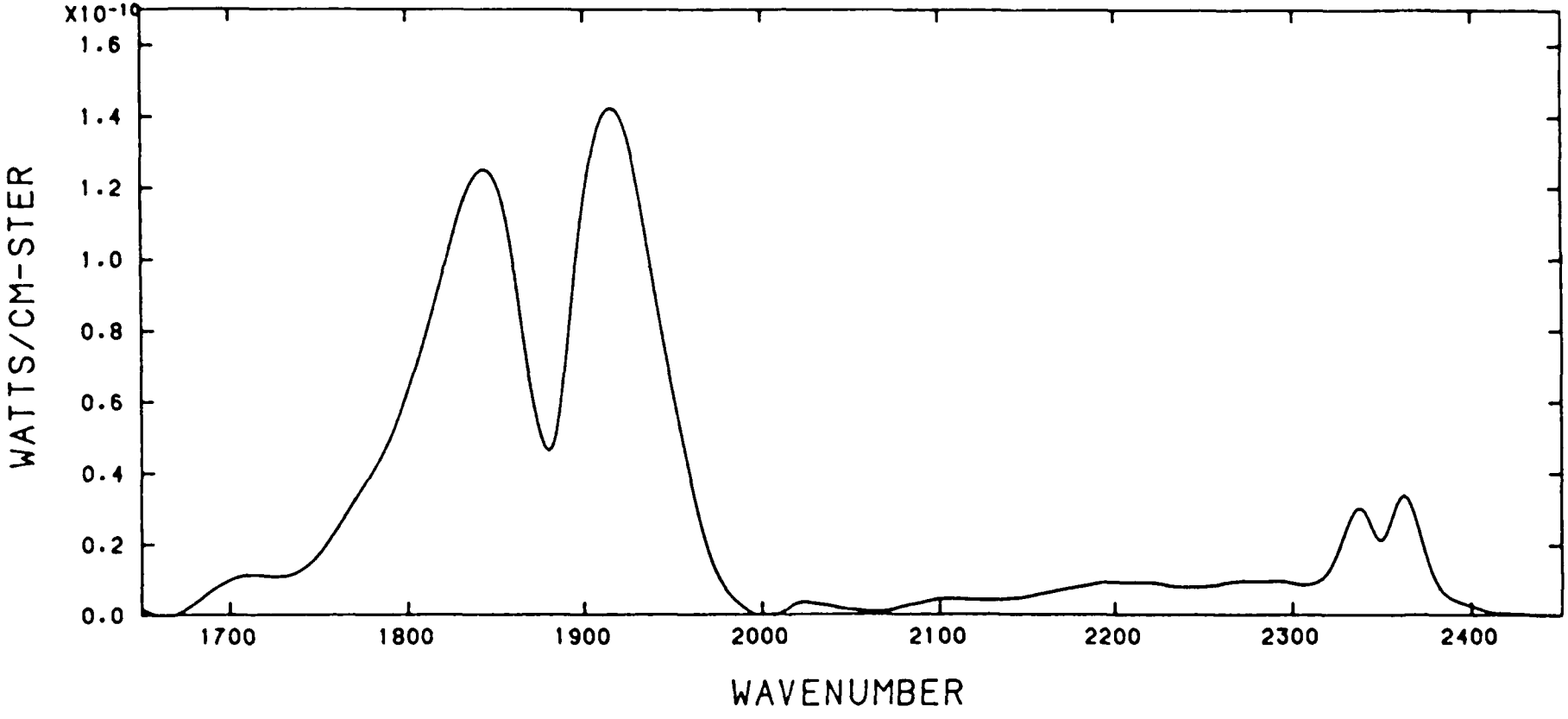

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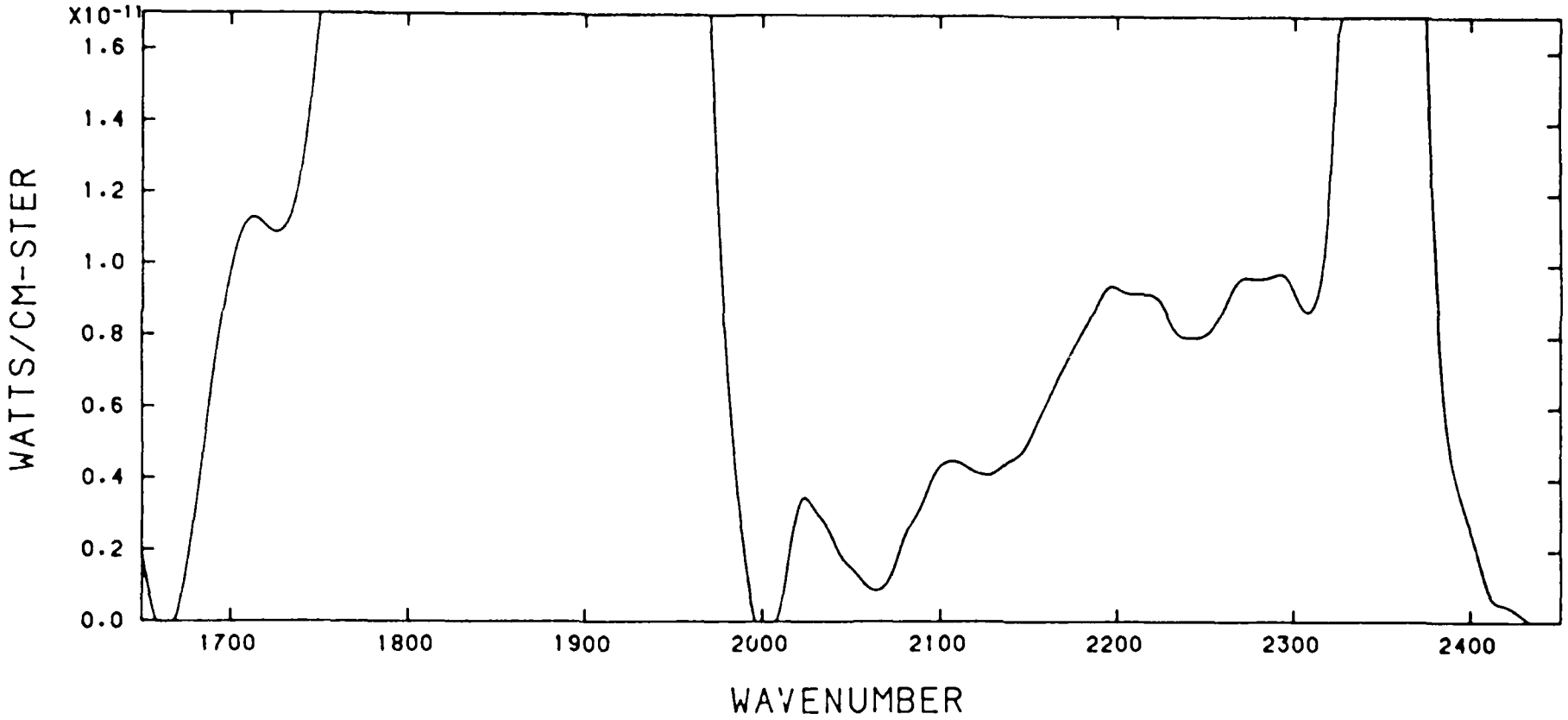

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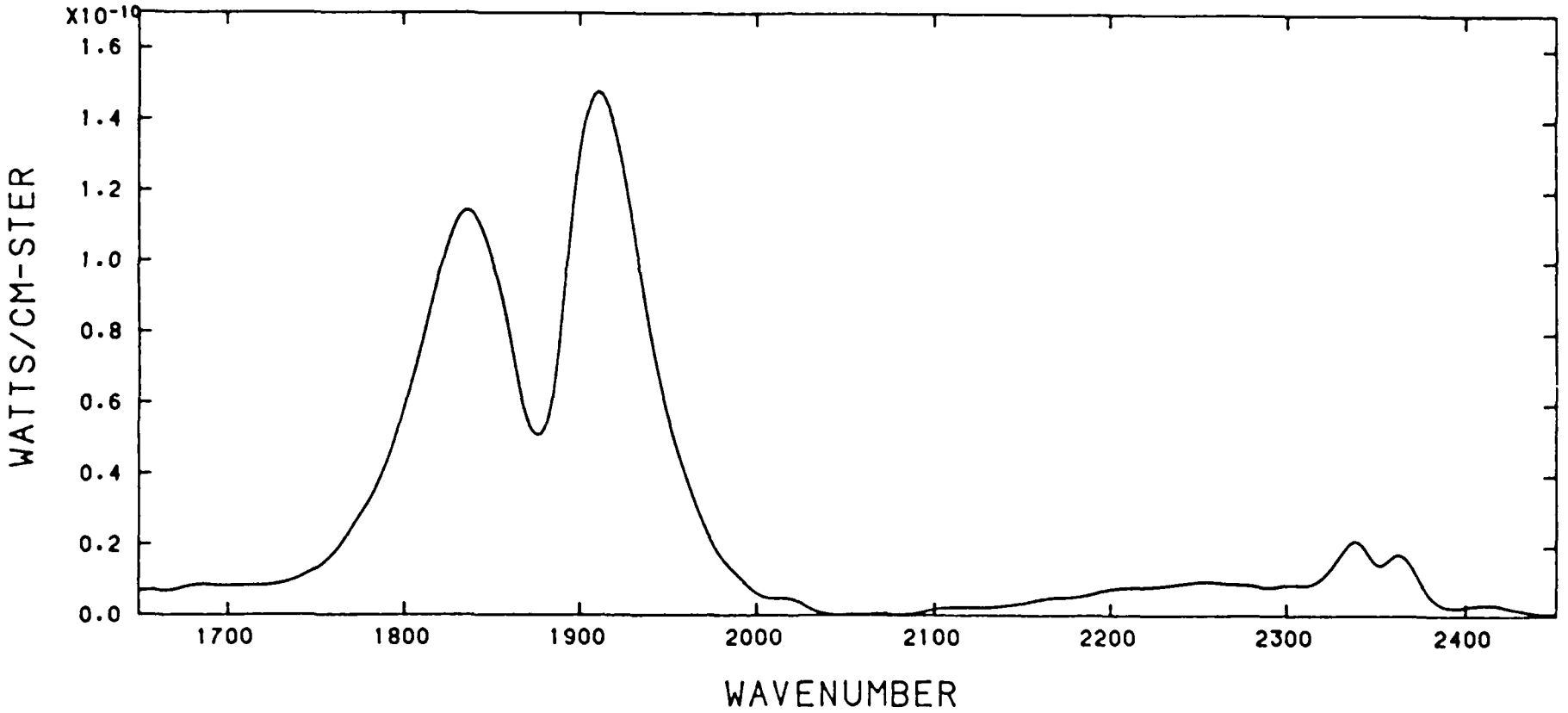

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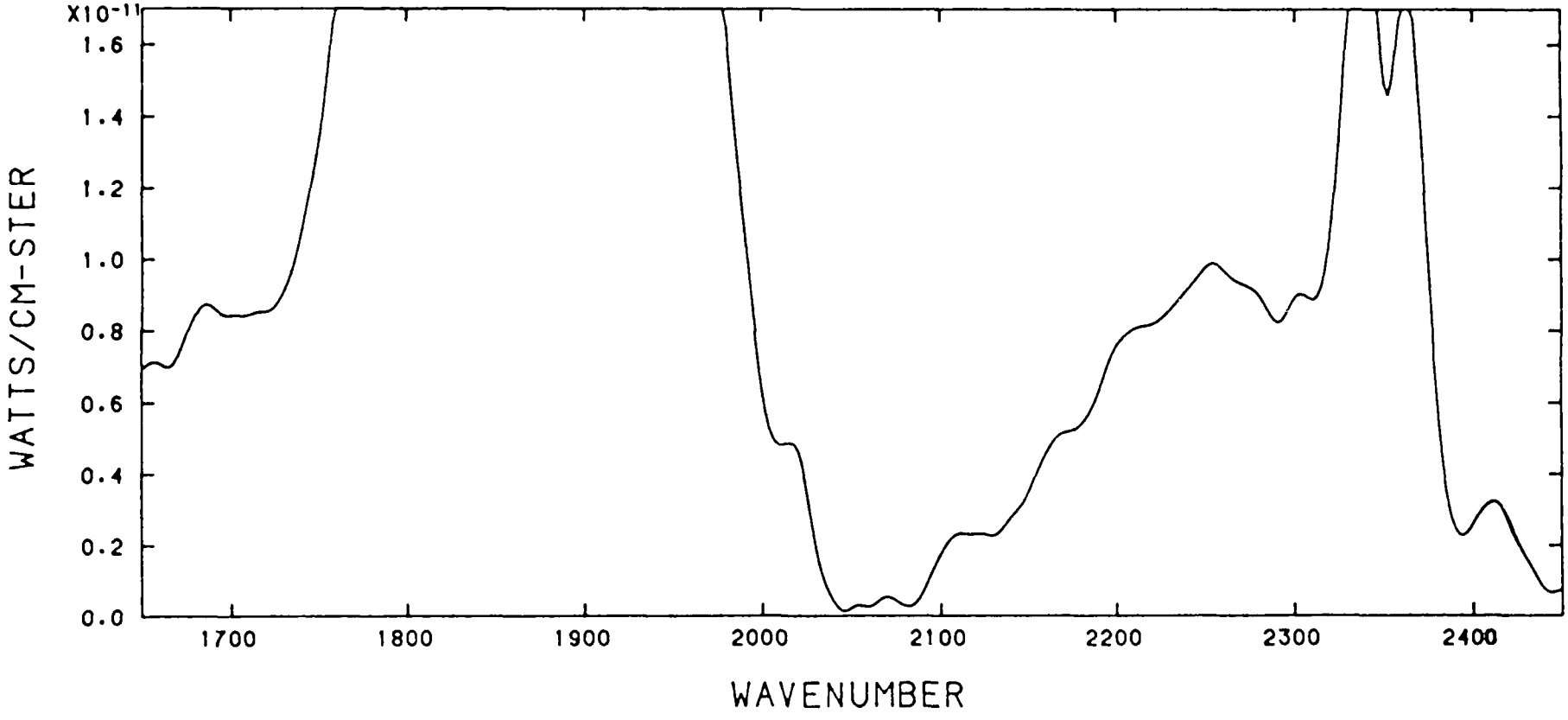

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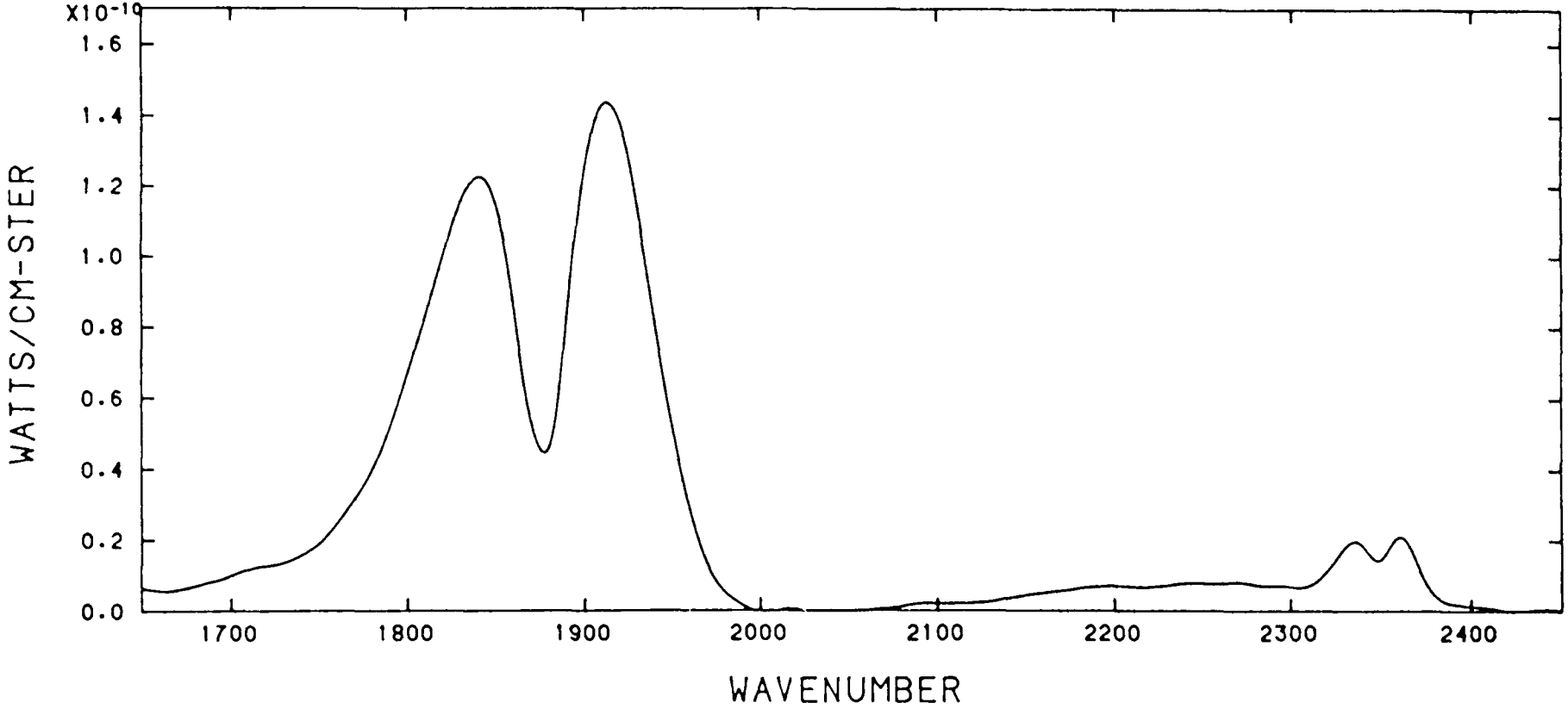

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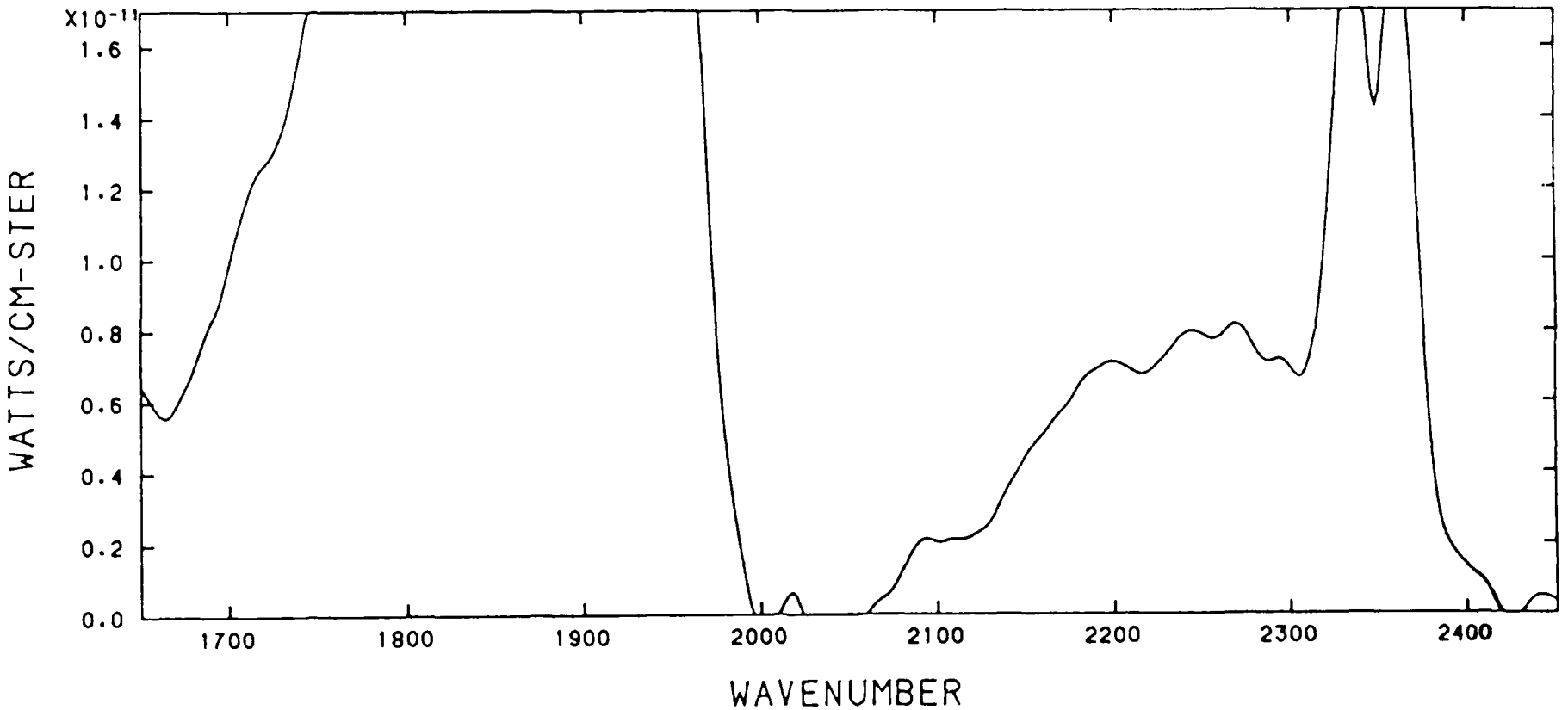
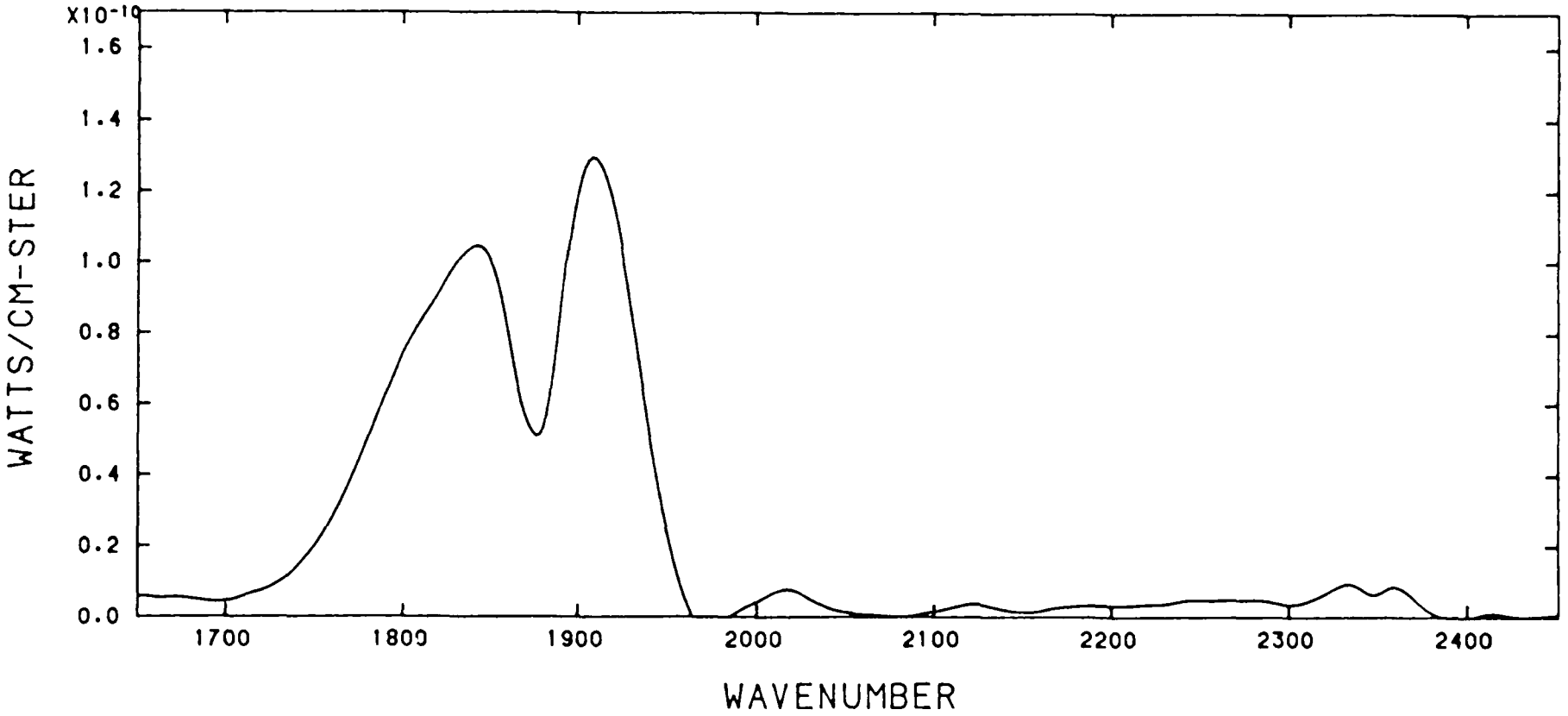


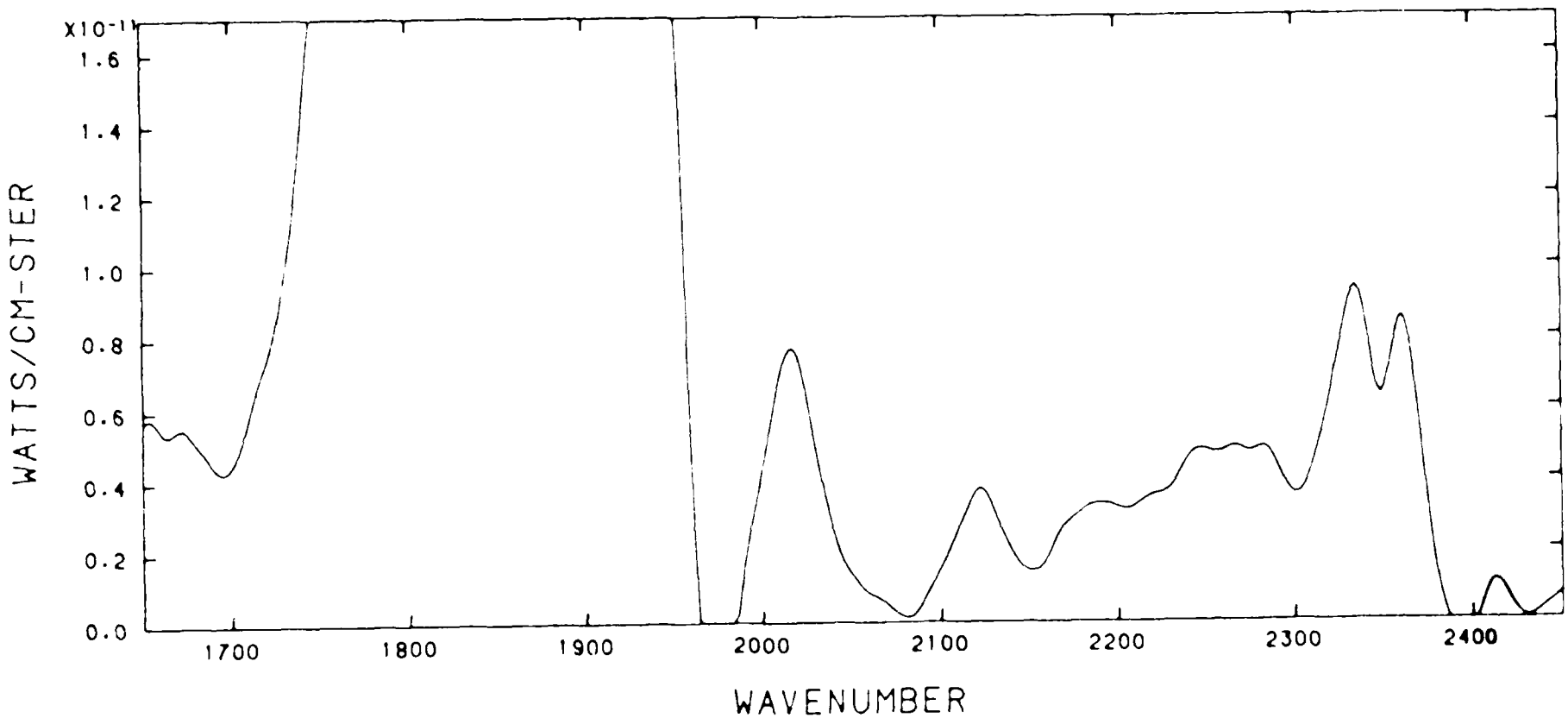
FILE 15, TIME 9: 8: 6.212, ALT 106.1-106.4 KM

30-NOV-83 09:17



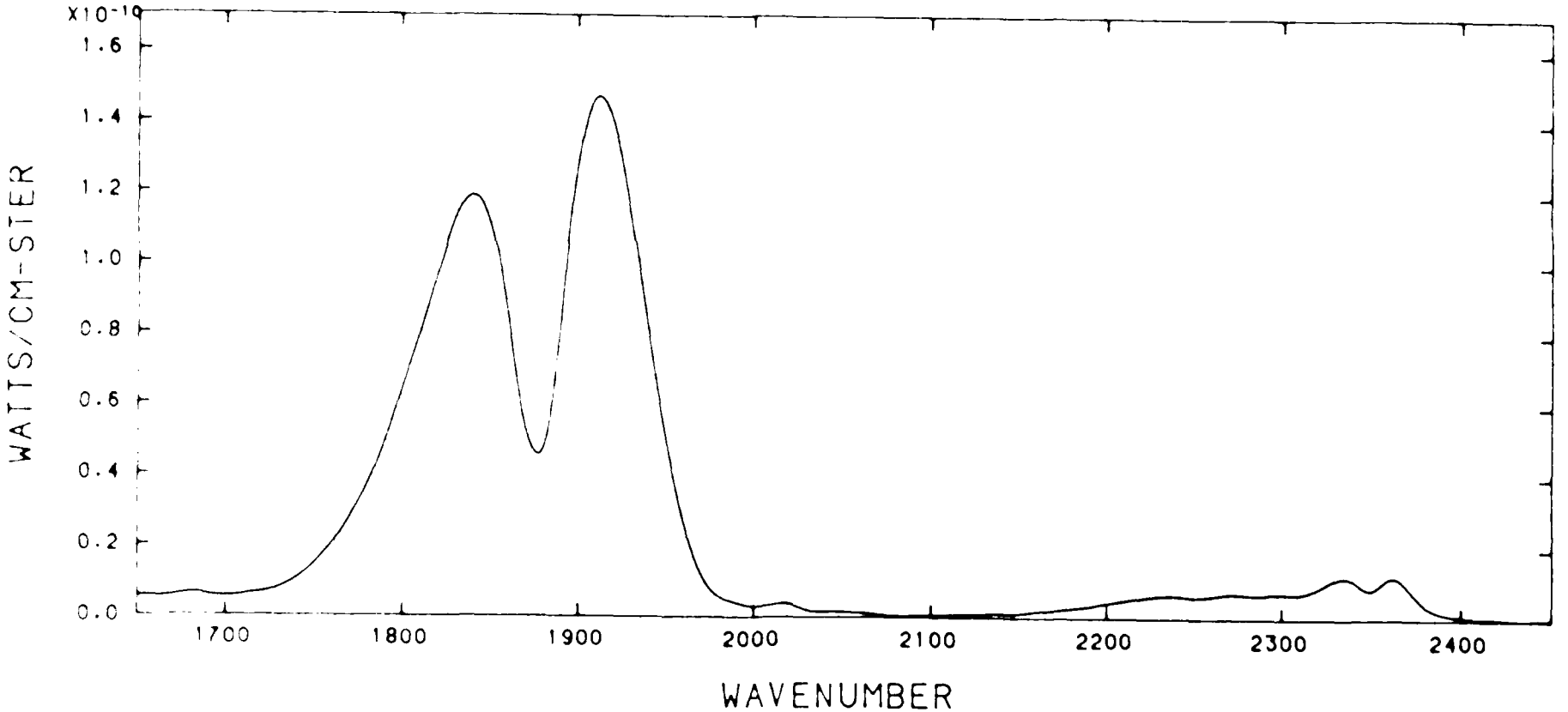
FILE 16, TIME 9: 8: 8.976, ALT 108.3-108.5 KM

30-NOV-83 09:17



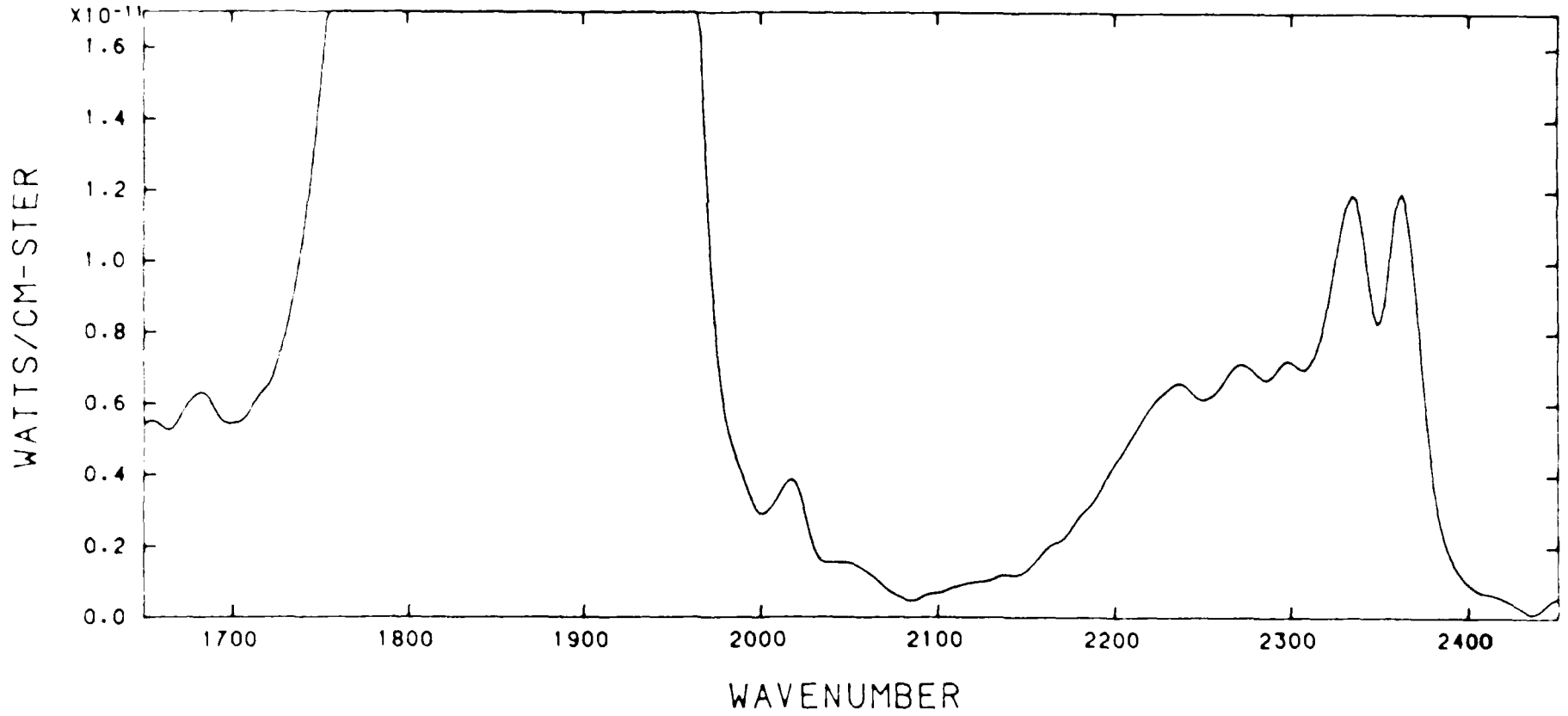
FILE 16, TIME 9: 8: 8.976, ALT 108.3-108.5 KM

30-NOV-83 08:17



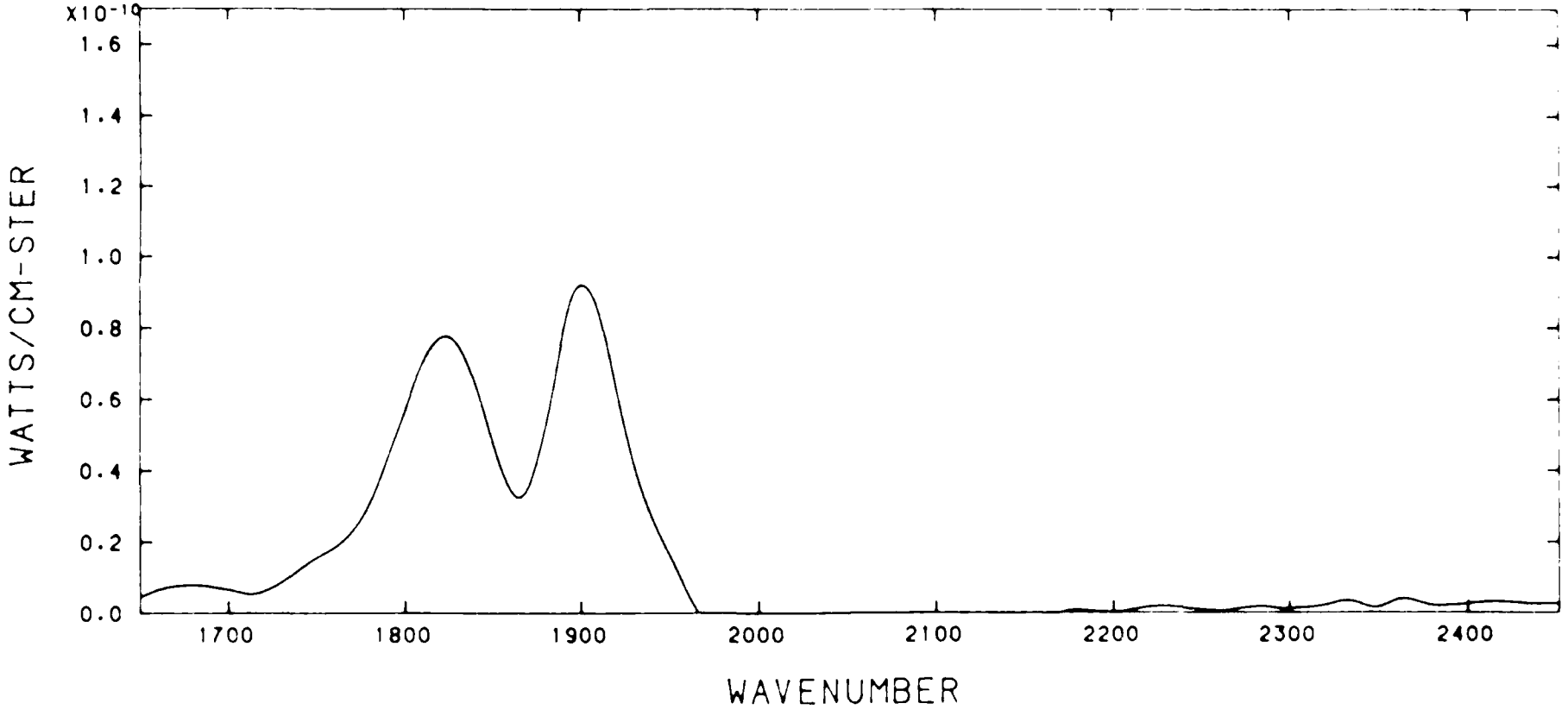
FILE 17, TIME 9: 8: 9.476, ALT 108.7-108.9 KM

30-NOV-83 09:17



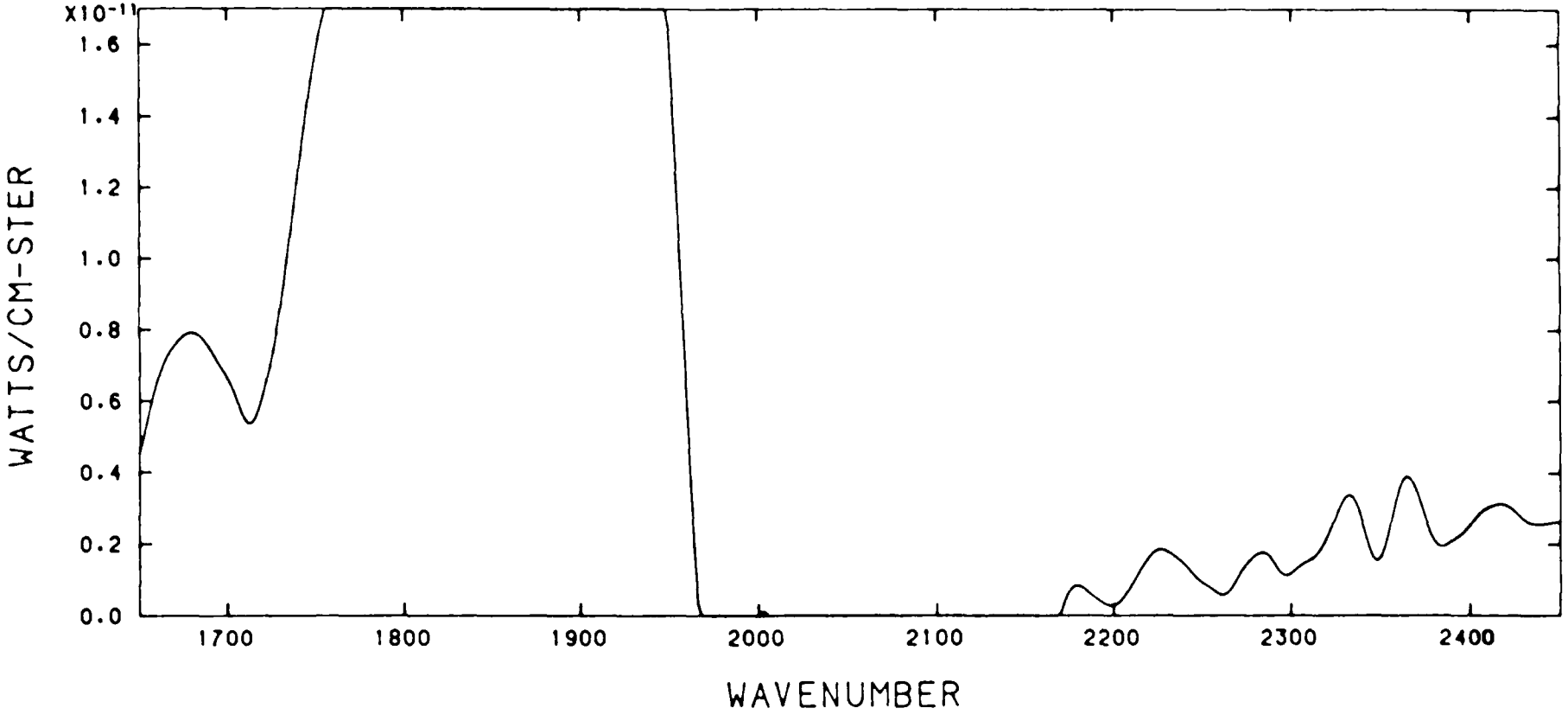
FILE 17, TIME 9: 8: 9.476, ALT 108.7-108.9 KM

30-NOV-83 09:17



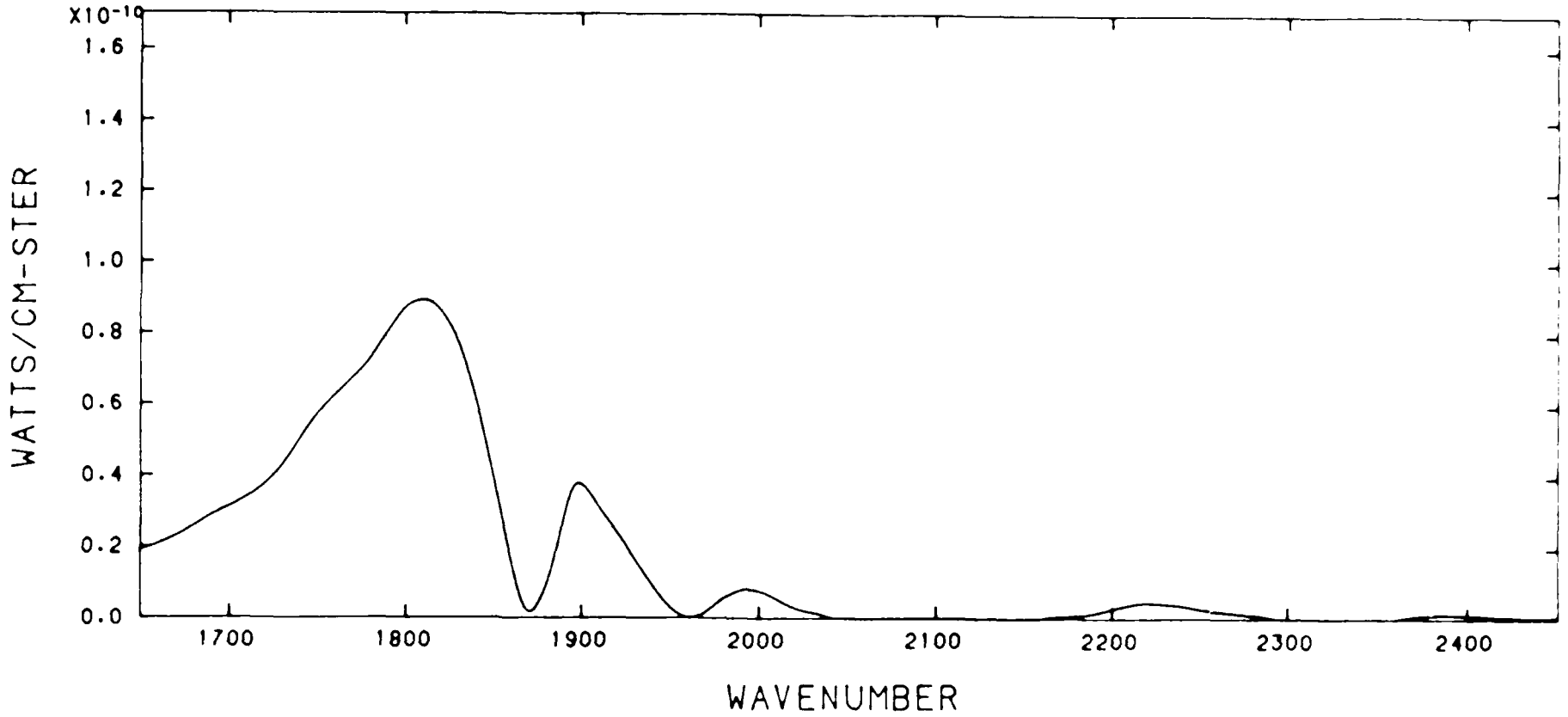
FILE 18, TIME 9: 8:12.242, ALT 110.7-111.0 KM

30-NOV-83 09:18



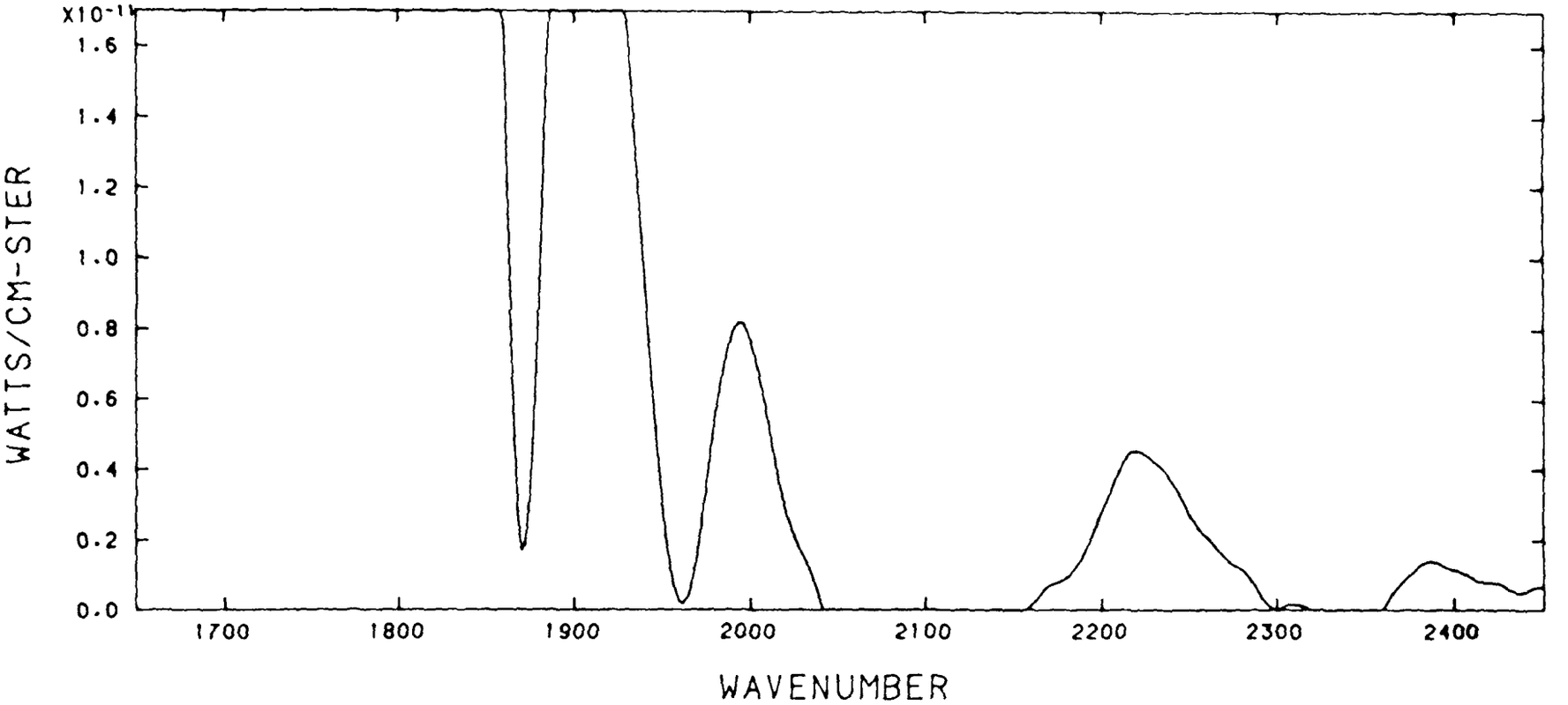
FILE 18, TIME 9: 8:12.242, ALT 110.7-111.0 KM

30-NOV-83 09:18



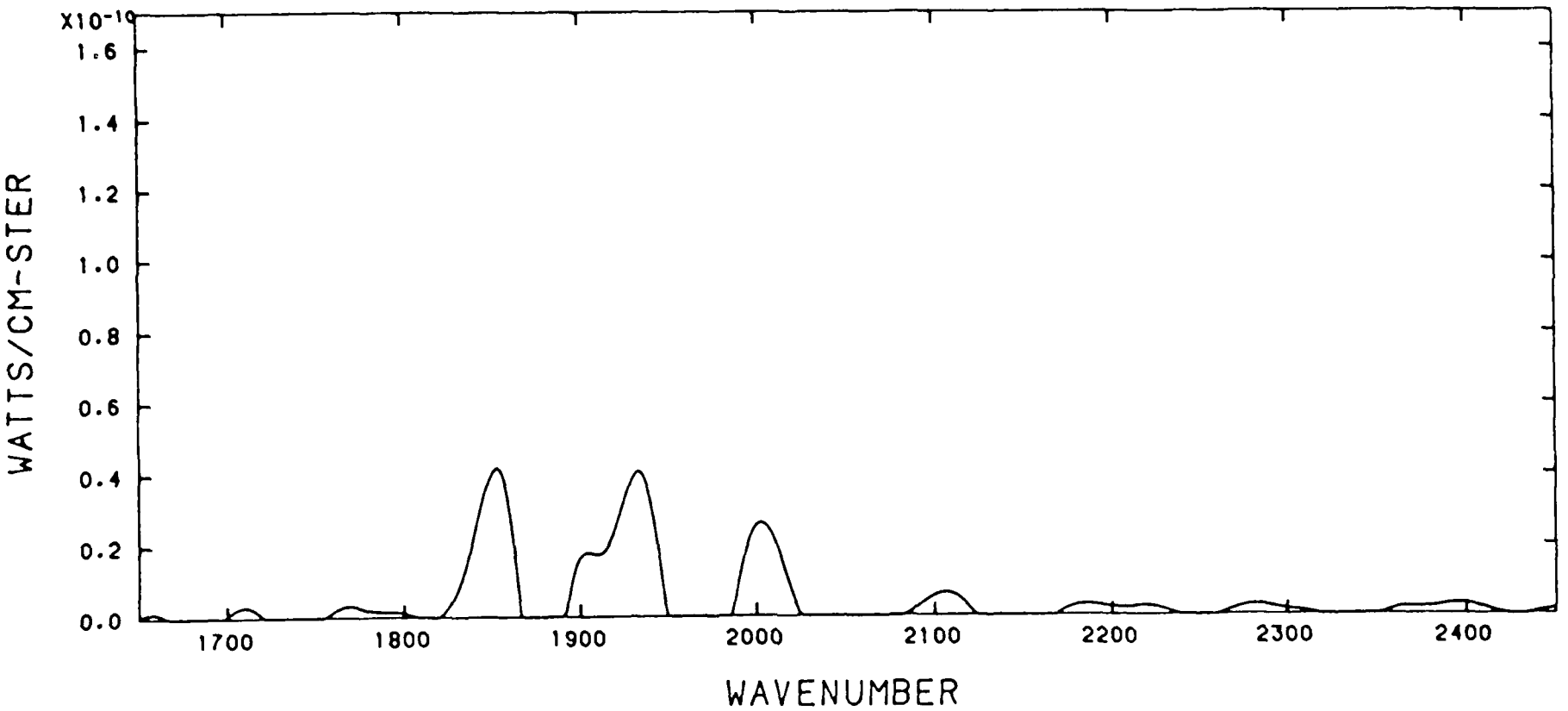
FILE 19, TIME 9: 8:12.736, ALT 111.1-111.3 KM

30-NOV-83 09:18



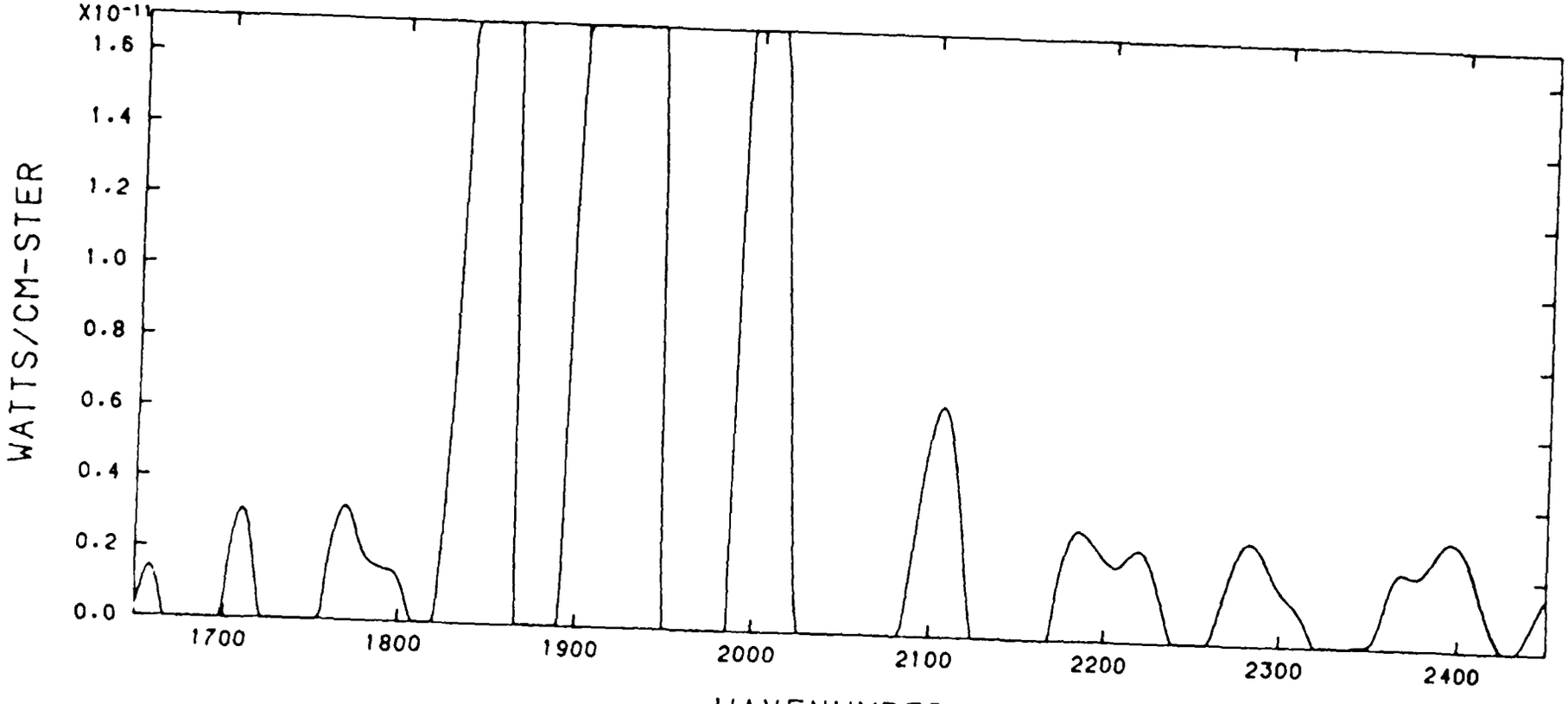
FILE 19, TIME 9: 8:12.736, ALT 111.1-111.3 KM

30-NOV-83 09:18



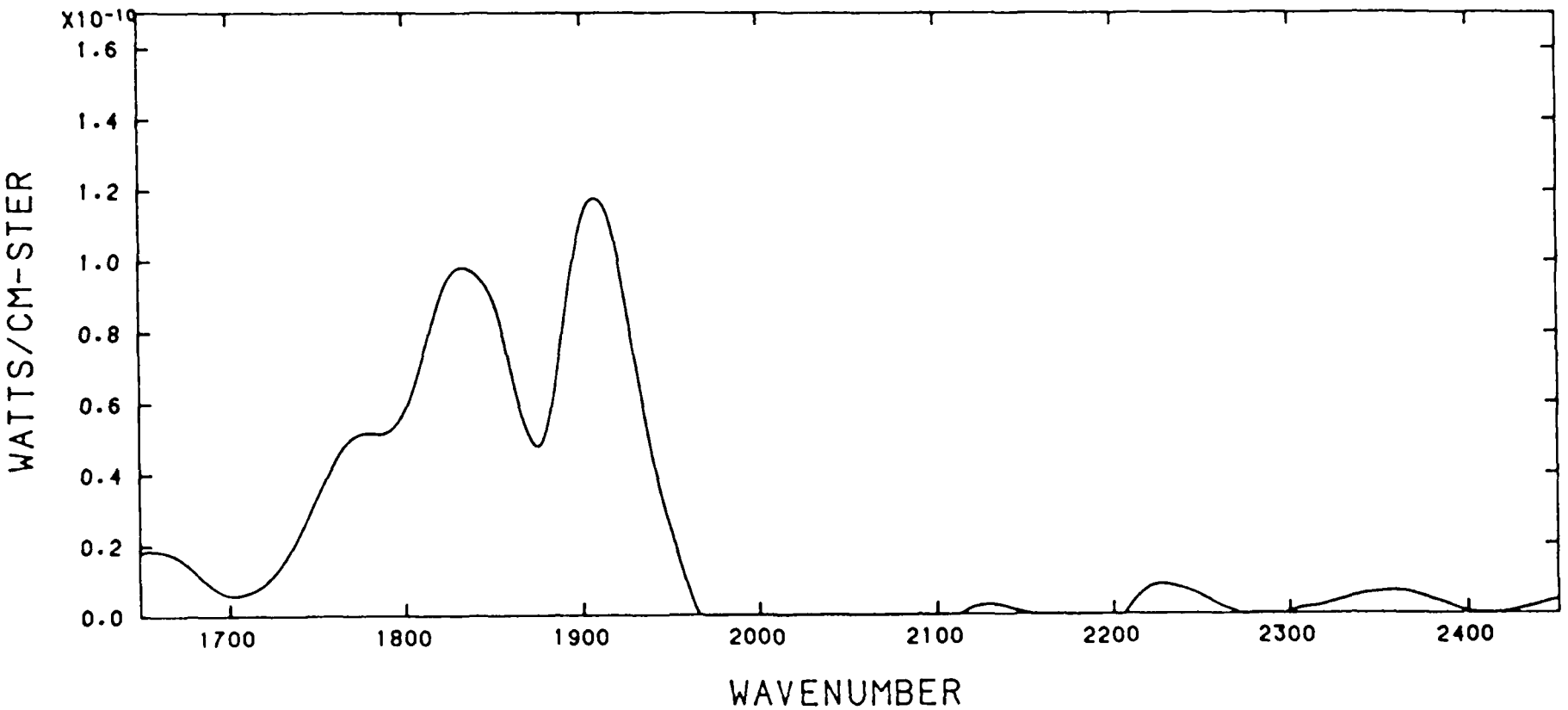
FILE 20, TIME 9: 8:15.526, ALT 113.1-113.3 KM

30-NOV-83 09:18



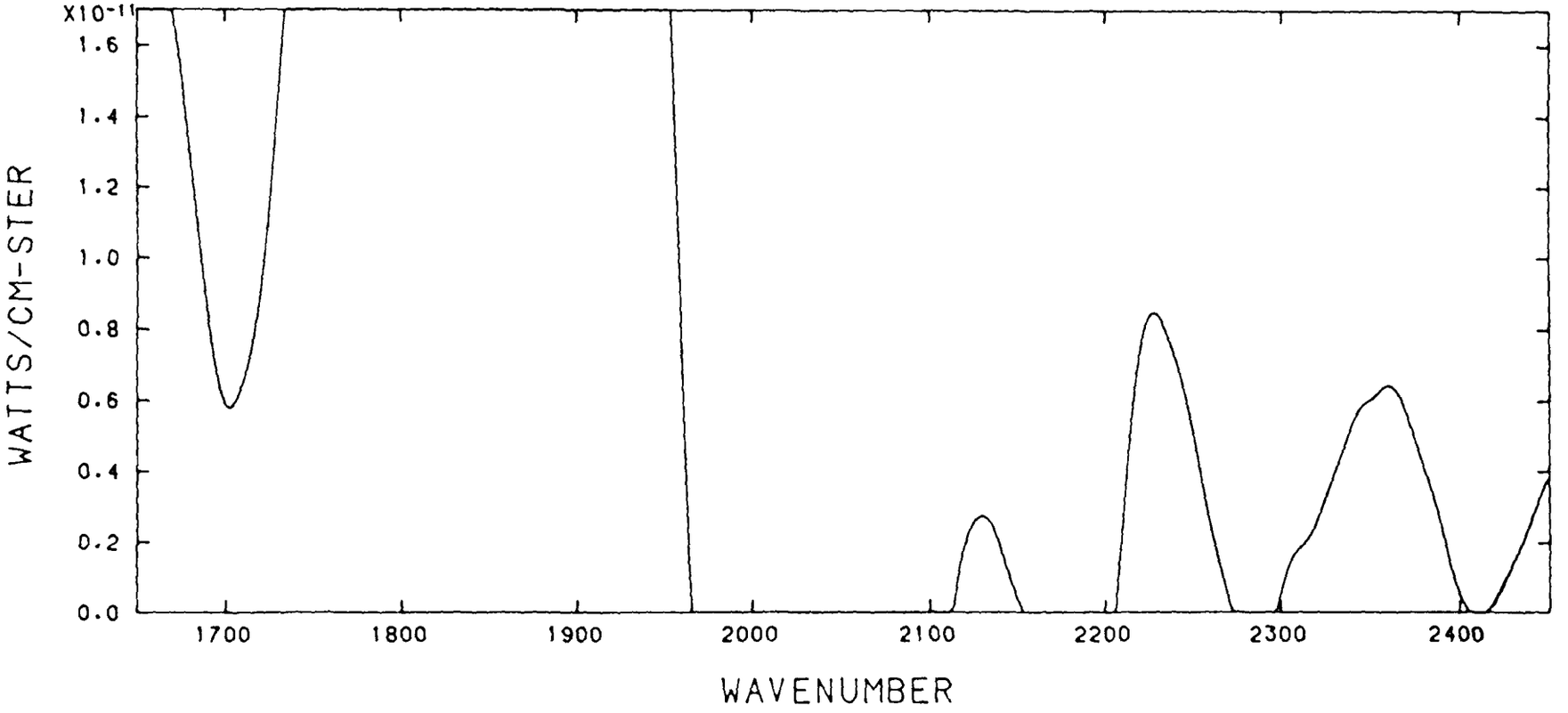
FILE 20, TIME 9: 8:15.526, ALT 113.1-113.3 KM

30-NOV-83 09:18



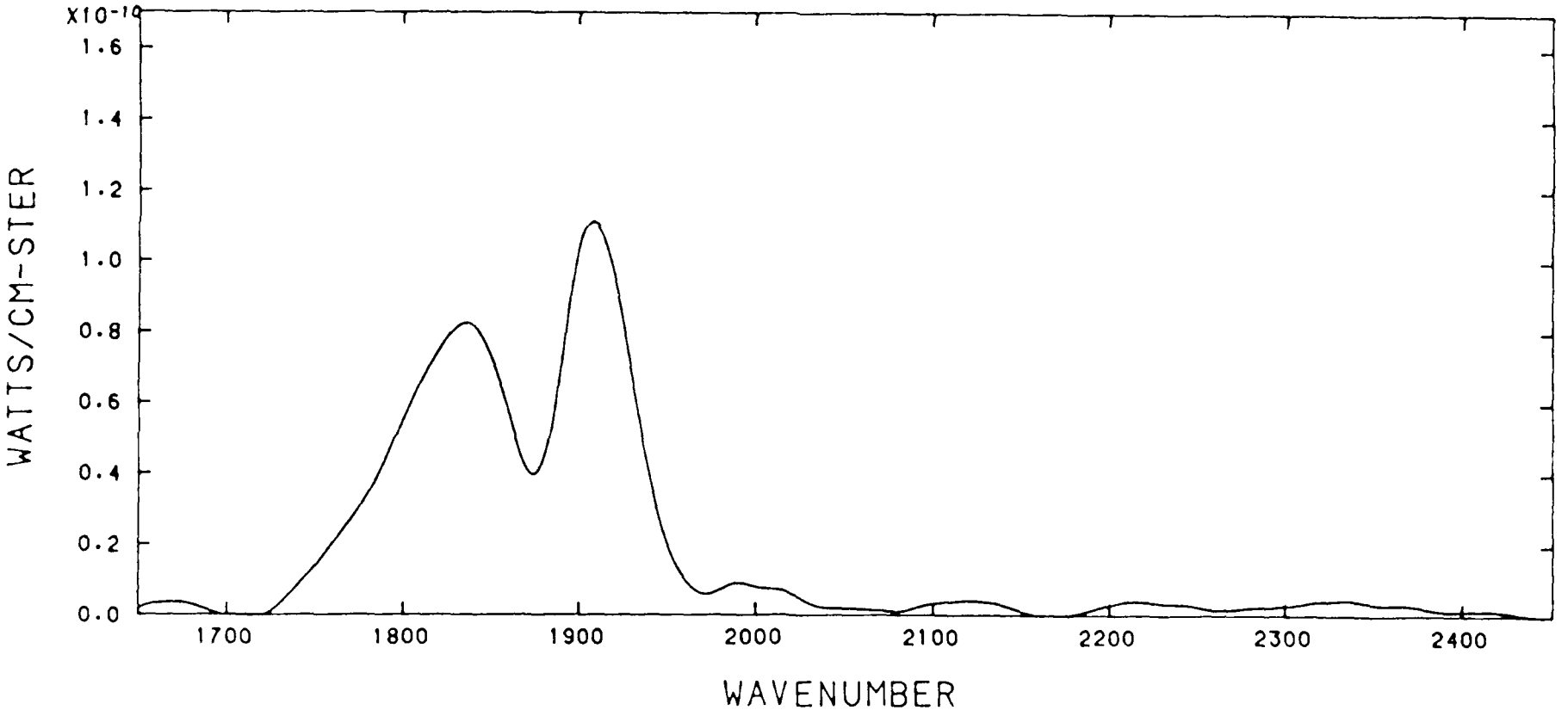
FILE 21, TIME 9: 8:15.998, ALT 113.4-113.6 KM

30-NOV-83 09:18



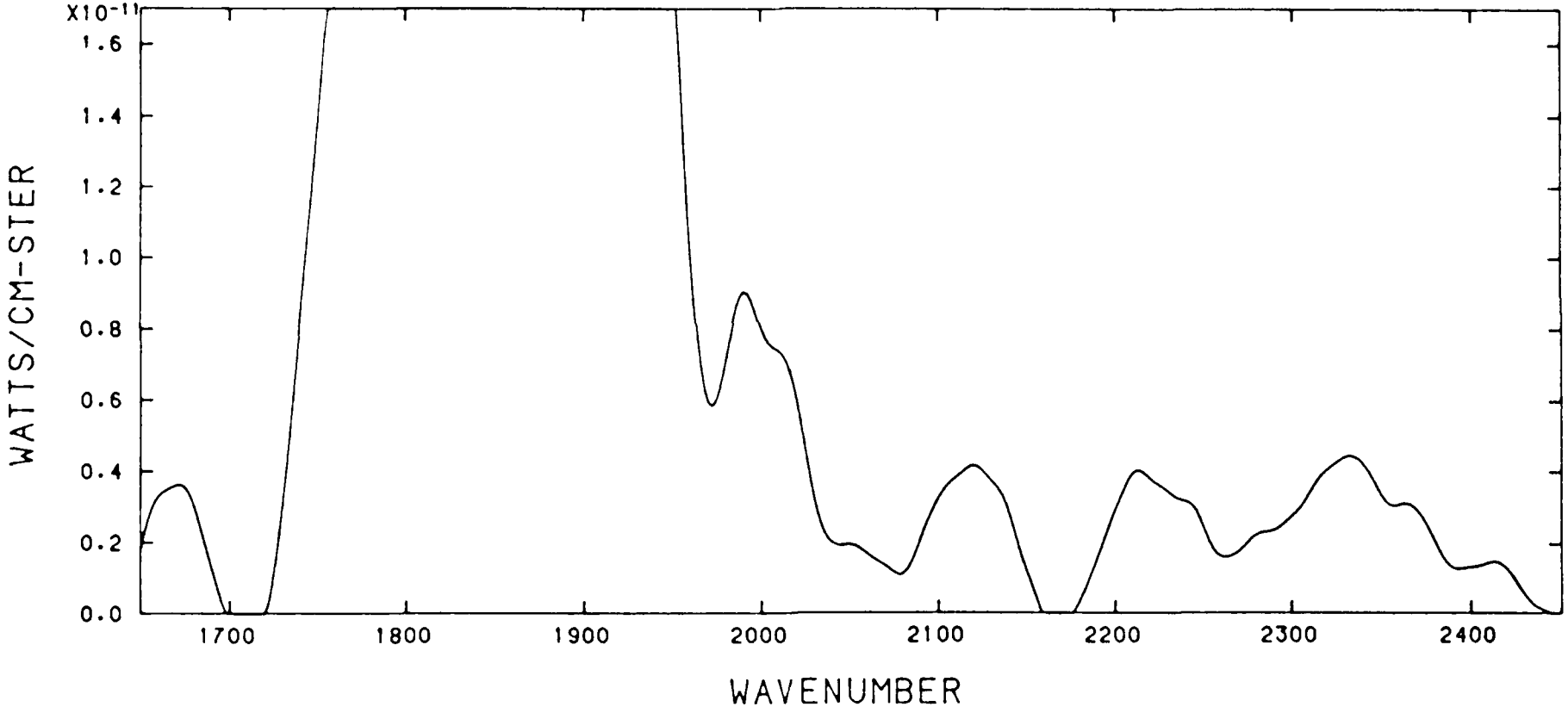
FILE 21, TIME 9: 8:15.998, ALT 113.4-113.6 KM

30-NOV-83 09:18



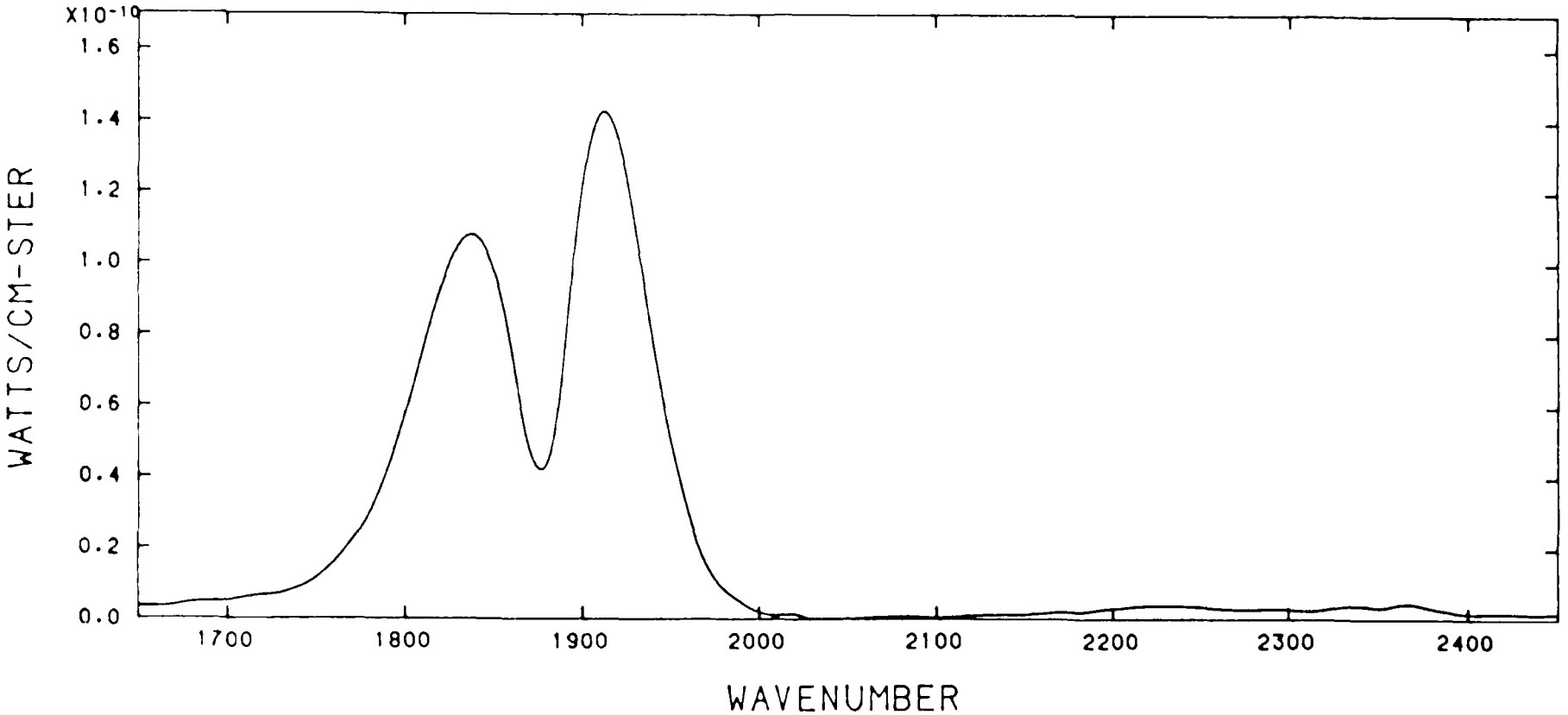
FILE 22, TIME 9: 8:18.754, ALT 115.3-115.5 KM

30-NOV-83 09:18



FILE 22, TIME 9: 8:18.754, ALT 115.3-115.5 KM

30-NOV-83 09:18



FILE 23, TIME 9: 8:19.252, ALT 115.6-115.9 KM

30-NOV-83 09:19

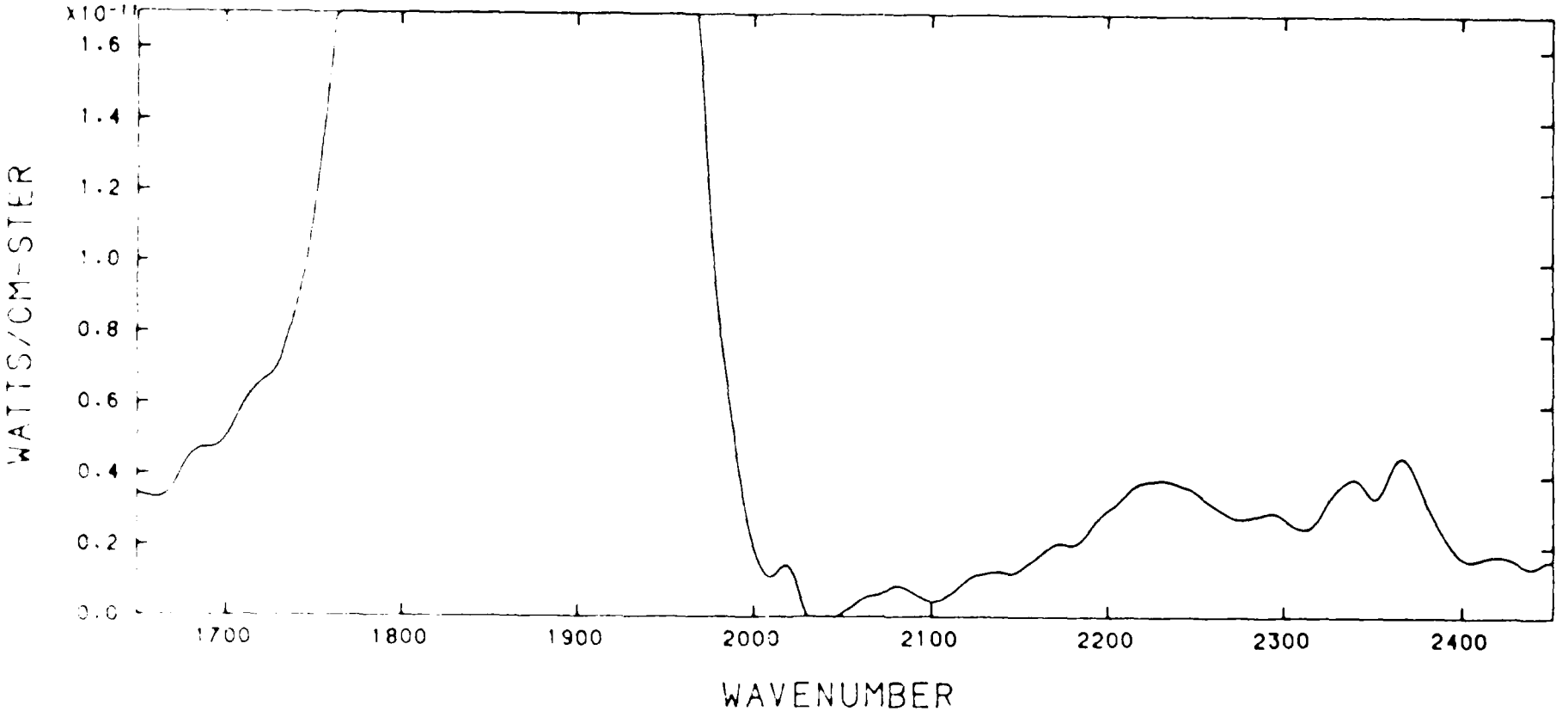
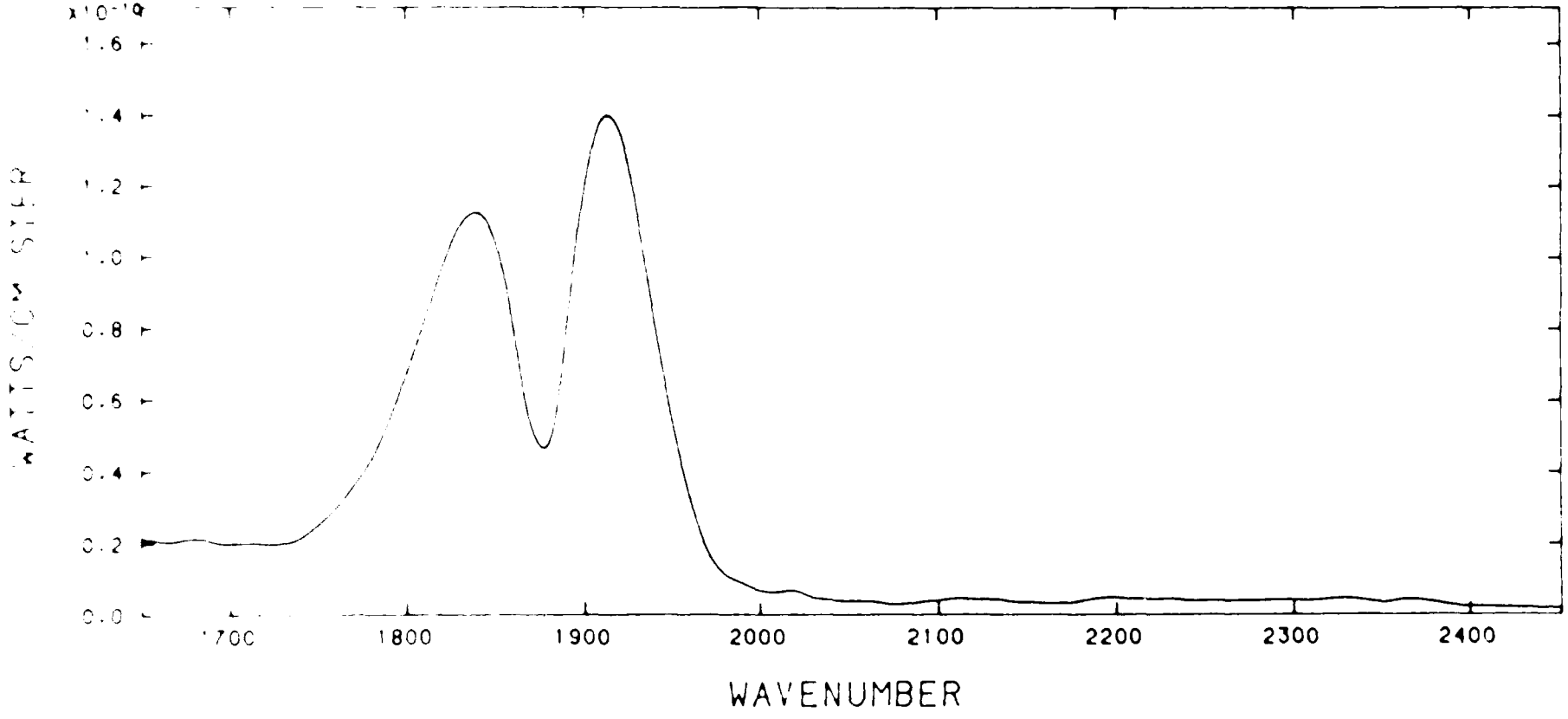


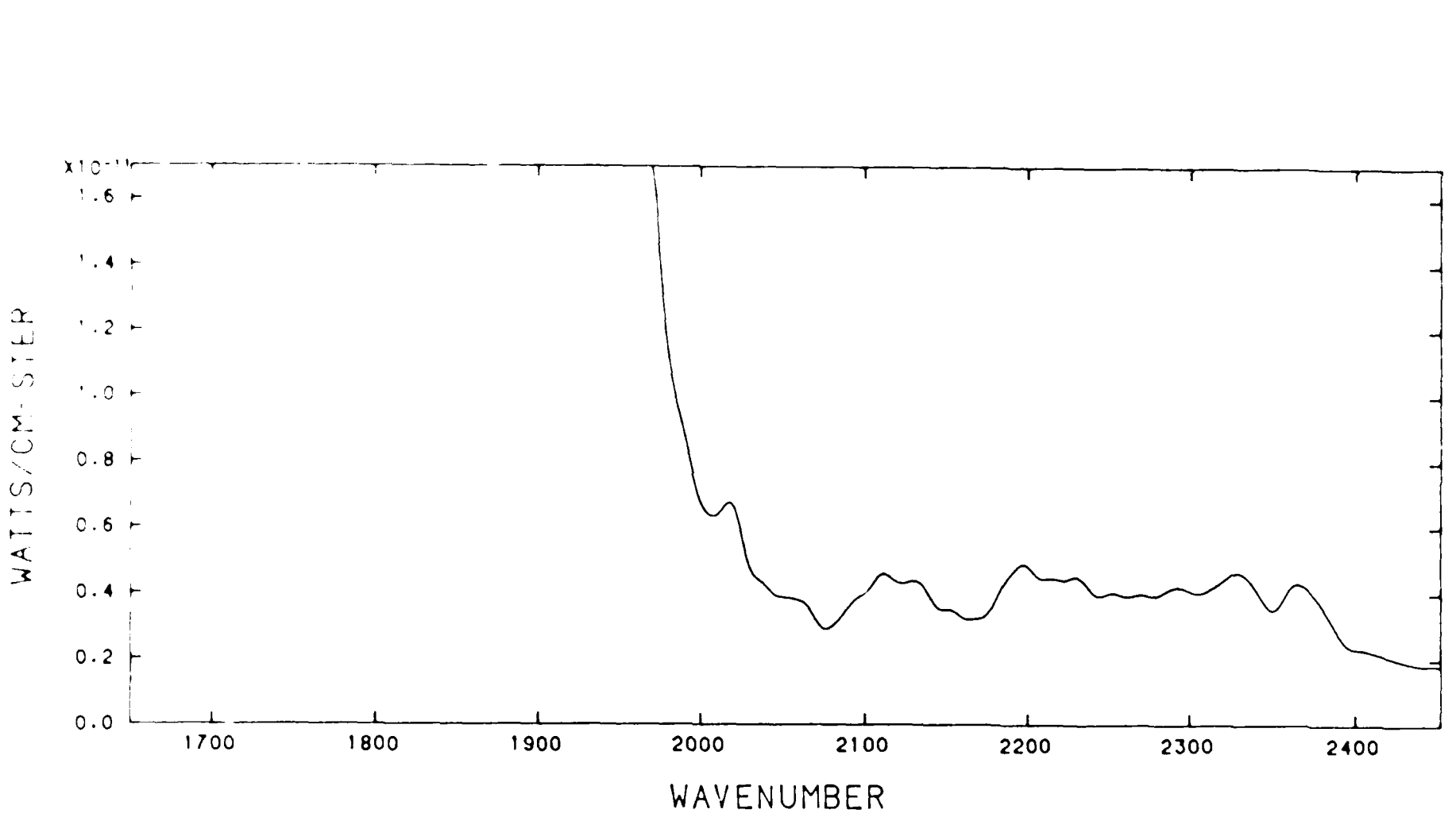
FIG 23. TIME 9: 8:19.252, ALT 115.6-115.9 KM

30 NOV 83 09:19



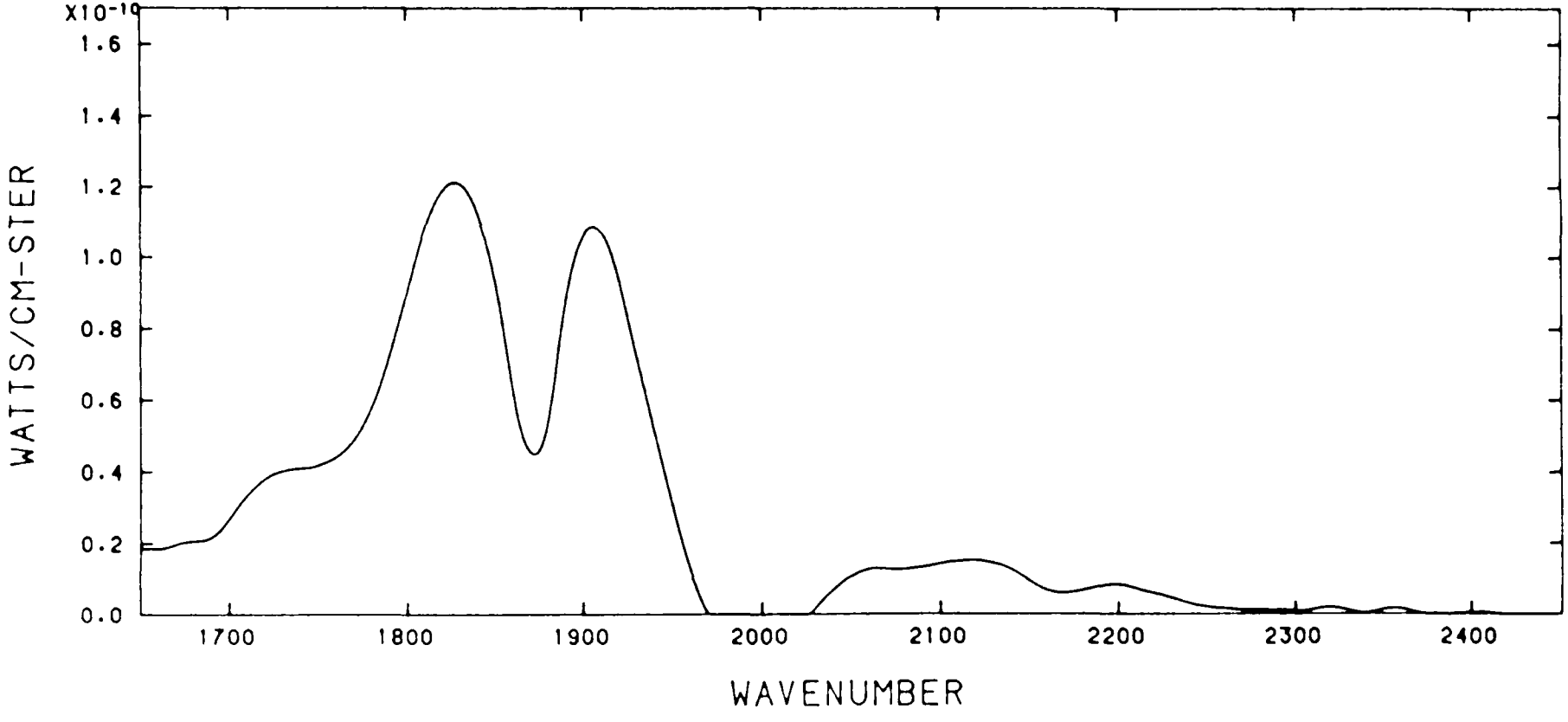
FILE 24, TIME 9: 8:22. 12, ALT 117.4-117.7 KM

30-NOV-83 09:



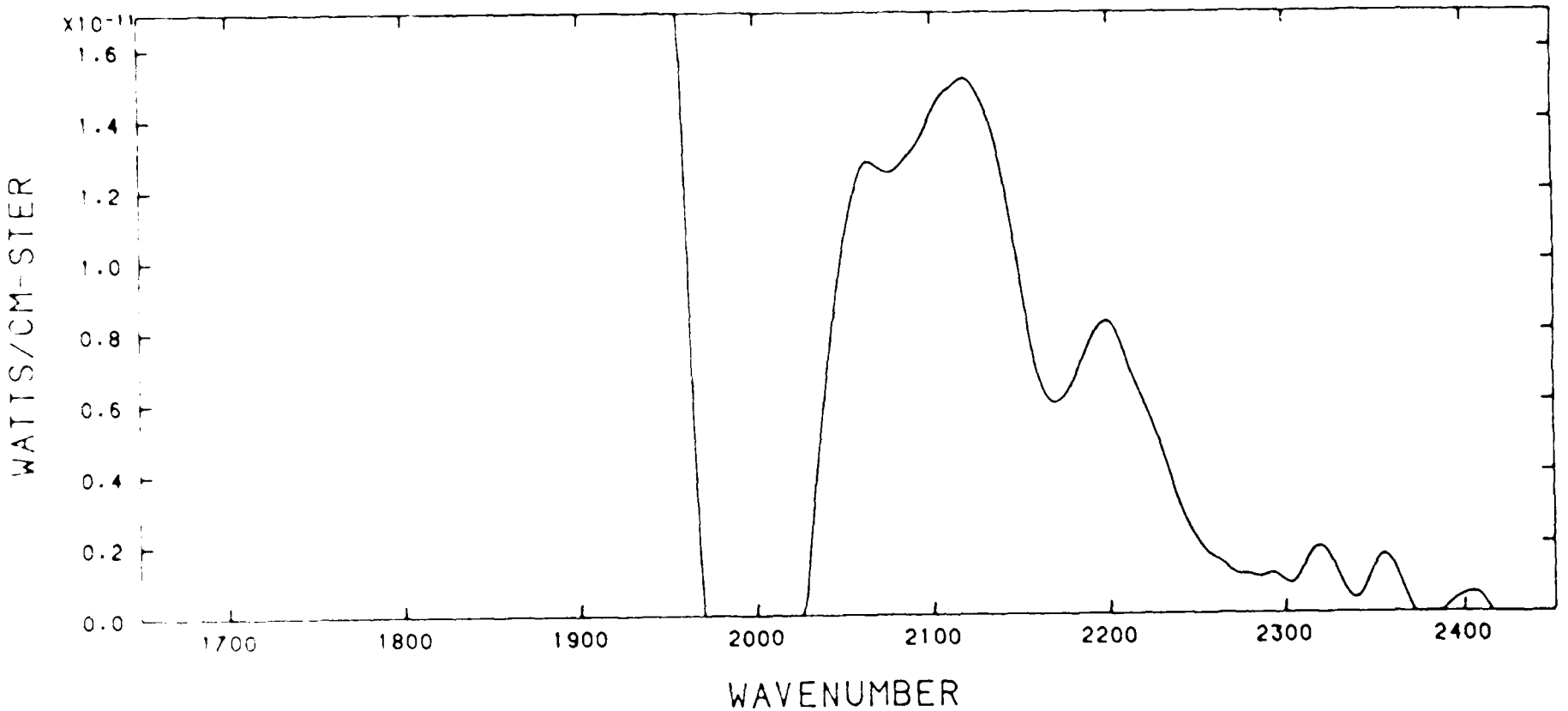
FILE 24, TIME 9: 8:22. 12, ALT 117.4-117.7 KM

30-NOV-83 09:19



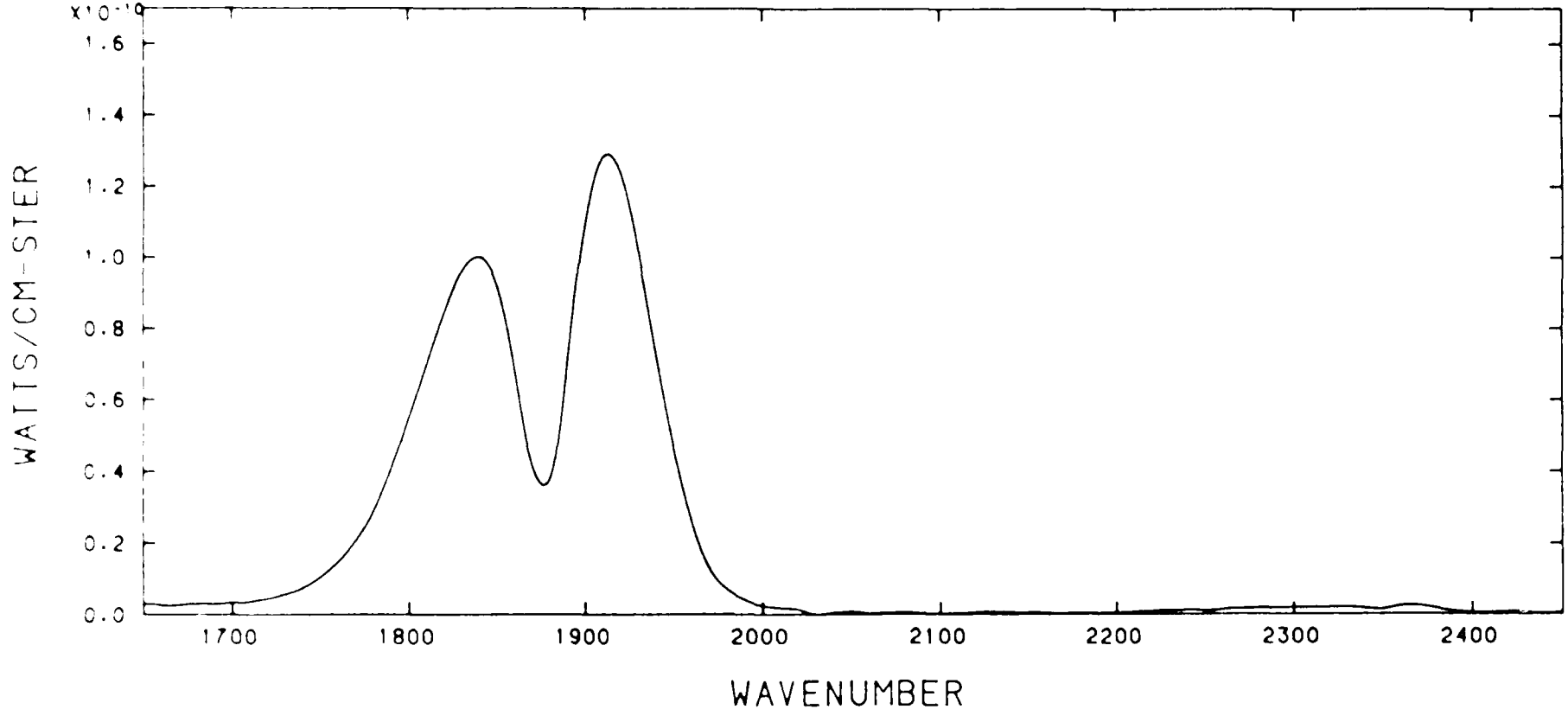
FILE 25, TIME 9: 8:22.510, ALT 117.8-118.0 KM

30-NOV-83 09:19



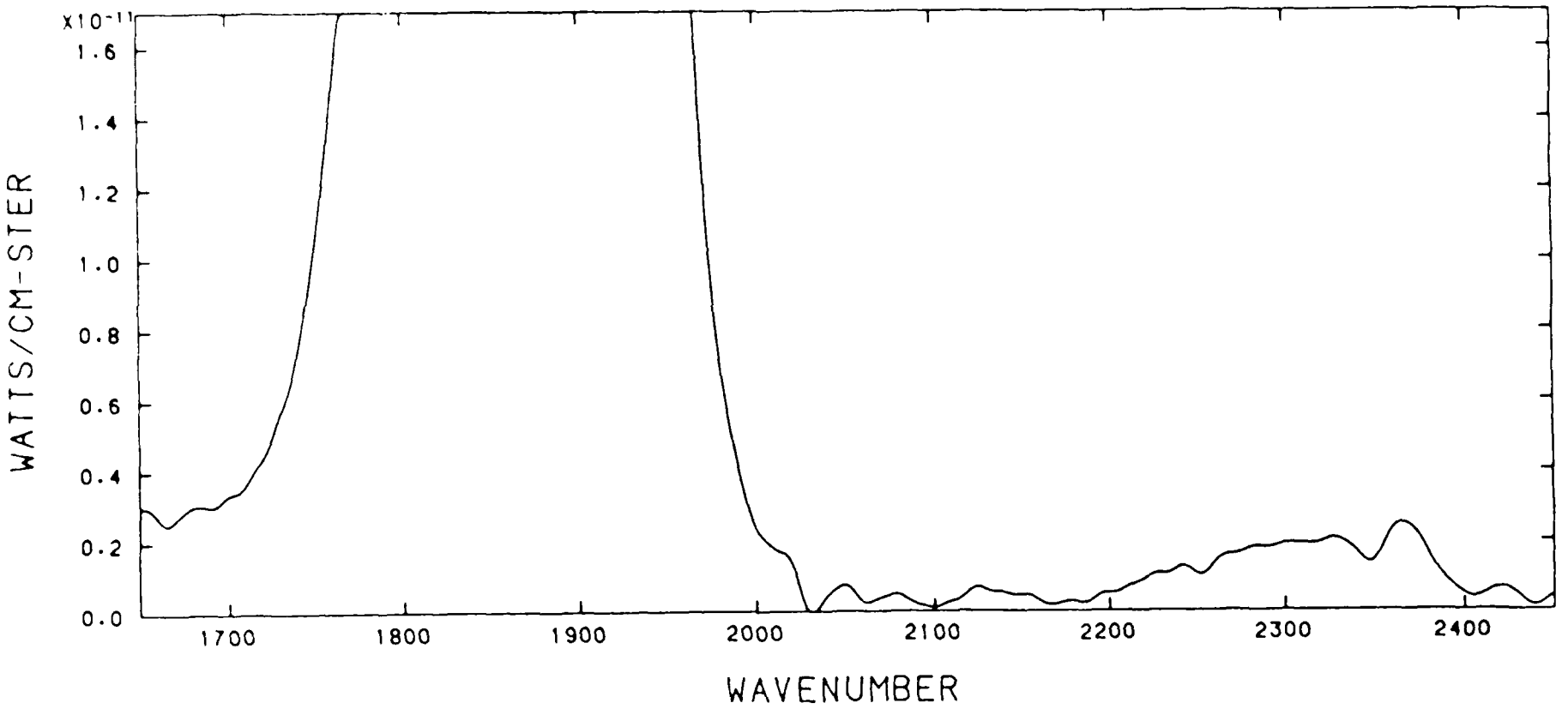
FILE 25, TIME 9: 8:22.510, ALT 117.8-118.0 KM

30 NOV-83 09:19



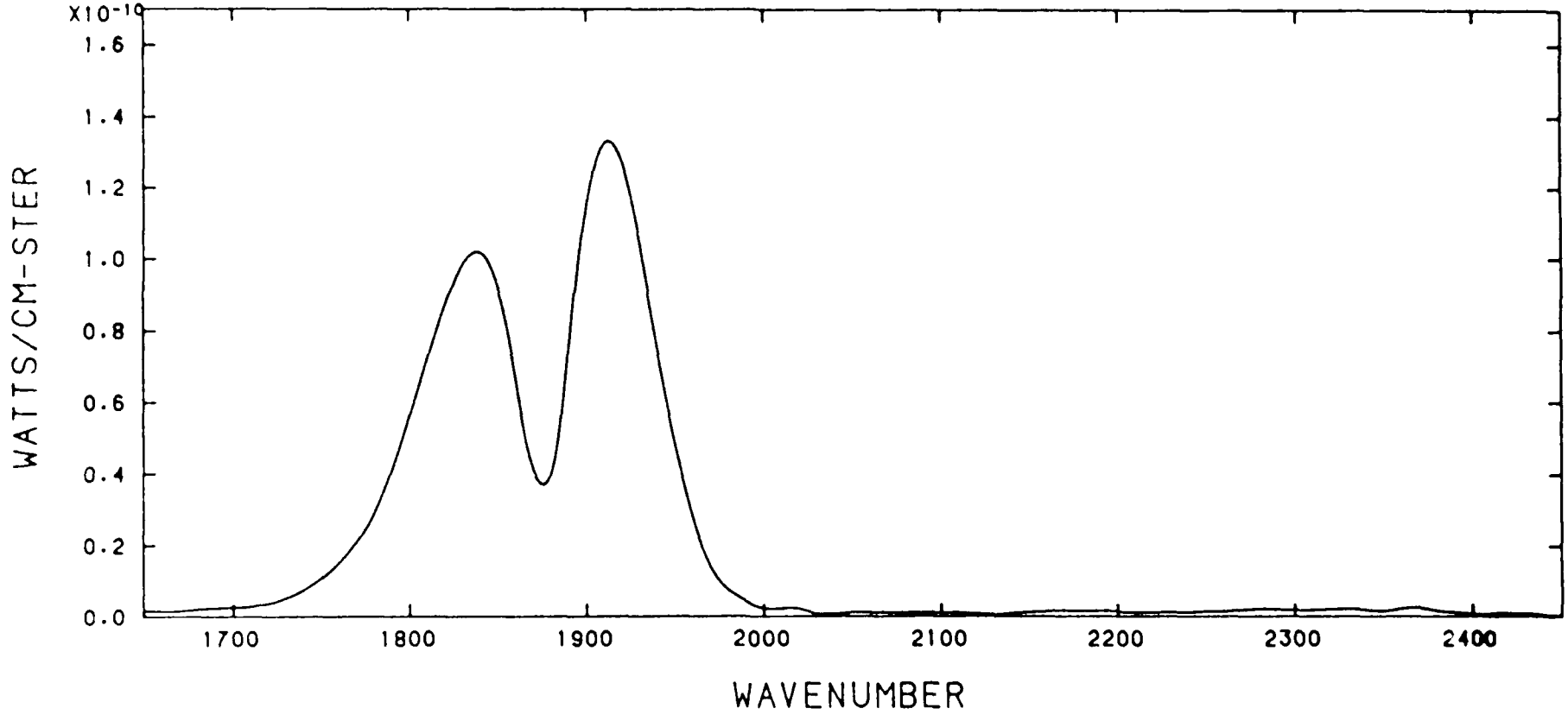
FILE 26, TIME 9: 8:25.266, ALT 119.5-119.7 KM

30-NOV-83 09:20



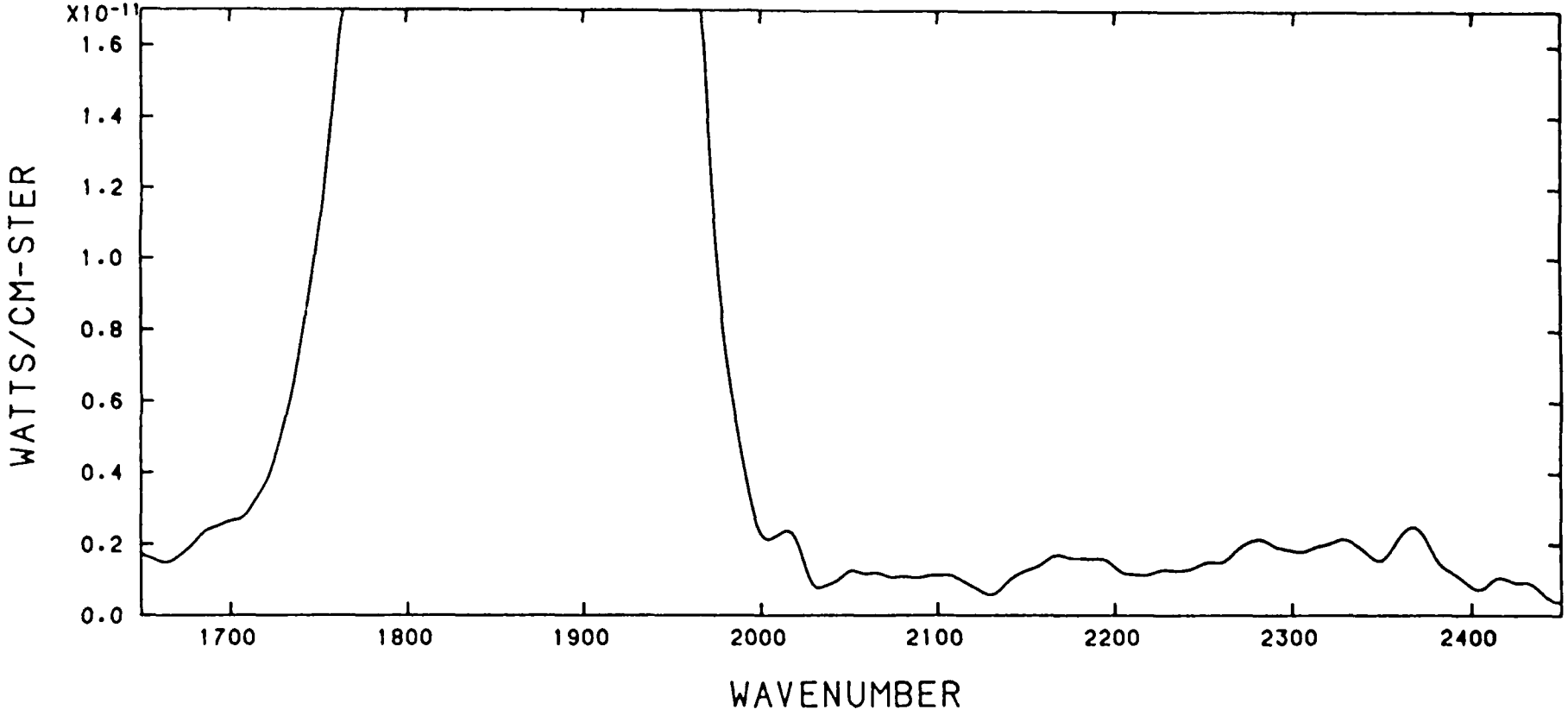
FILE 26, TIME 9: 8:25.266, ALT 119.5-119.7 KM

30-NOV-83 08:20



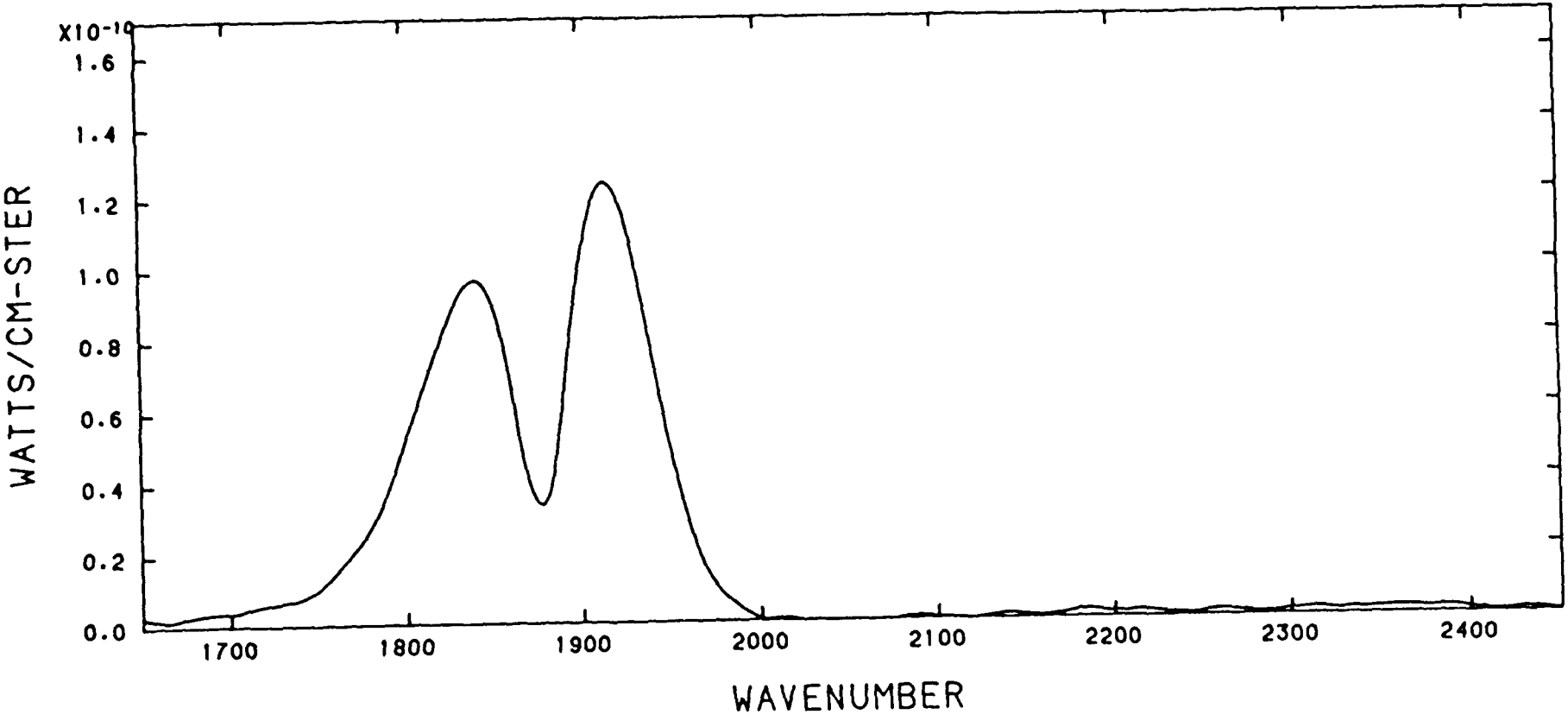
FILE 27, TIME 9: 8:25.766, ALT 119.8-120.0 KM

30-NOV-83 09:20



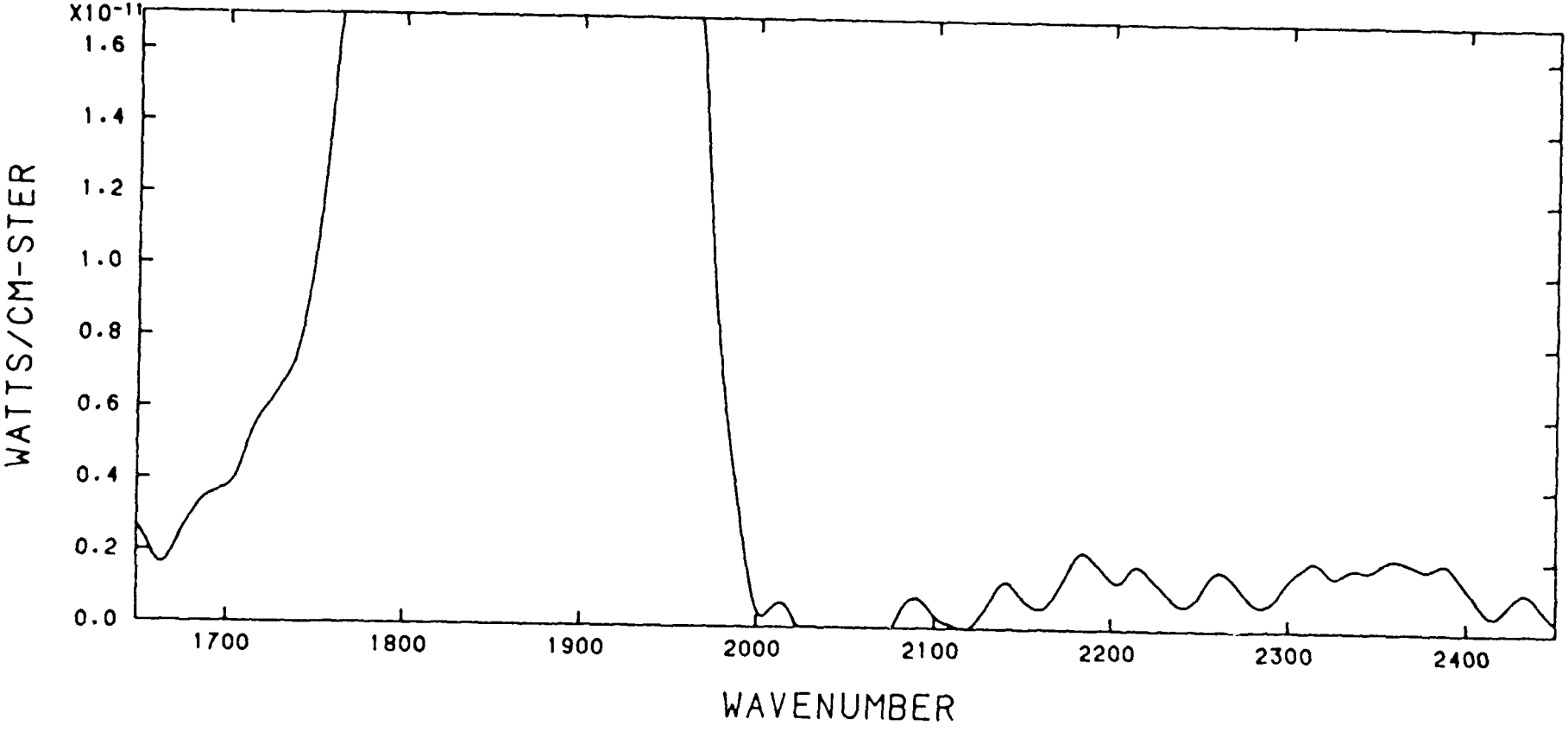
FILE 27, TIME 9: 8:25.766, ALT 119.8-120.0 KM

30-NOV-83 09:20



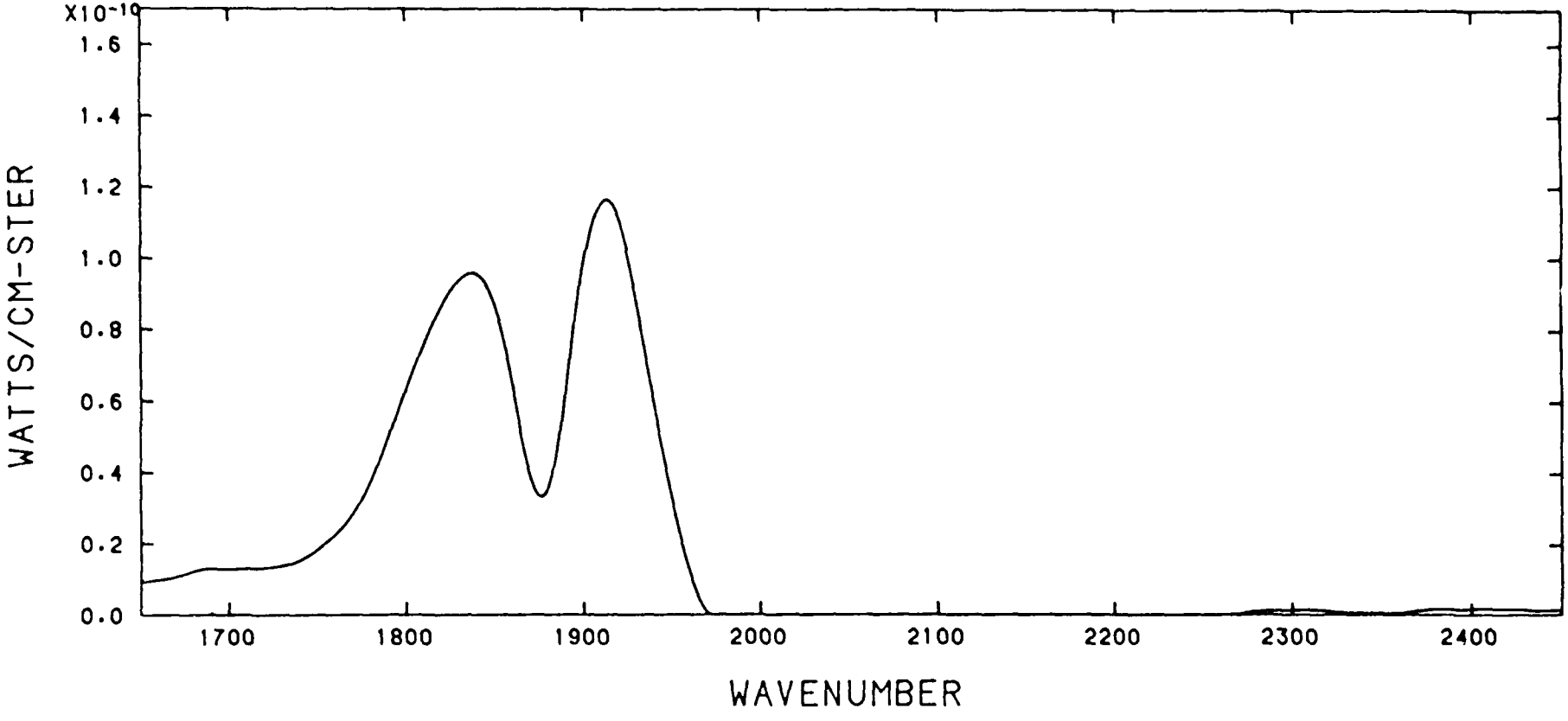
FILE 28, TIME 9: 8:28.522, ALT 121.4-121.6 KM

30-NOV-83 09:21



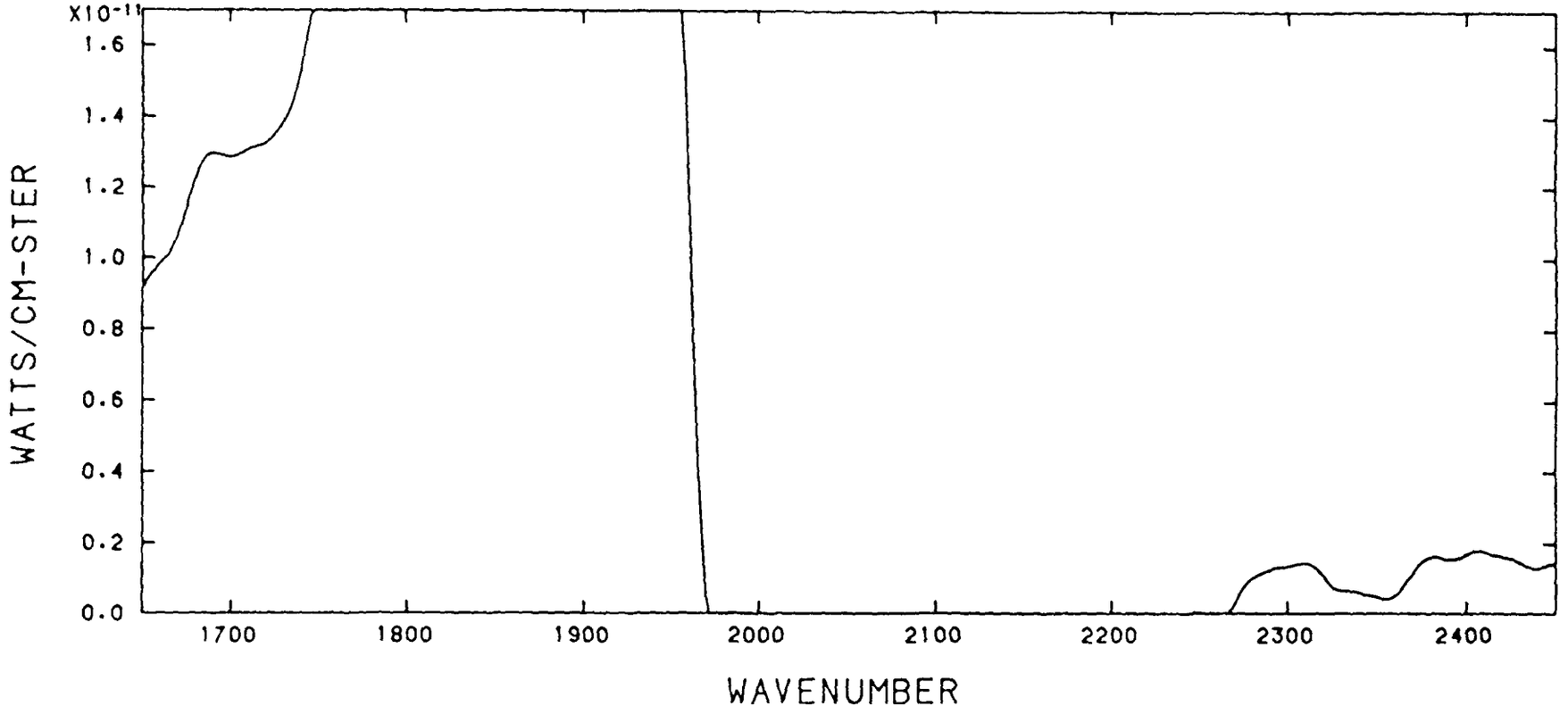
FILE 28, TIME 9: 8:28.522, ALT 121.4-121.6 KM

30-NOV-83 09:21



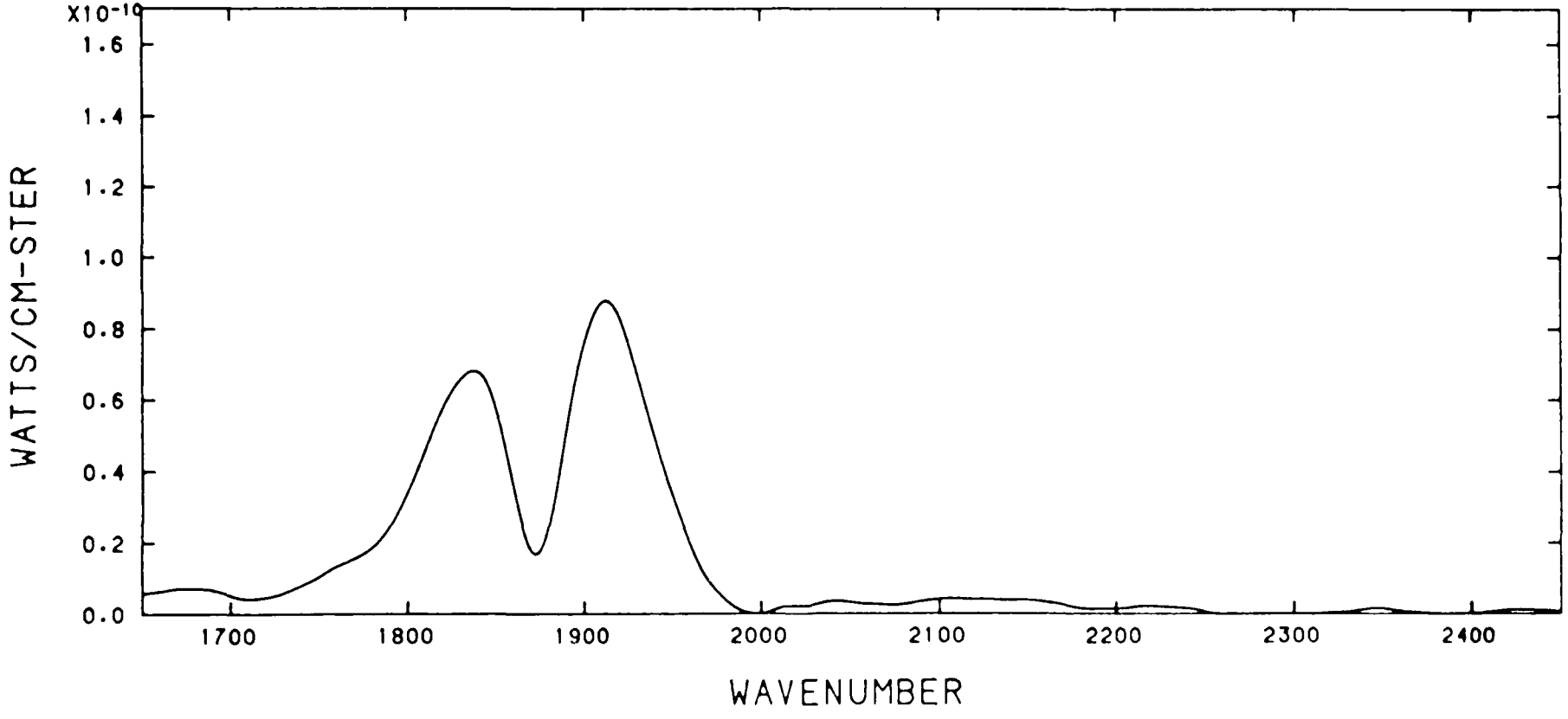
FILE 29, TIME 9: 8:29. 20, ALT 121.7-121.9 KM

30-NOV-83 09:21



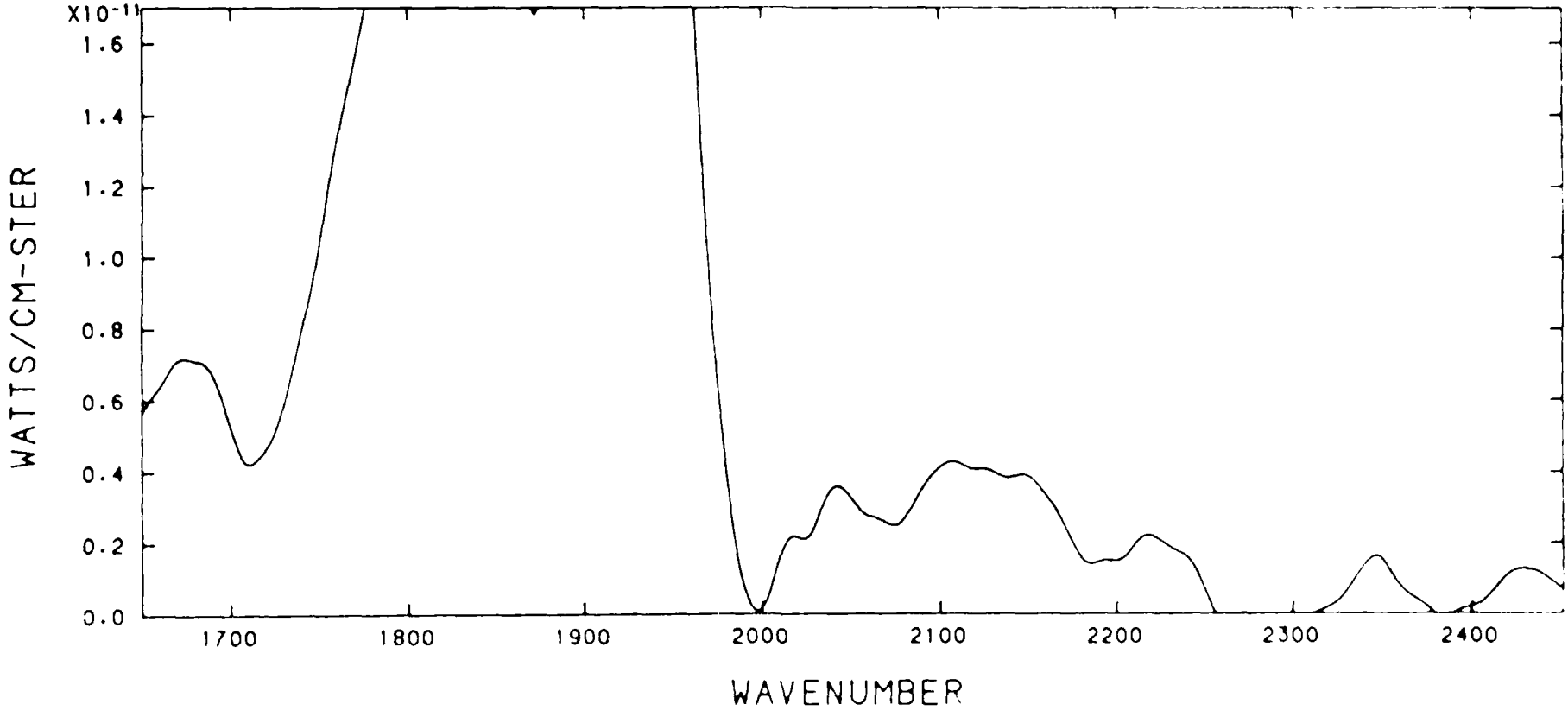
FILE 29, TIME 9: 8:29. 20, ALT 121.7-121.9 KM

30-NOV-83 09:21



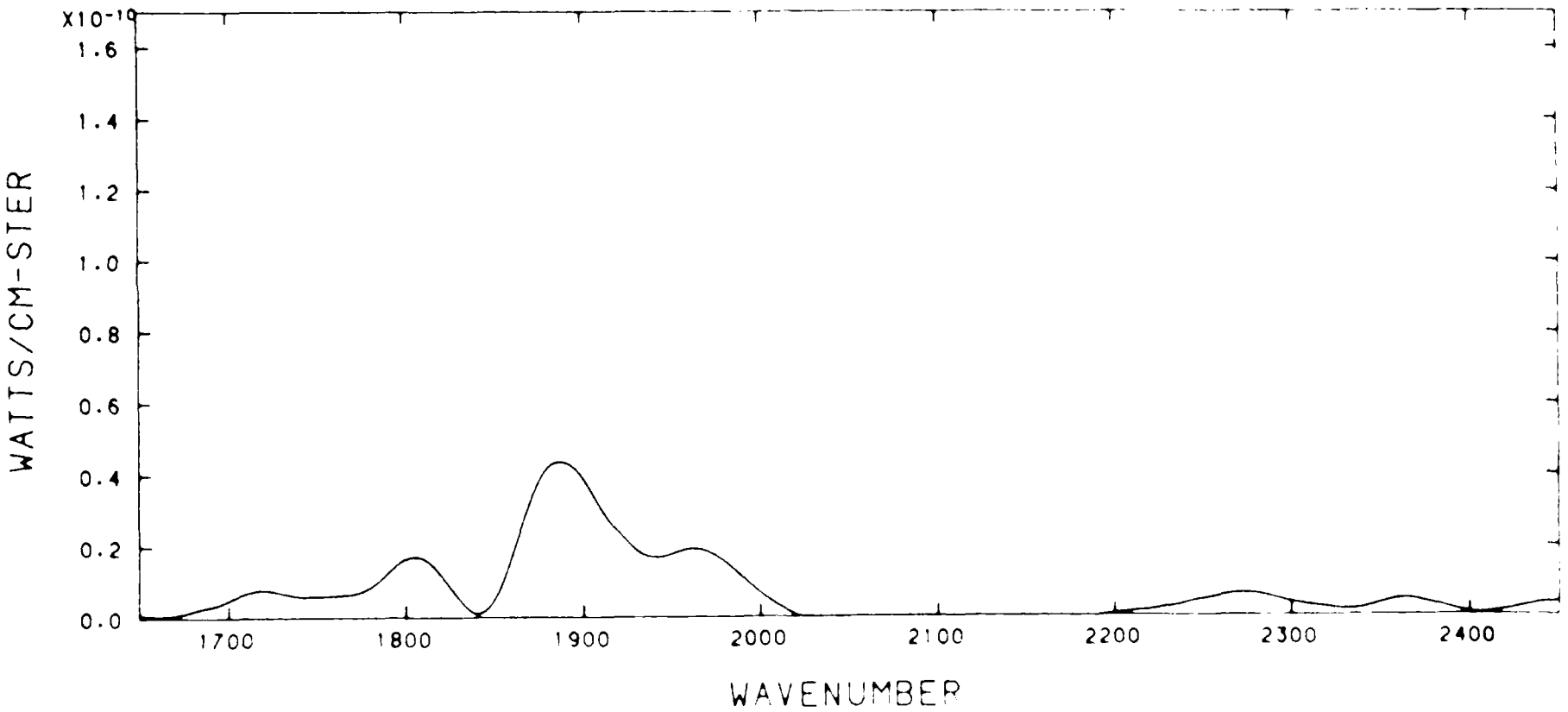
FILE 30, TIME 9: 8:31.782, ALT 123.3-123.4 KM

30-NOV-83 09:21



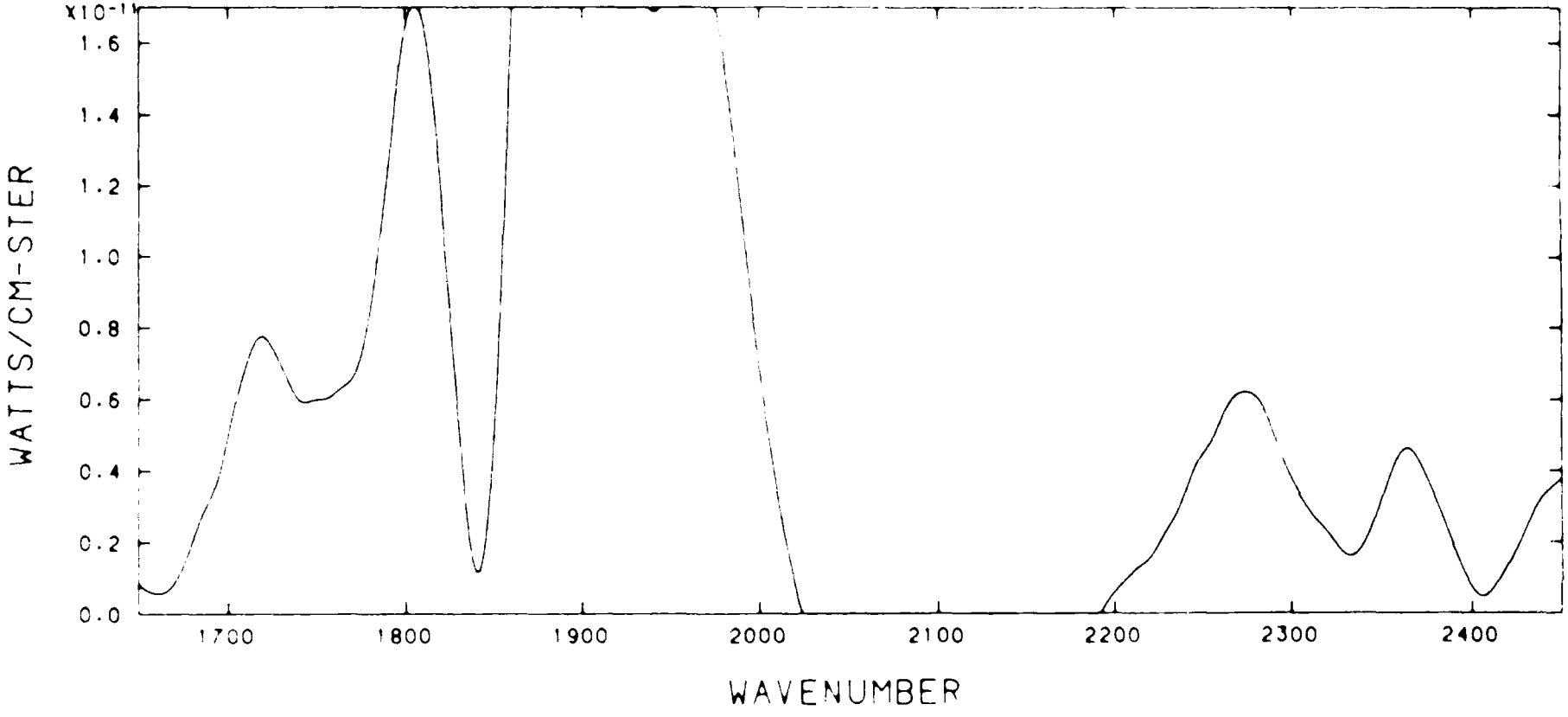
FILE 30, TIME 9: 8:31.782, ALT 123.3-123.4 KM

30-NOV-83 09:21



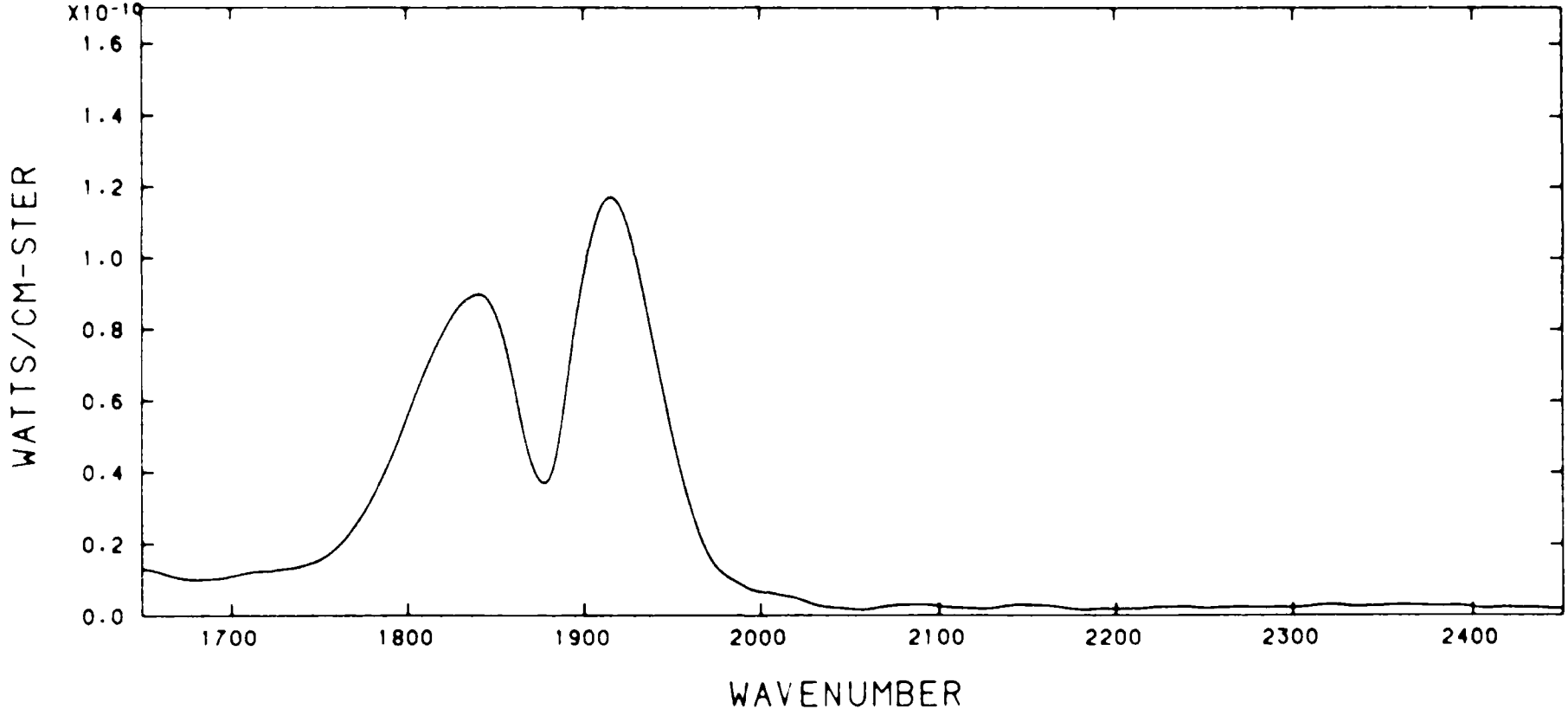
FILE 31, TIME 9: 8:32.278, ALT 123.5-123.7 KM

30-NOV-83 09:21



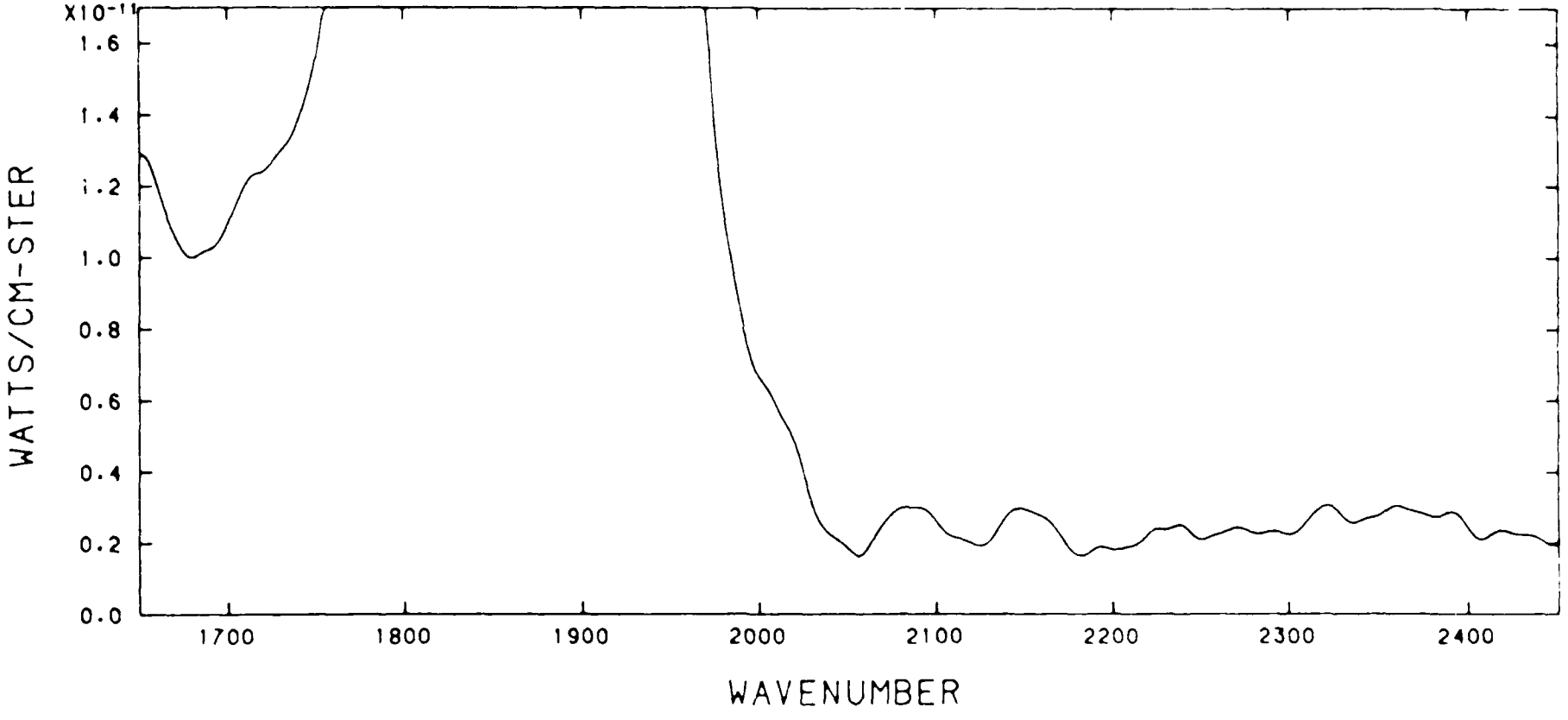
FILE 31, TIME 9: 8:32.278, ALT 123.5-123.7 KM

30-NOV-83 09:2



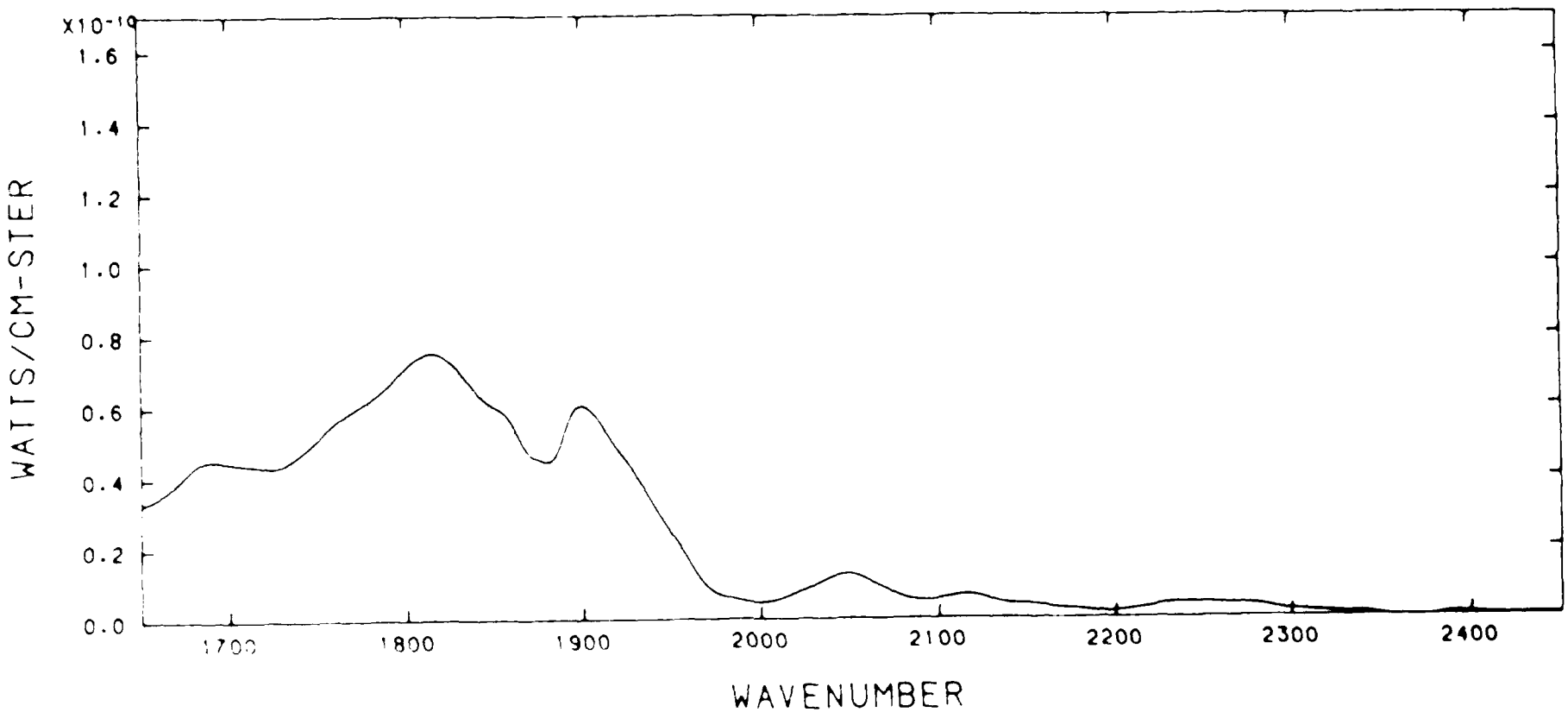
FILE 32, TIME 9: 8:35. 42, ALT 125.0-125.2 KM

30-NOV-83 09:21



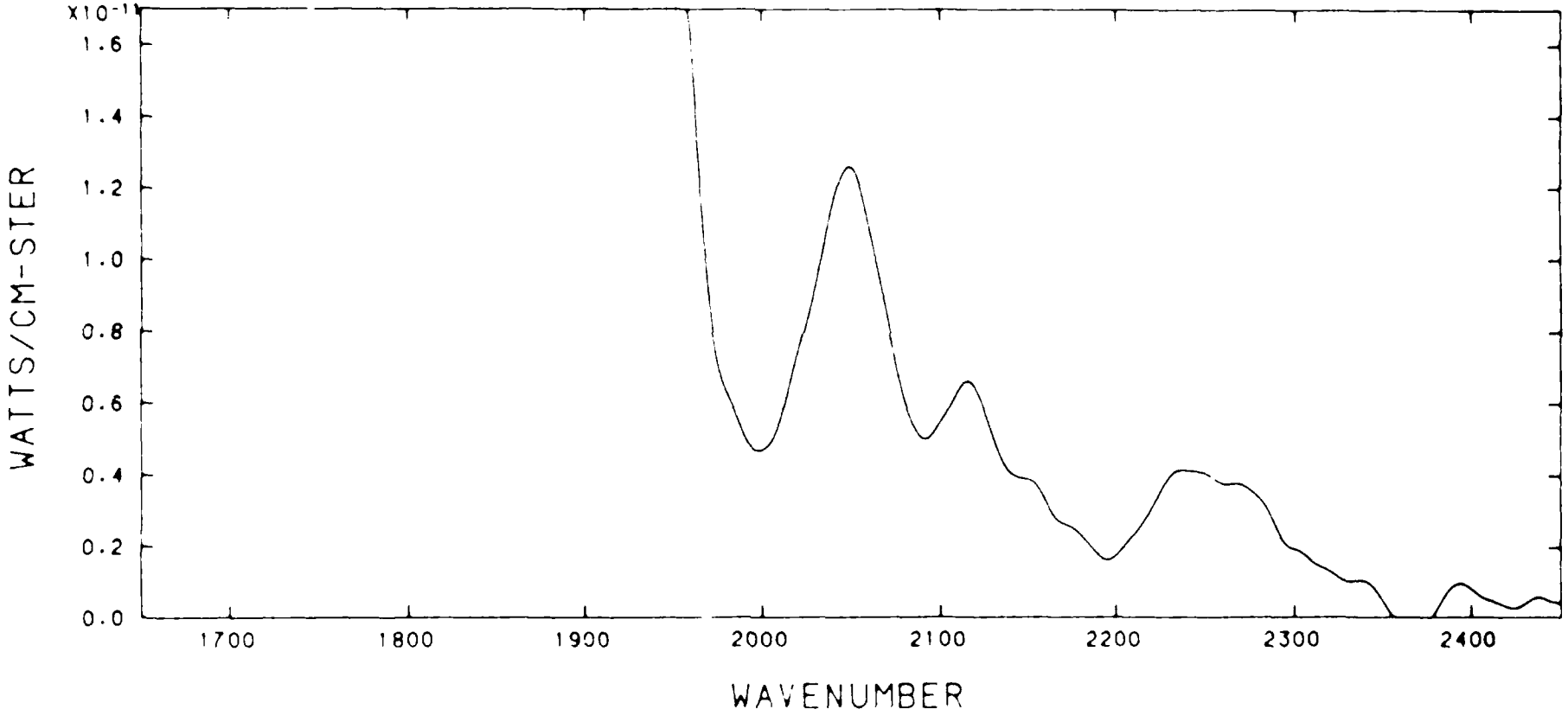
FILE 32, TIME 9: 8:35. 42, ALT 125.0-125.2 KM

30-NOV-83 09:21



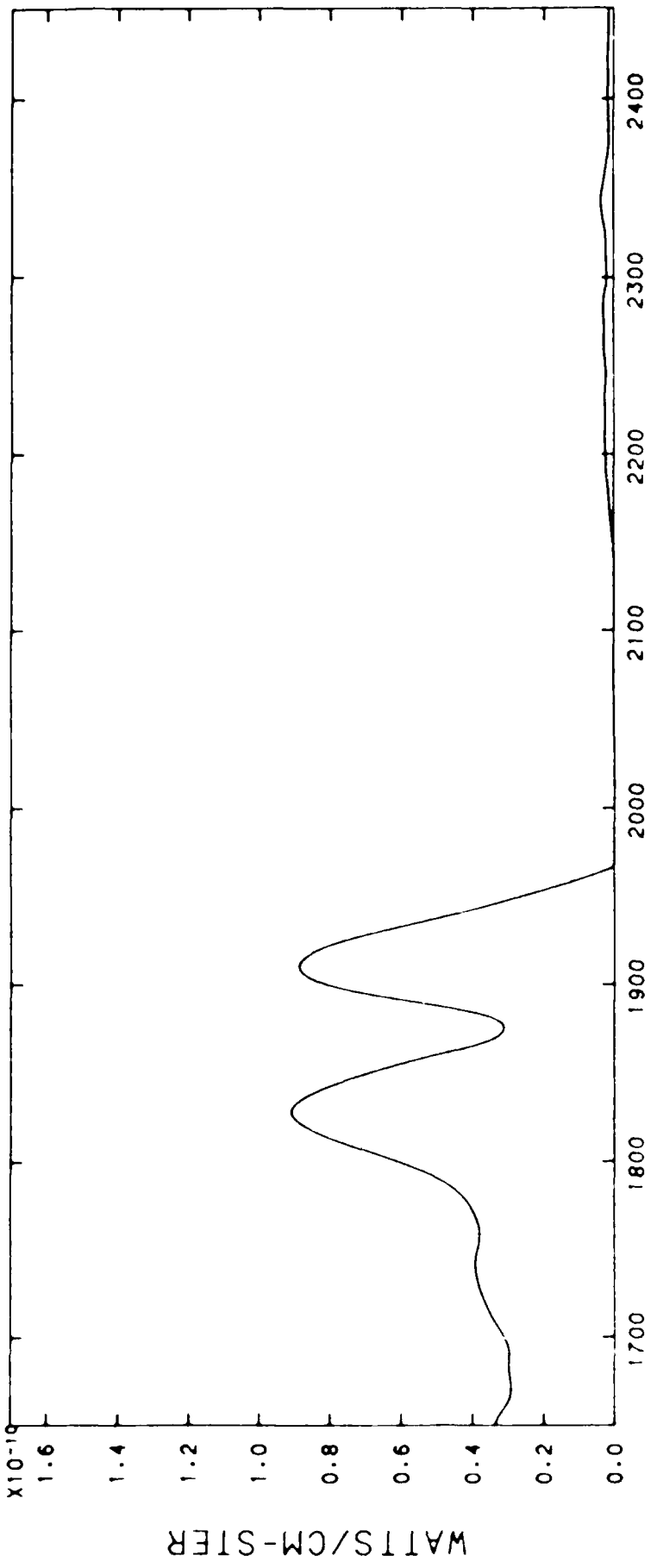
FILE 33, TIME 9: 8:35.538, ALT 125.3-125.4 KM

30-NOV-83 09:22

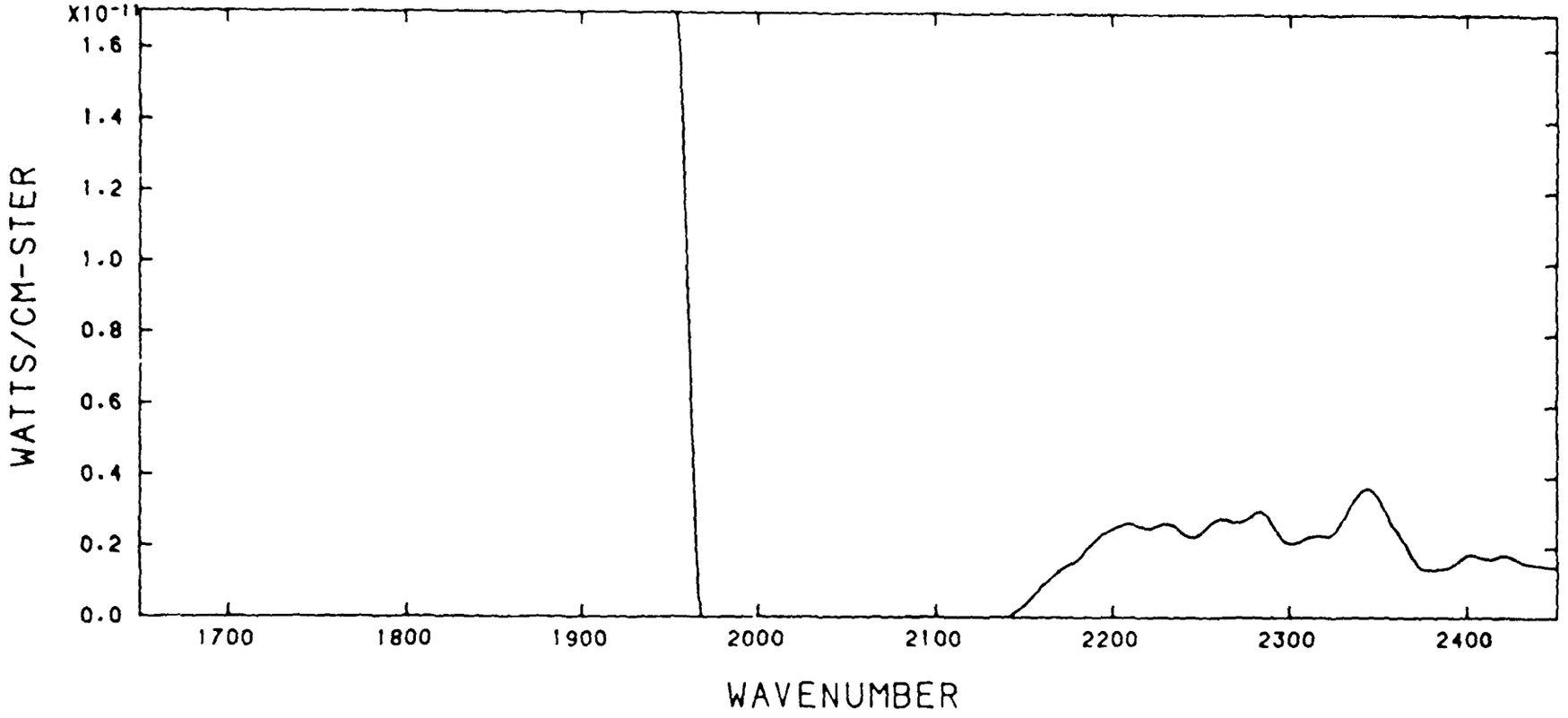


FILE 33, TIME 9: 8:35.538, ALT 125.3-125.4 KM

30-NOV-83 09:22

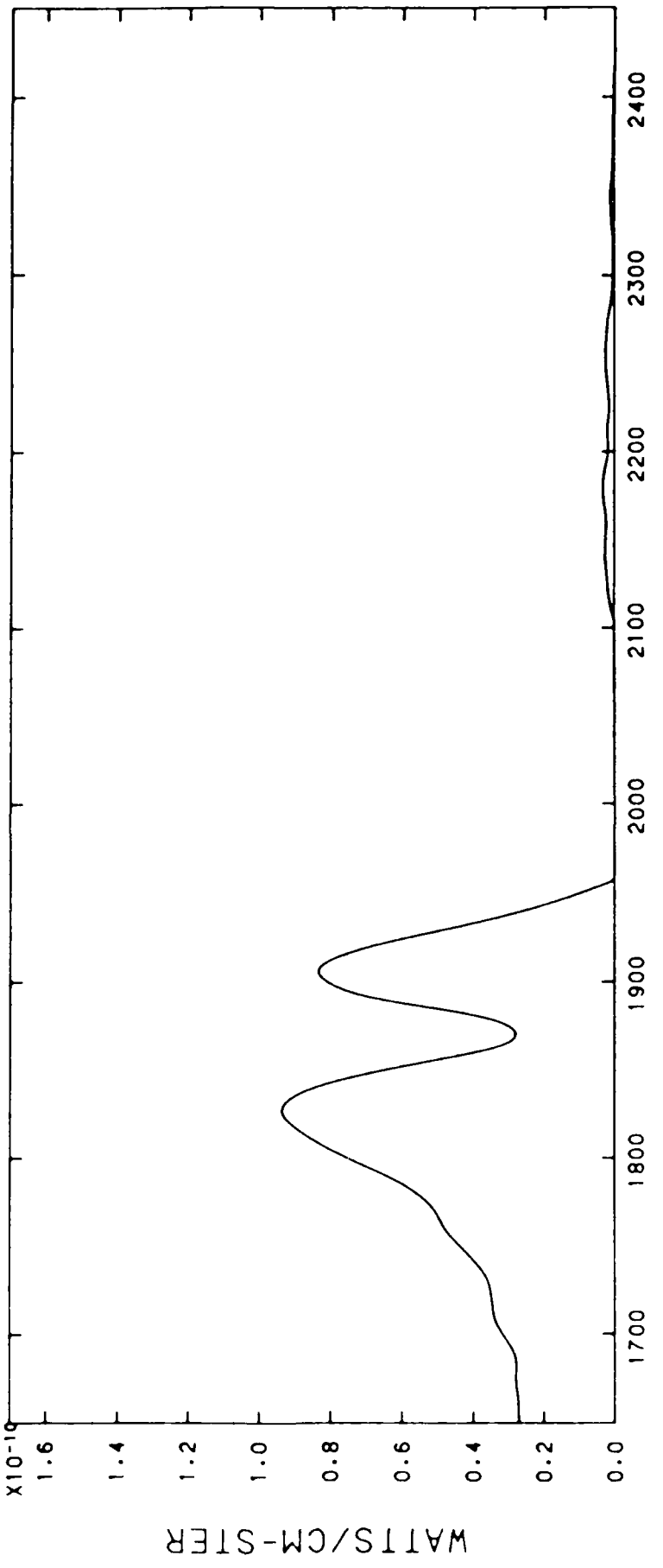


FILE 34, TIME 9: 8:38.298, ALT 126.6-126.8 KM



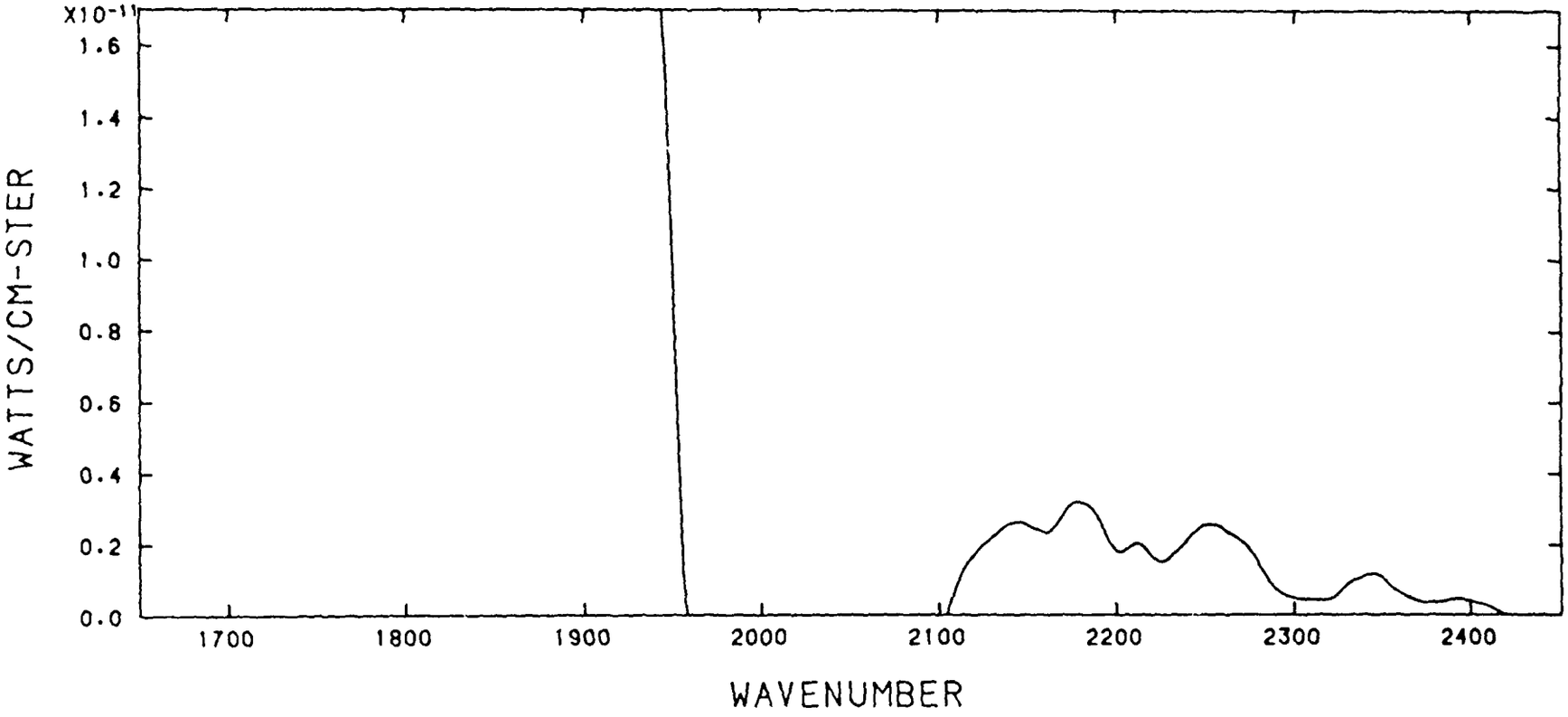
FILE 34, TIME 9: 8:38.298, ALT 126.6-126.8 KM

30-NOV-83 09:22



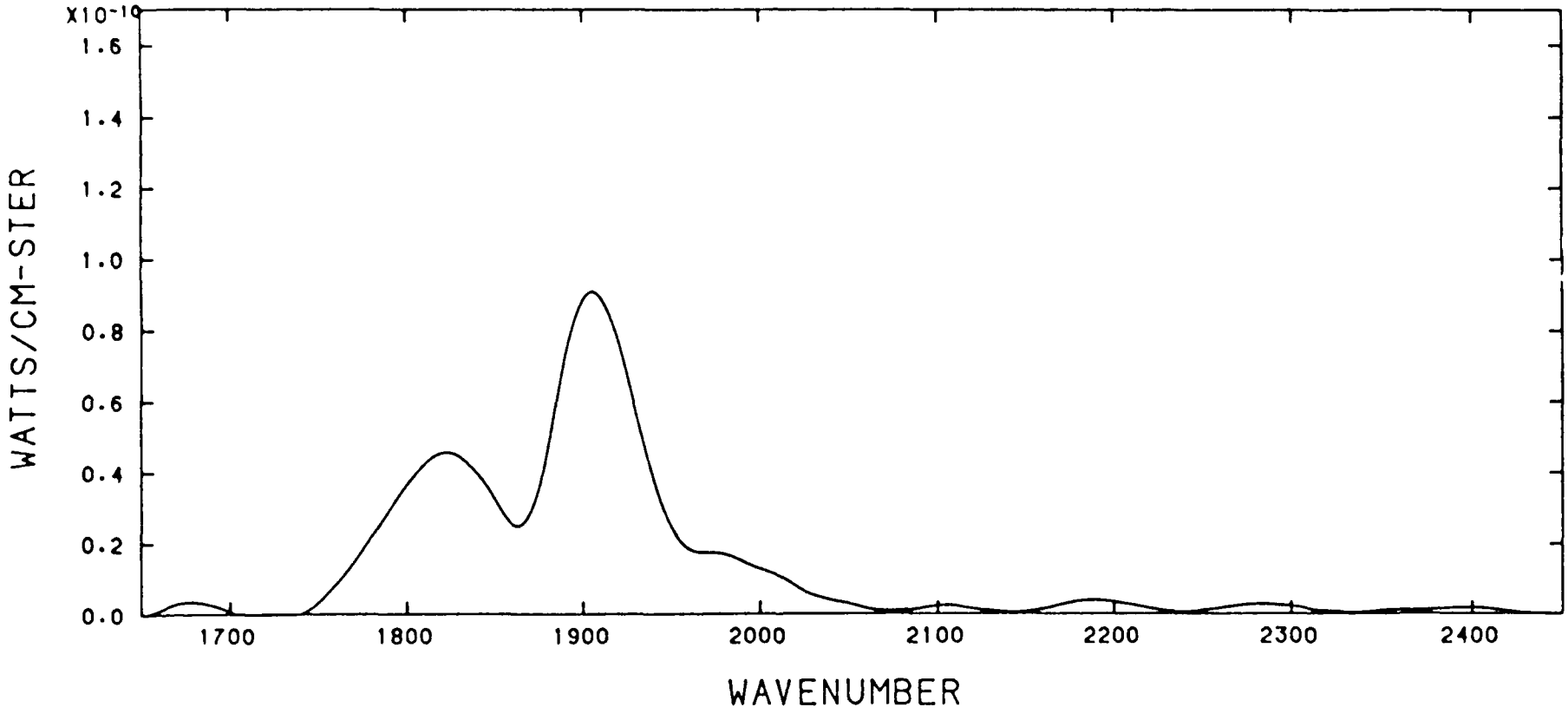
FILE 35, TIME 9: 8:38.796, ALT 126.9-127.0 KM

30-NOV-83 09:22



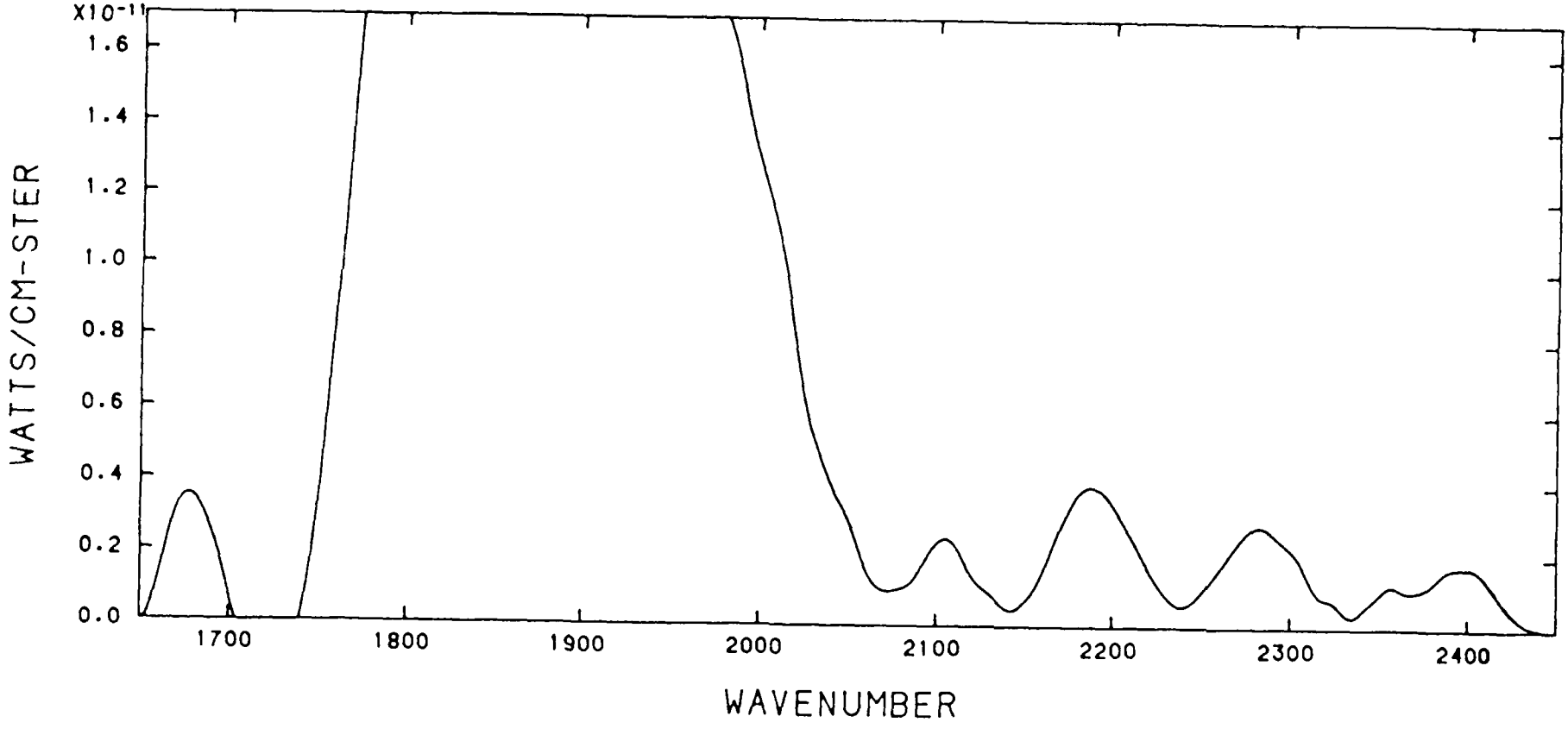
FILE 35, TIME 9: 8:38.796, ALT 126.9-127.0 KM

30-NOV-83 09:22



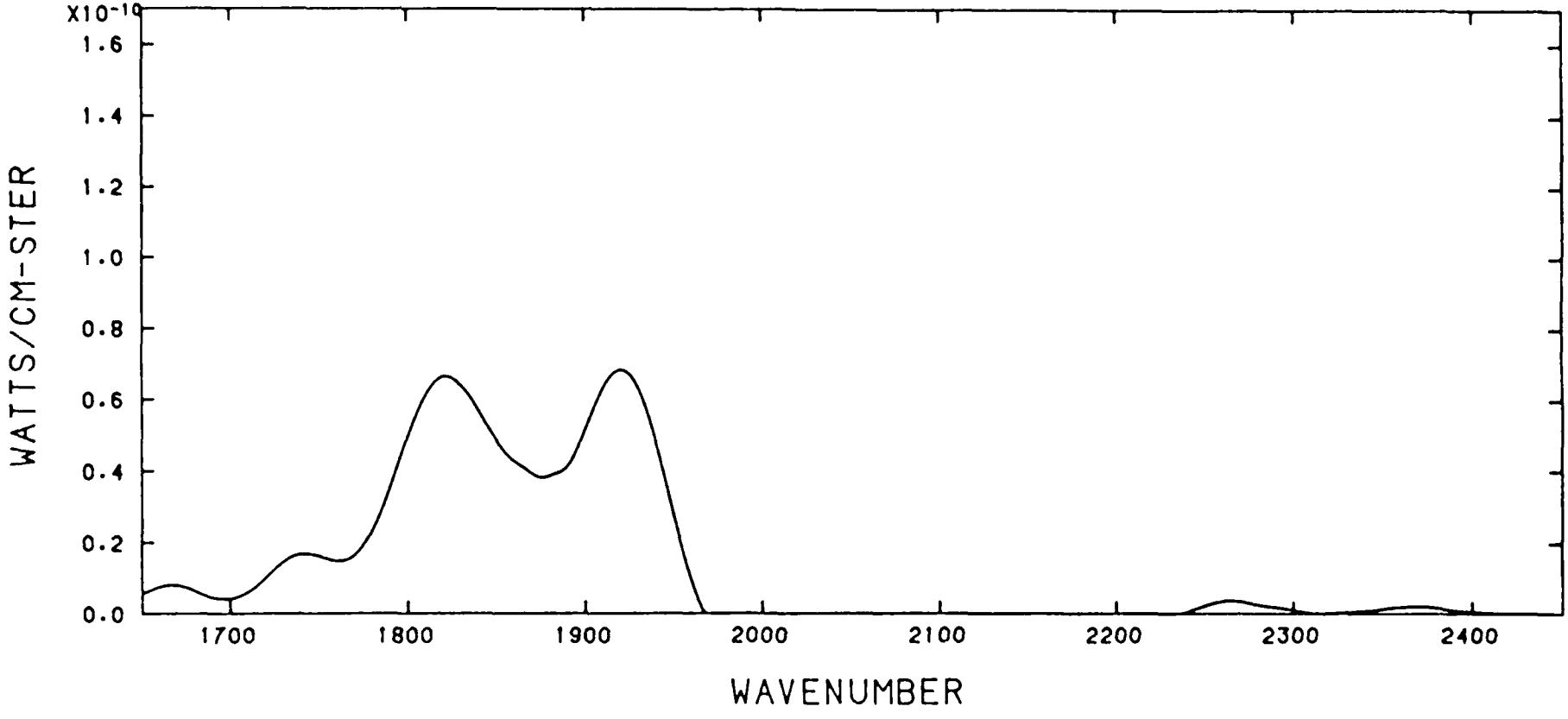
FILE 36, TIME 9: 8:41.554, ALT 128.2-128.3 KM

30-NOV-83 09:22



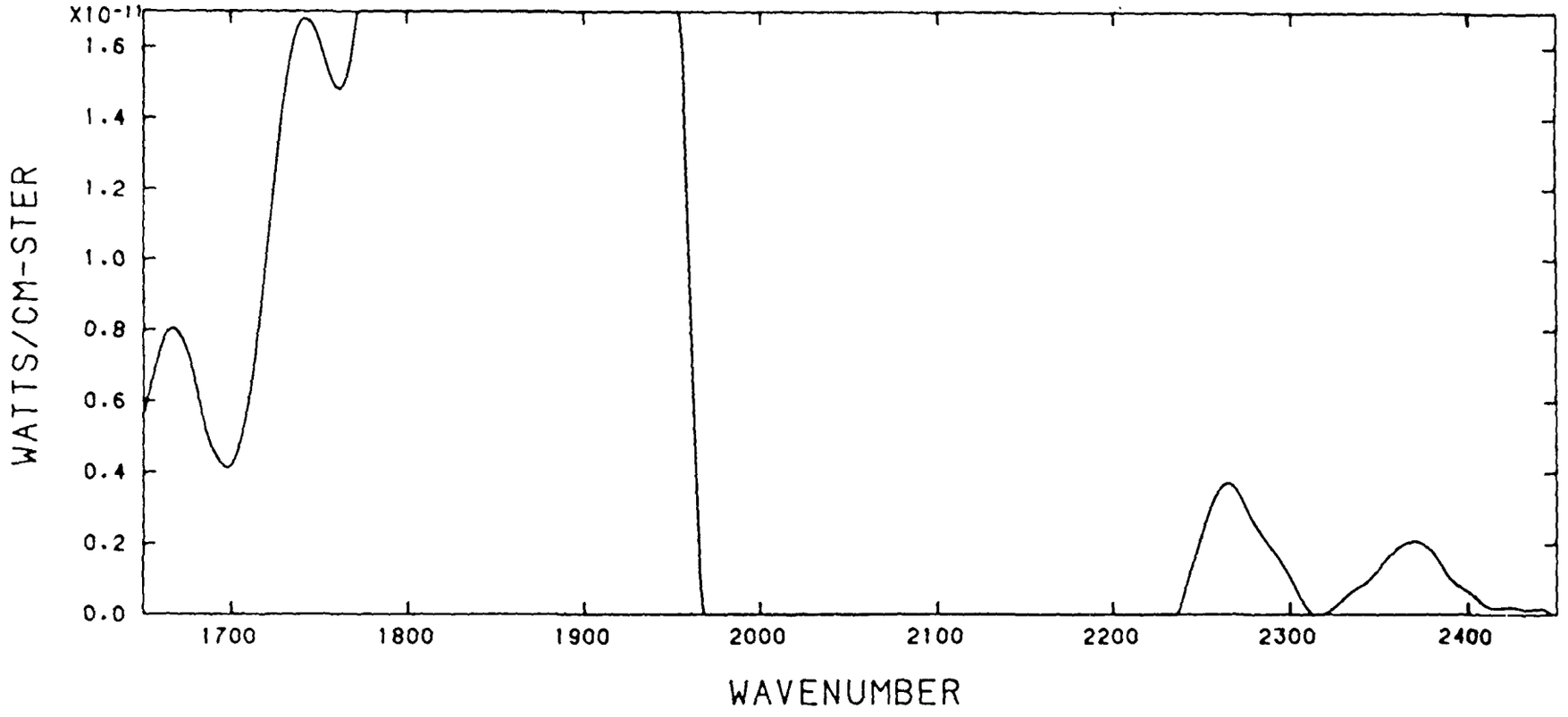
FILE 36, TIME 9: 8:41.554, ALT 128.2-128.3 KM

30-NOV-83 09:22



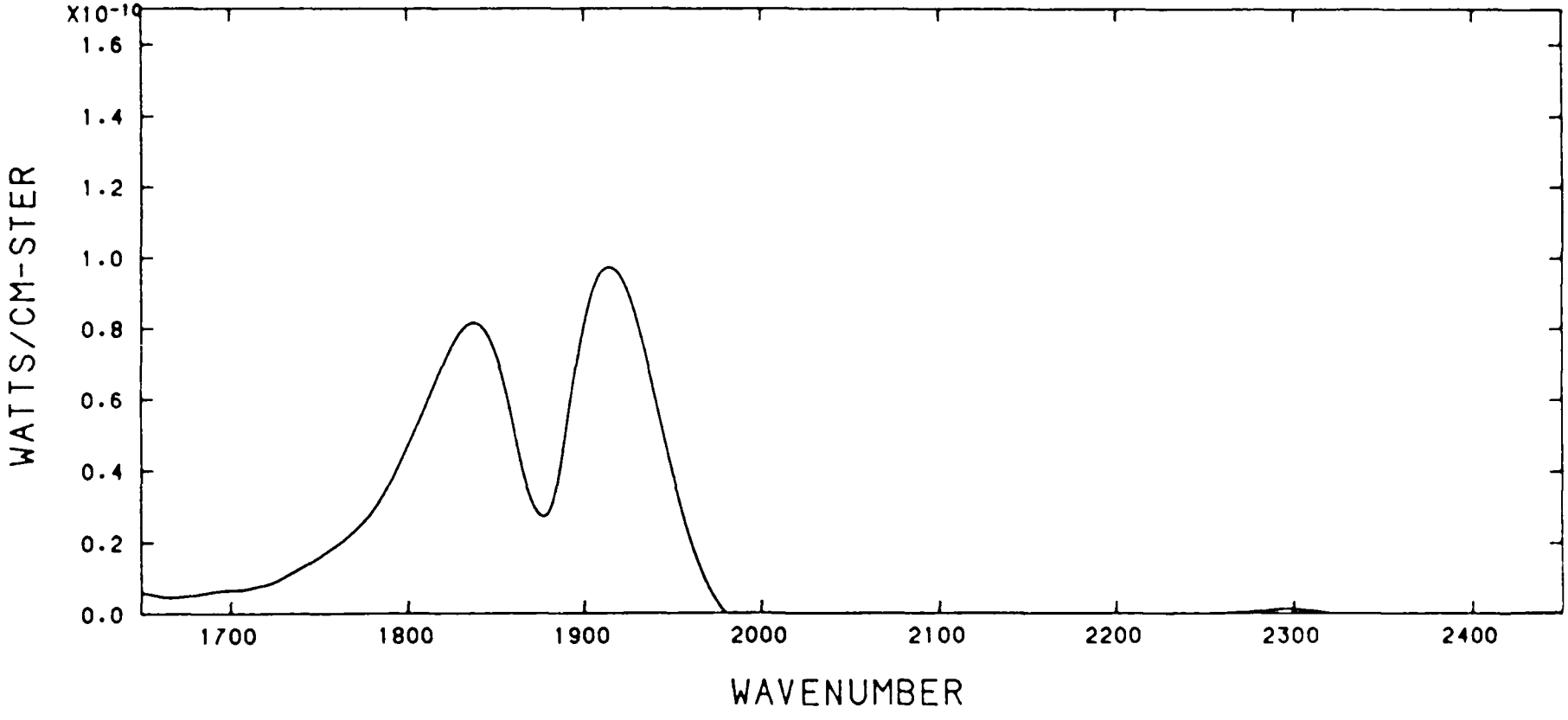
FILE 37, TIME 9: 8:42. 50, ALT 128.4-128.6 KM

30-NOV-83 09:22



FILE 37, TIME 9: 8:42. 50, ALT 128.4-128.6 KM

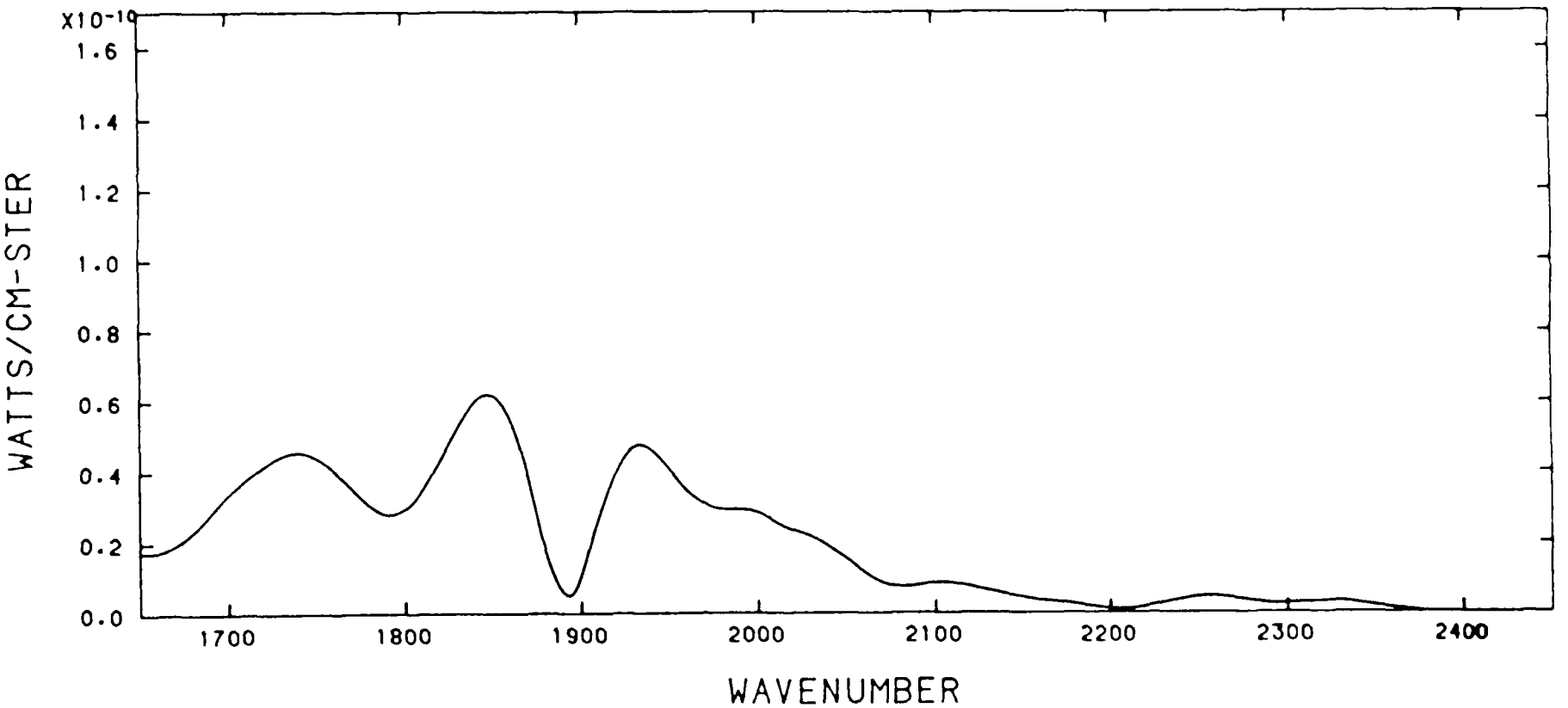
30-NOV-83 09:22



FILE 38, TIME 9: 8:44.810, ALT 129.6-129.8 KM

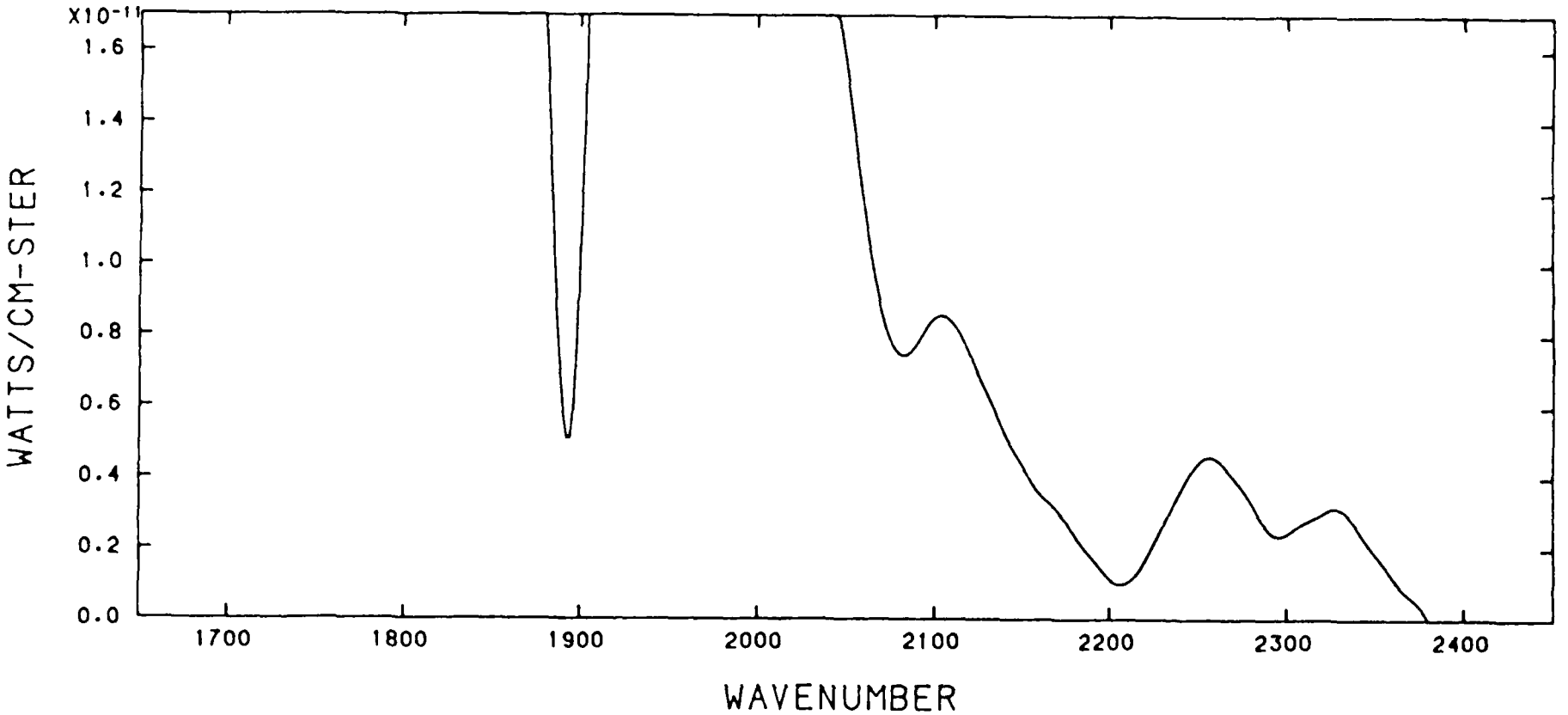
30-NOV-83 09:22

FILE 38, TIME 9: 8:44.810, ALT 129.6-129.8 KM



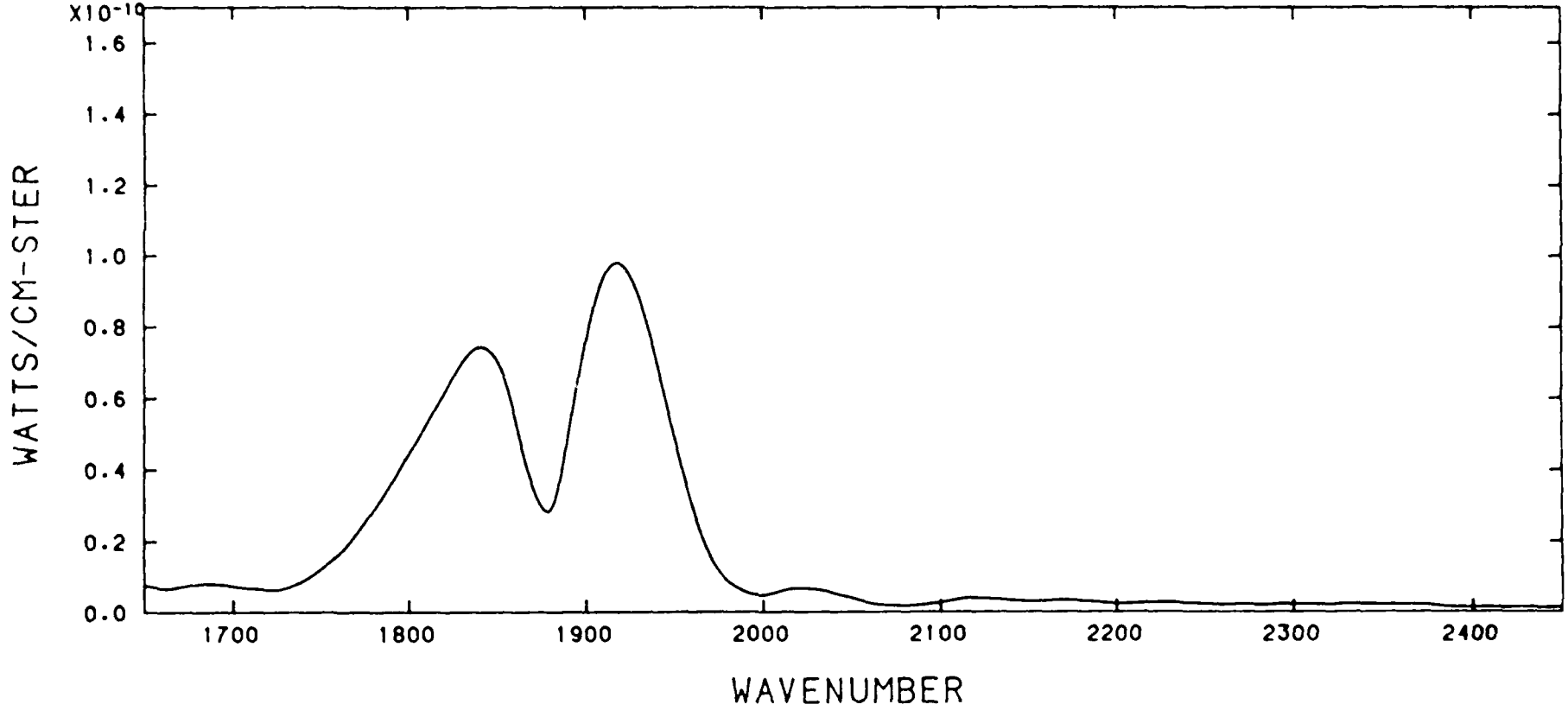
FILE 39, TIME 9: 8:45.306, ALT 129.8-130.0 KM

30-NOV-83 09:23



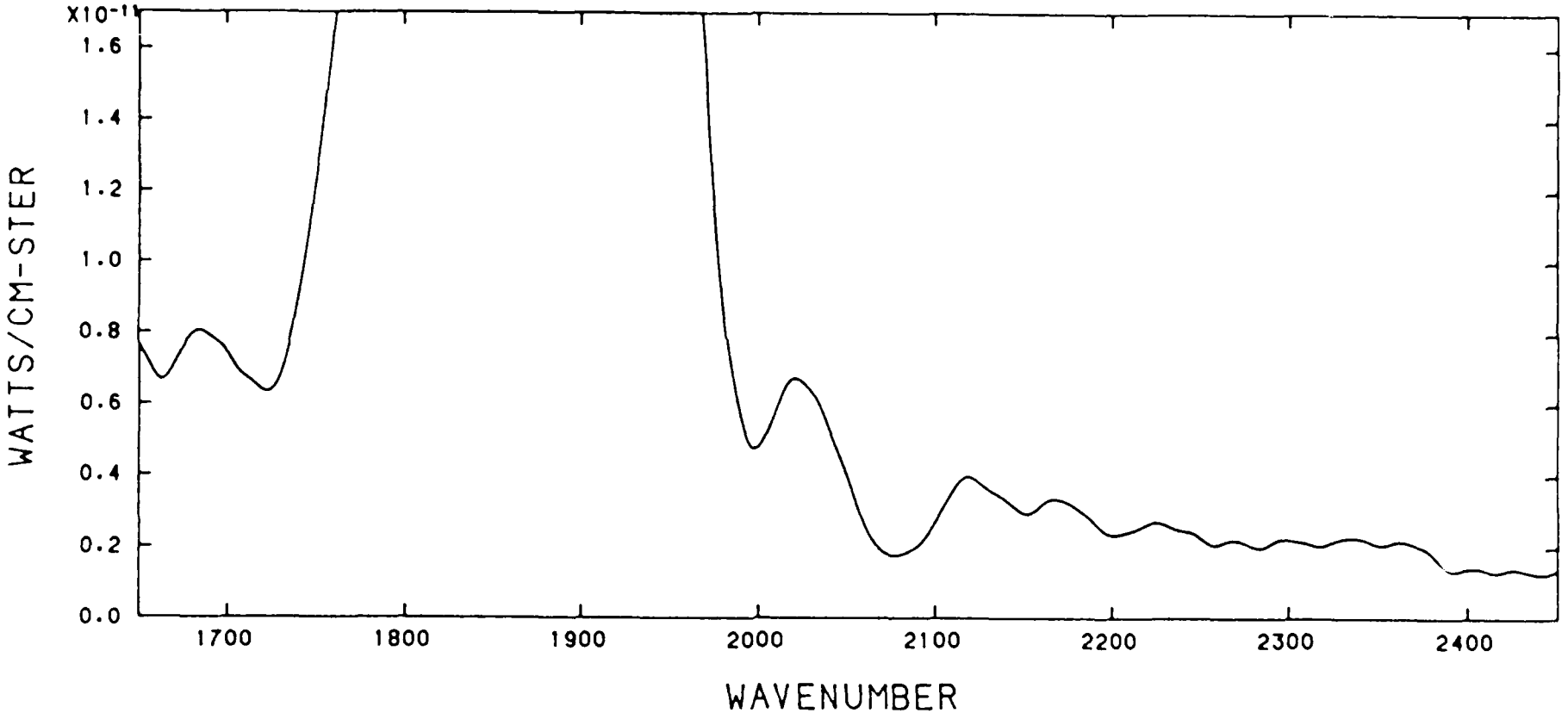
FILE 39, TIME 9: 8:45.306, ALT 129.8-130.0 KM

30-NOV-83 09:23



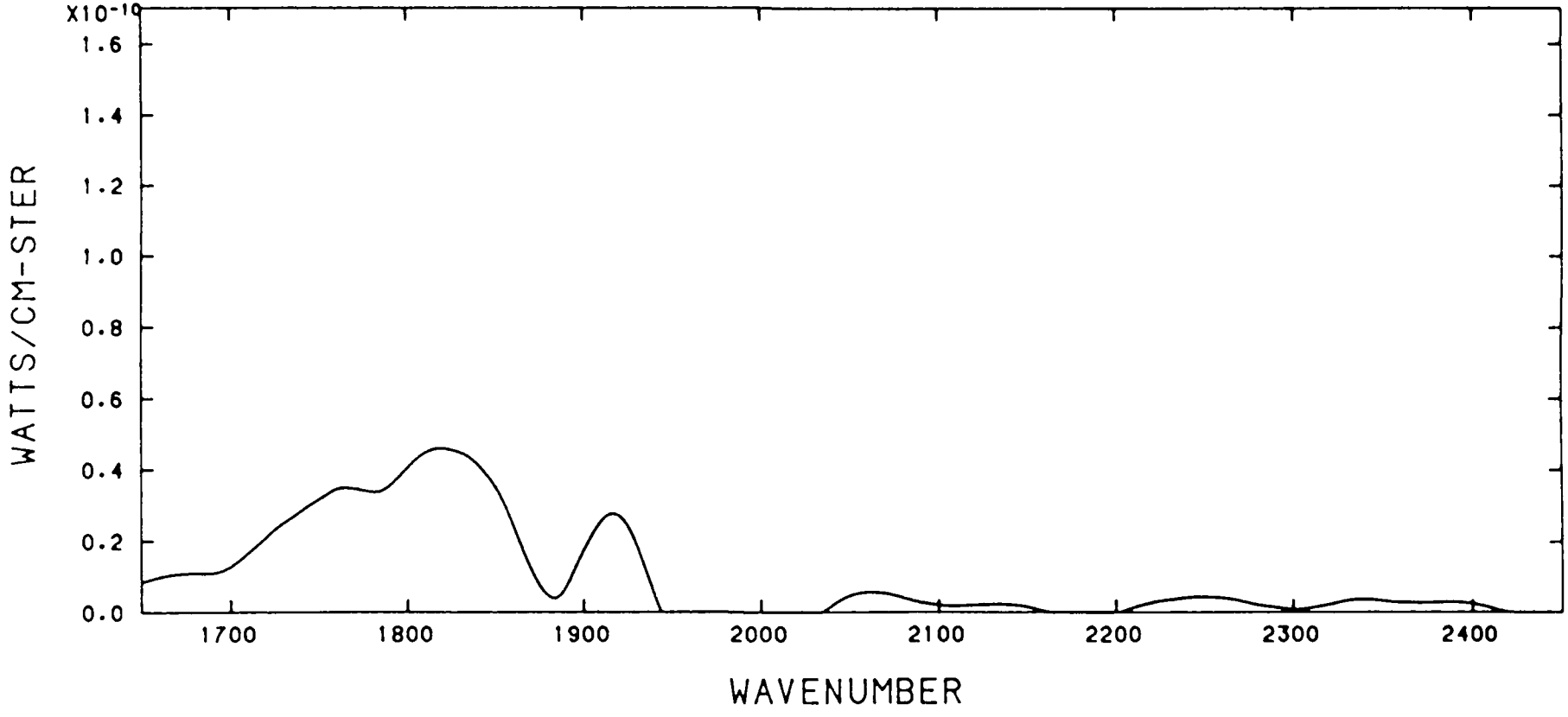
FILE 40, TIME 9: 8:48. 72, ALT 131.0-131.1 KM

30-NOV-83 09:23



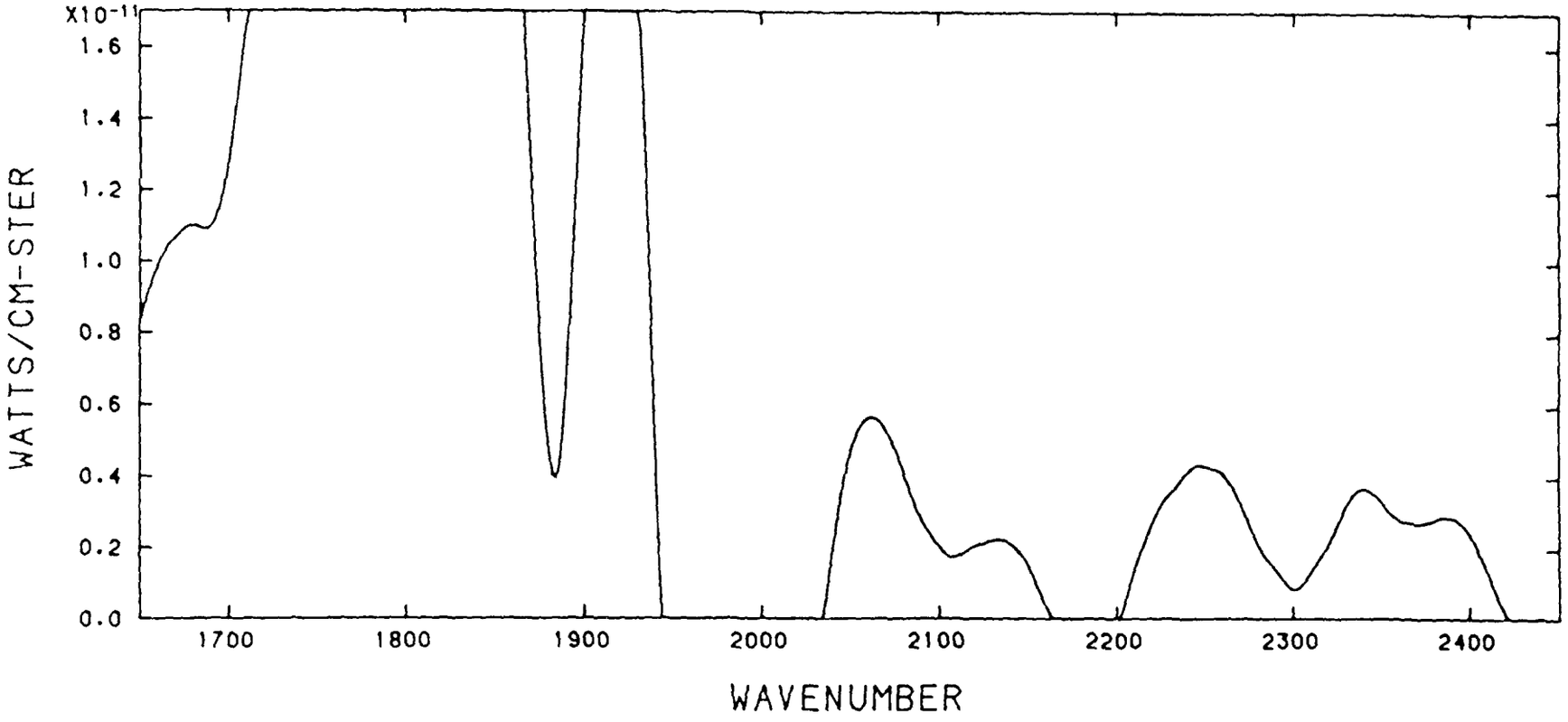
FILE 40, TIME 9: 8:48. 72, ALT 131.0-131.1 KM

30-NOV-83 09:23



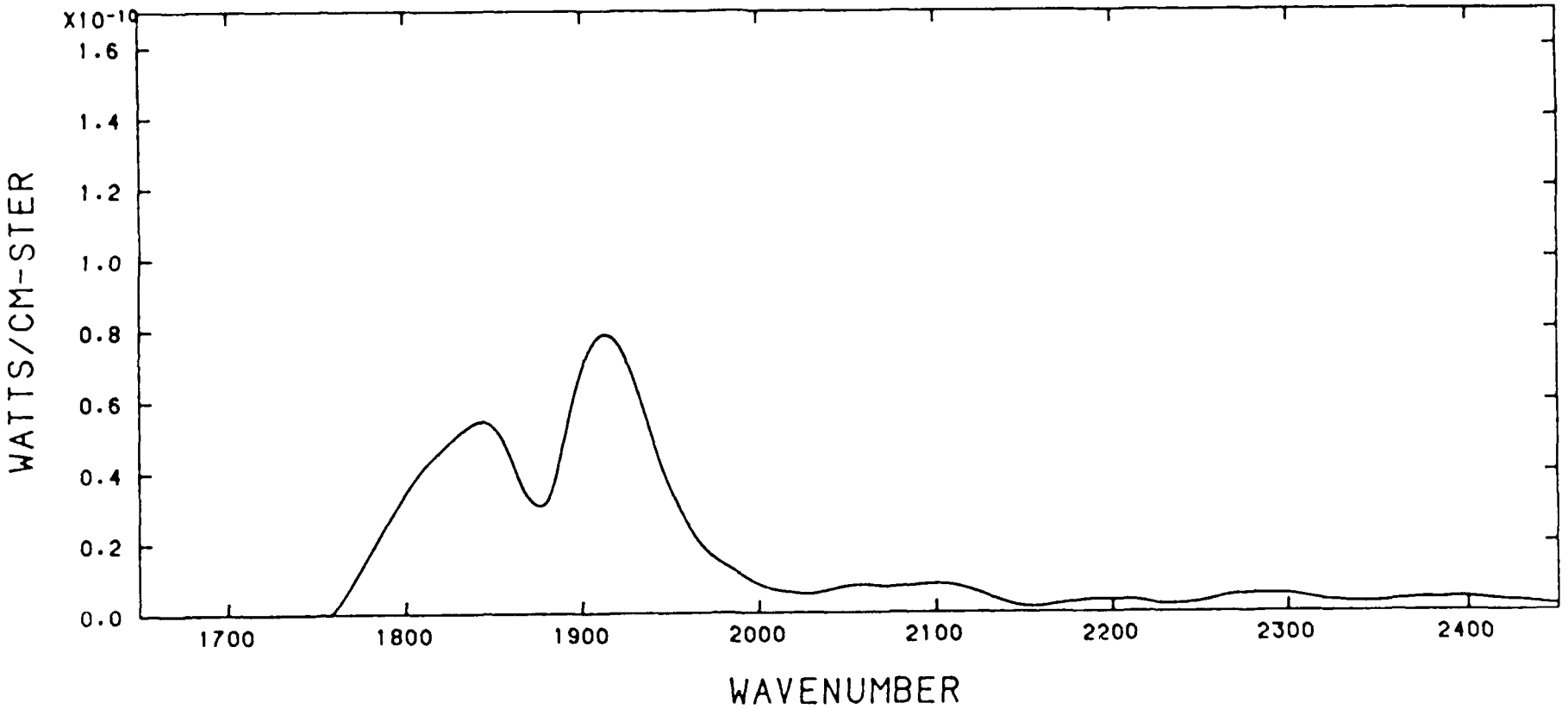
FILE 41, TIME 9: 8:48.572, ALT 131.2-131.3 KM

30-NOV-83 09:23



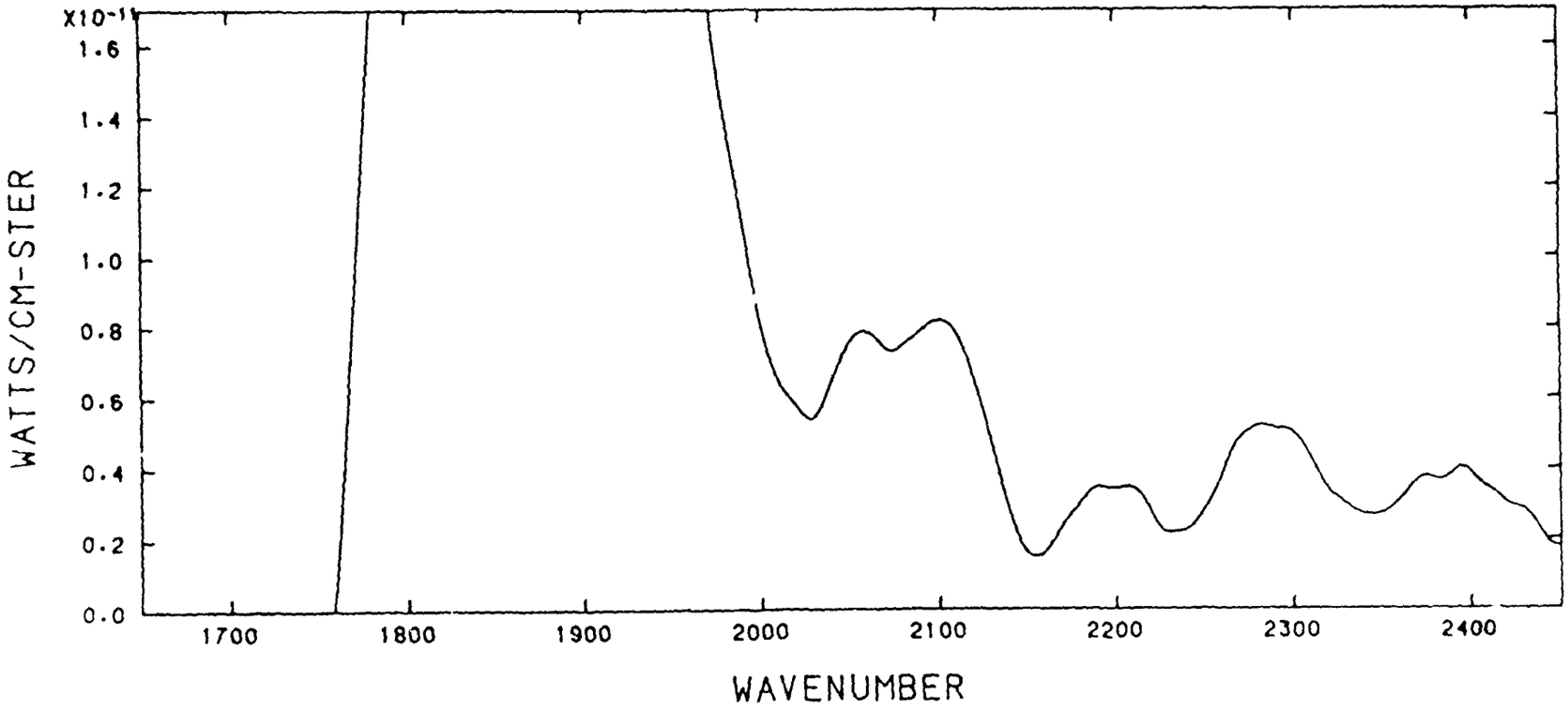
FILE 41, TIME 9: 8:48.572, ALT 131.2-131.3 KM

30-NOV-83 09:23

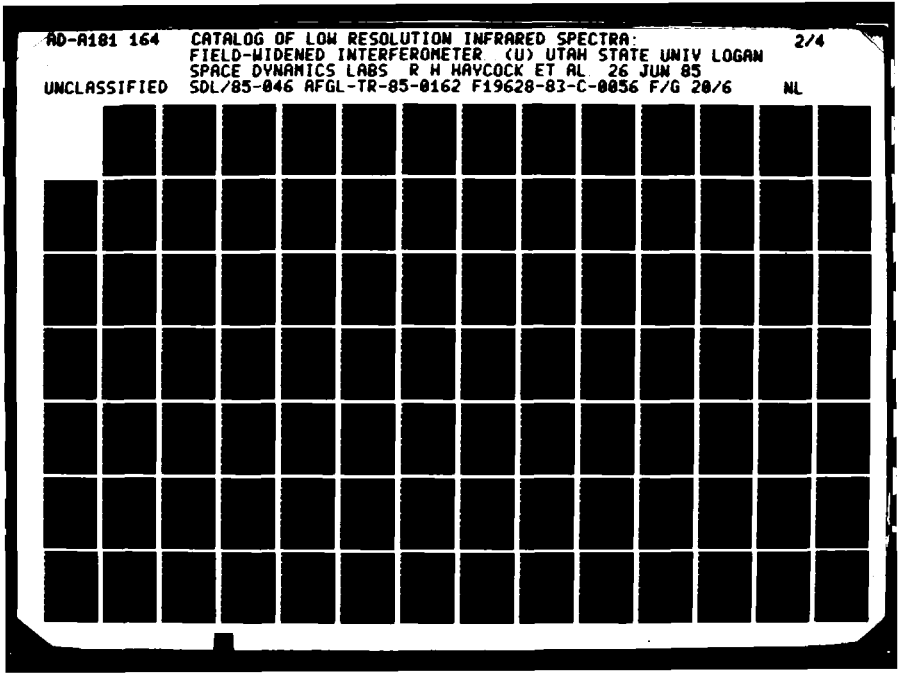


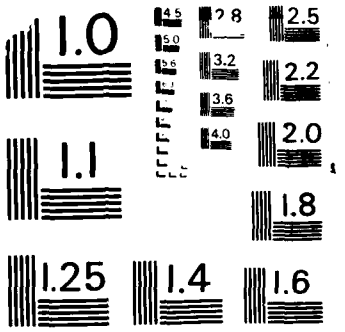
FILE 42, TIME 9: 8:51.344, ALT 132.2-132.3 KM

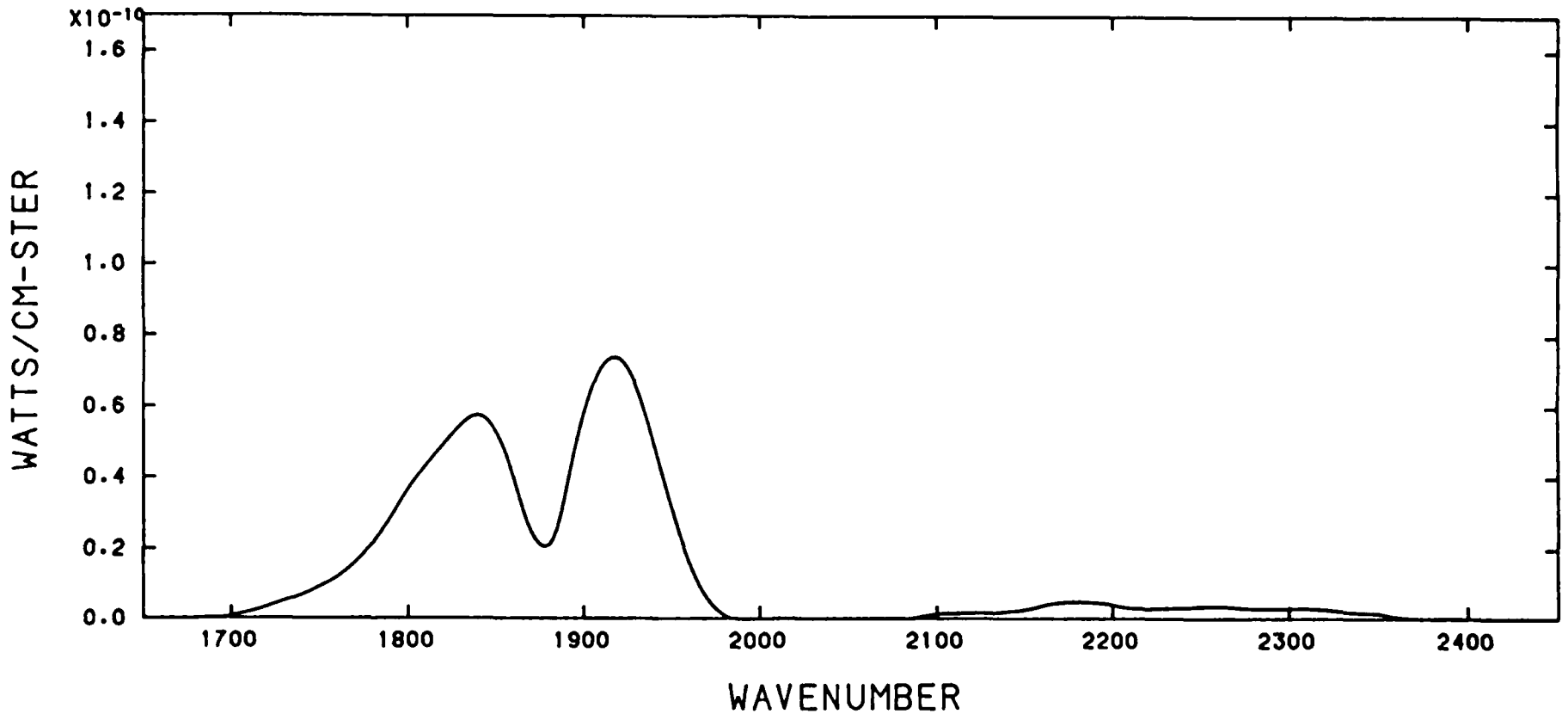
30-NOV-83 09:23



FILE 42, TIME 9: 8:51.344, ALT 132.2-132.3 KM


AD-A181 164 CATALOG OF LOW RESOLUTION INFRARED SPECTRA: 2/4
FIELD-WIDENED INTERFEROMETER (U) UTAH STATE UNIV LOGAN
SPACE DYNAMICS LABS R H HAYCOCK ET AL 26 JUN 85
UNCLASSIFIED SDL/85-046 AFGL-TR-85-0162 F19628-83-C-0056 F/G 20/6 NL

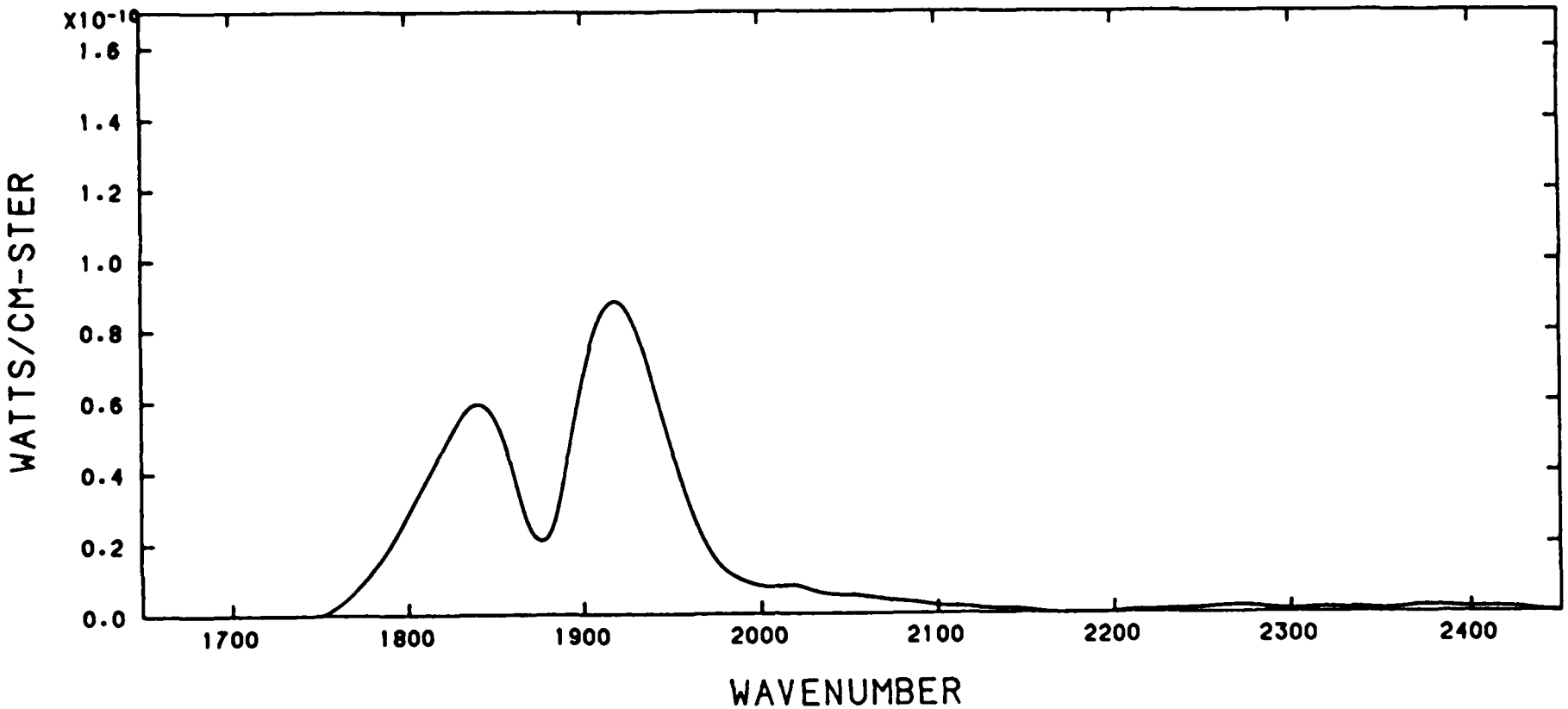




FILE 43, TIME 9: 8:51.840, ALT 132.4-132.5 KM

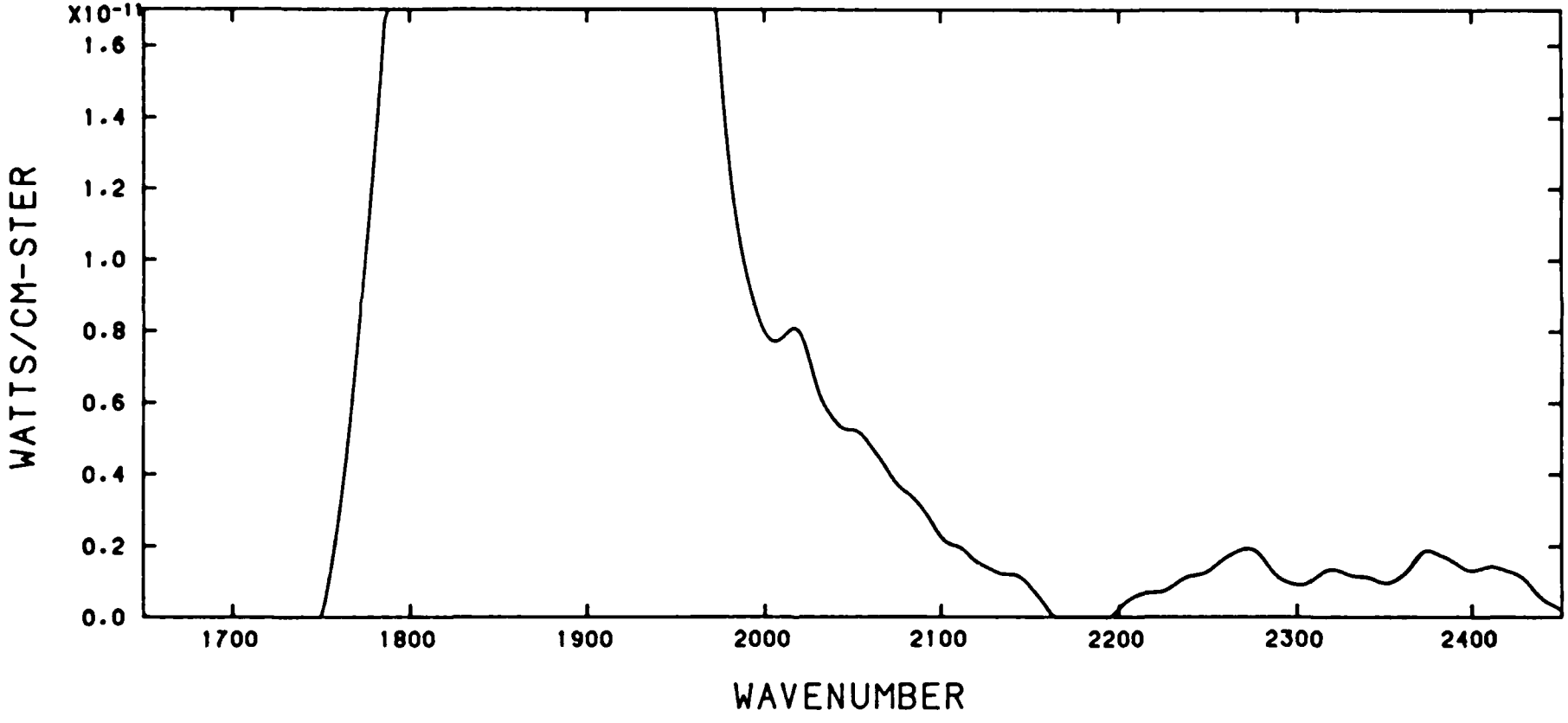
30-NOV-83 09:23

FILE 43, TIME 9: 8:51.840, ALT 132.4-132.5 KM



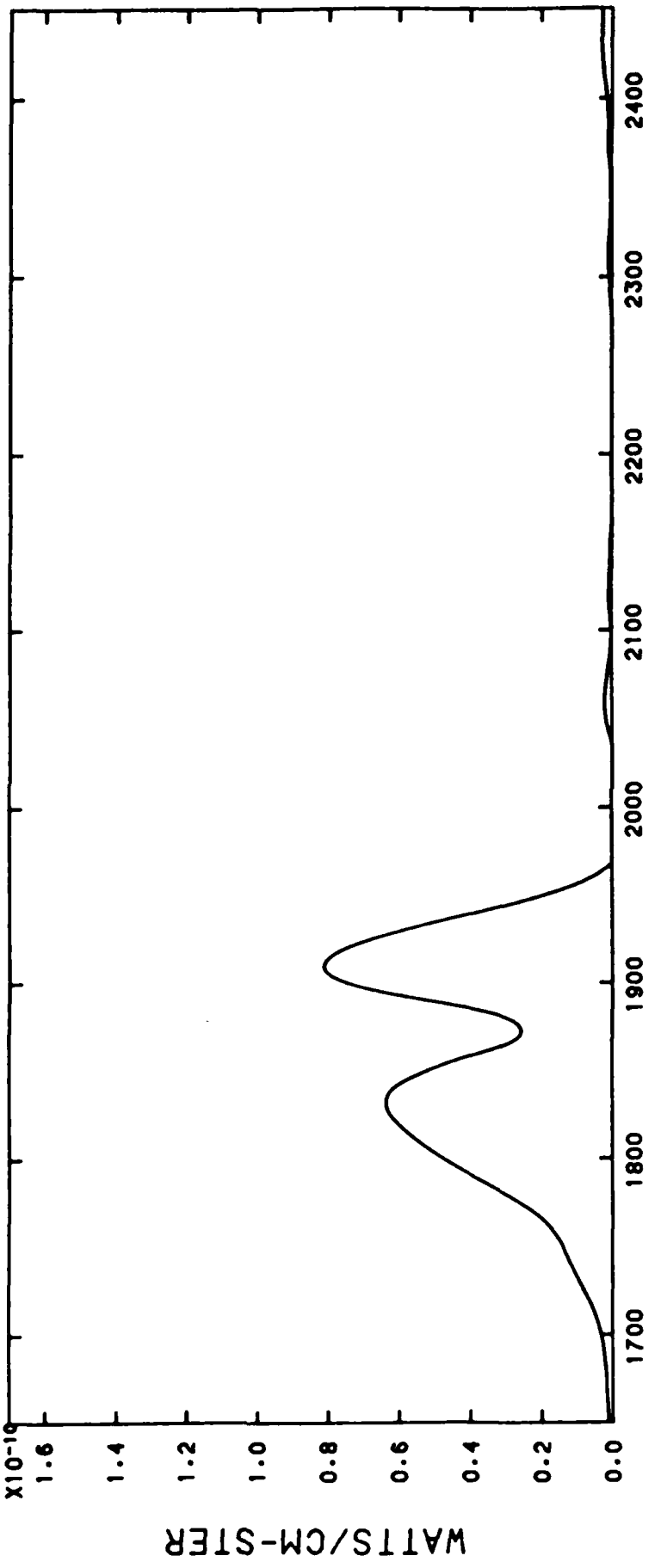
FILE 44, TIME 9: 8:54.606, ALT 133.3-133.5 KM

30-NOV-83 09:24

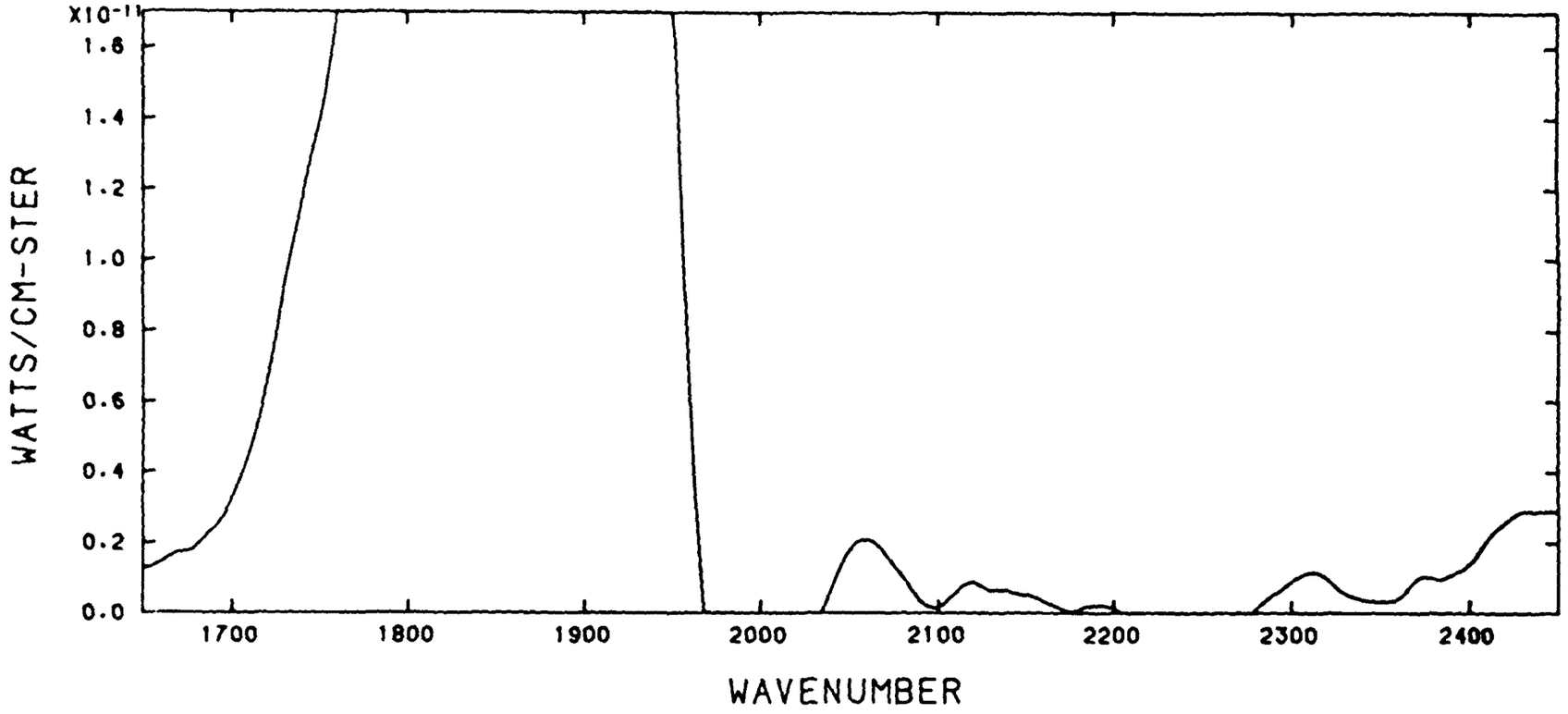


FILE 44, TIME 9: 8:54.606, ALT 133.3-133.5 KM

30-NOV-83 09:24

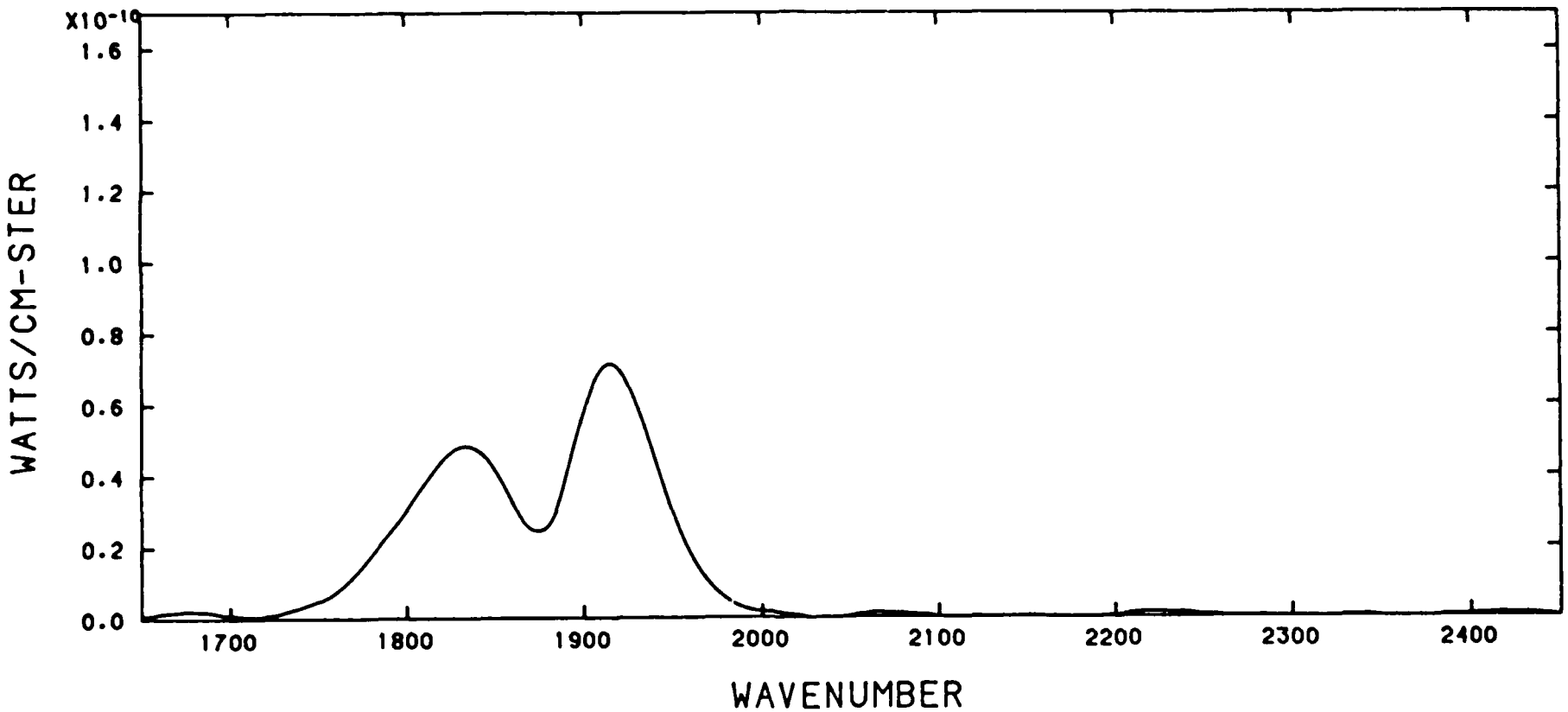


FILE 45, TIME 9: 8:55.102, ALT 133.5-133.6 KM



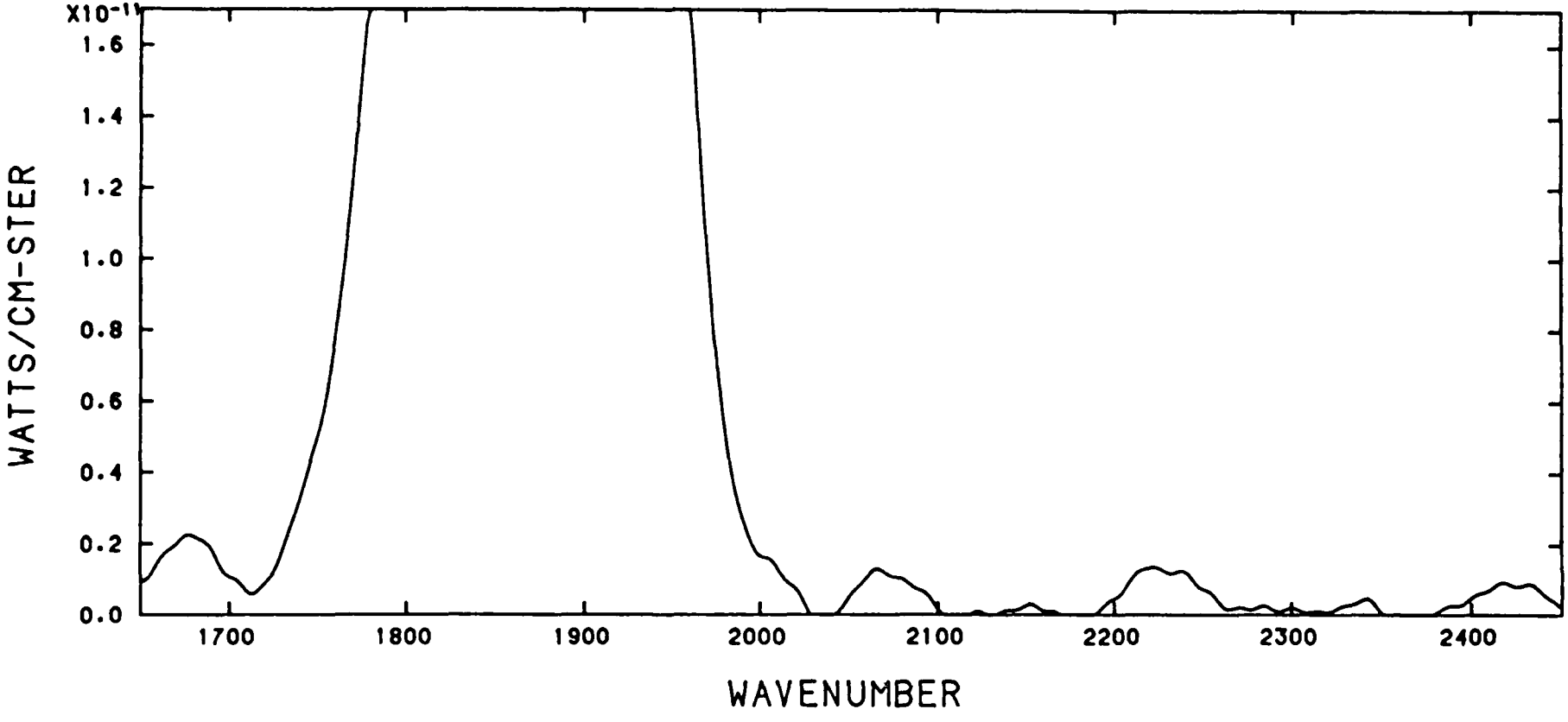
FILE 45, TIME 9: 8:55.102, ALT 133.5-133.6 KM

30-NOV-83 09:24



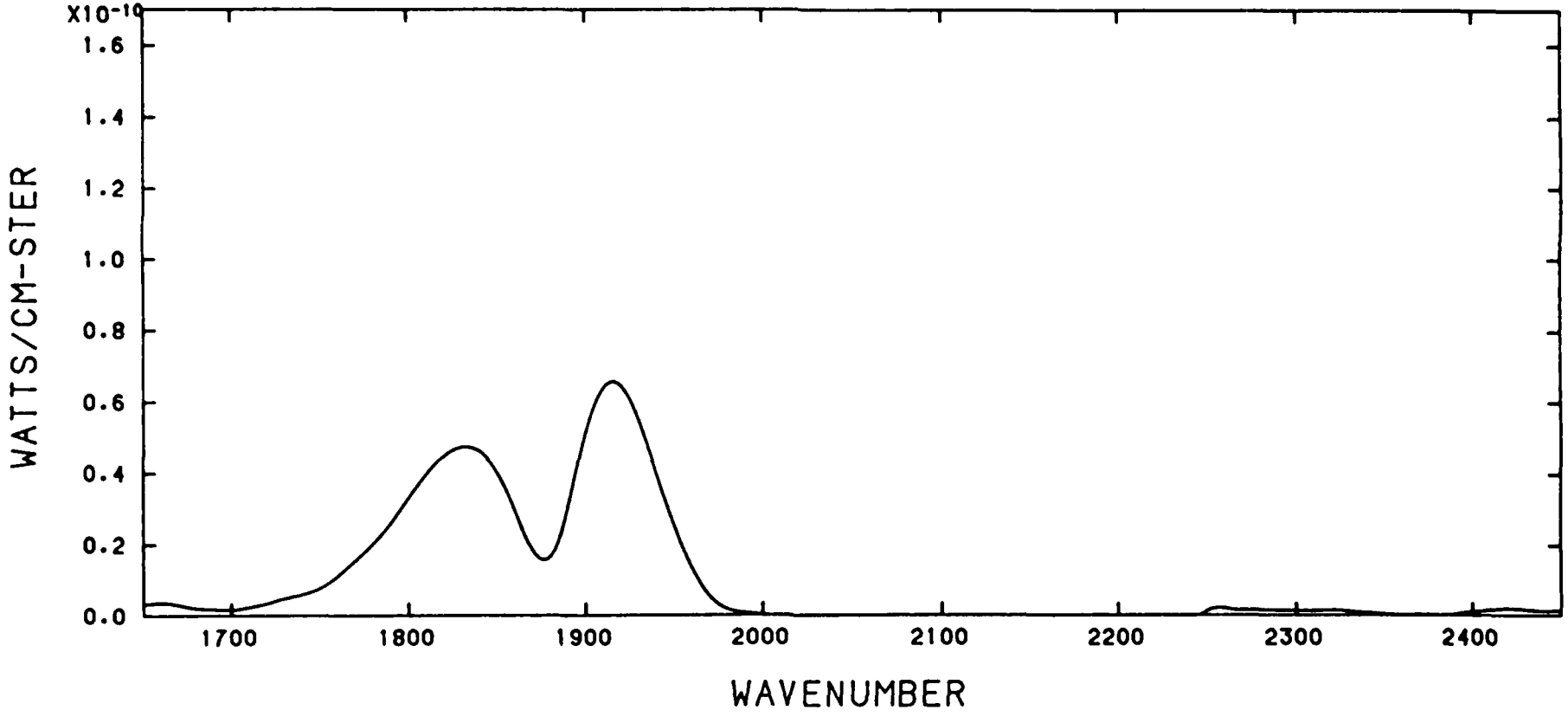
FILE 46, TIME 9: 8:57.862, ALT 134.4-134.5 KM

30-NOV-83 09:24



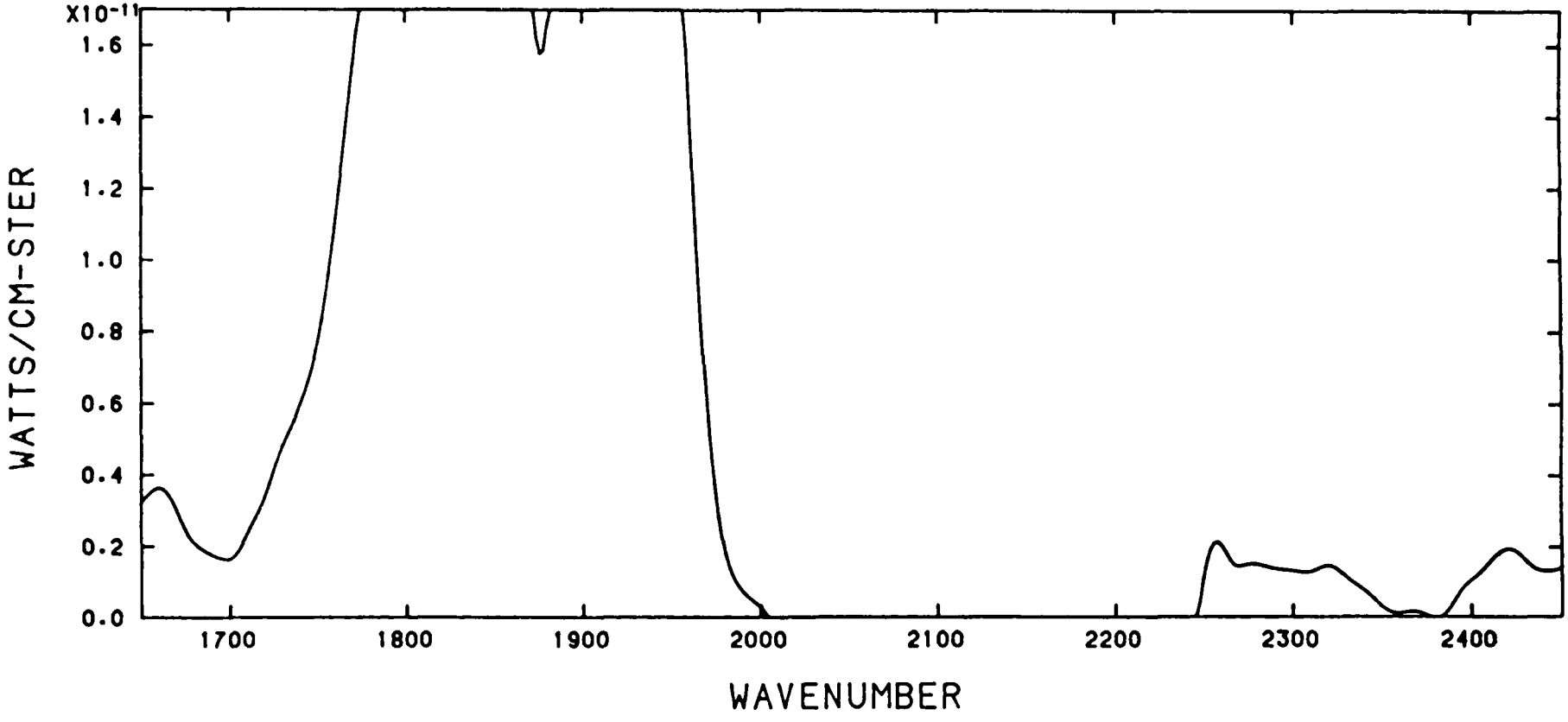
FILE 46, TIME 9: 8:57.862, ALT 134.4-134.5 KM

30-NOV-83 09:25



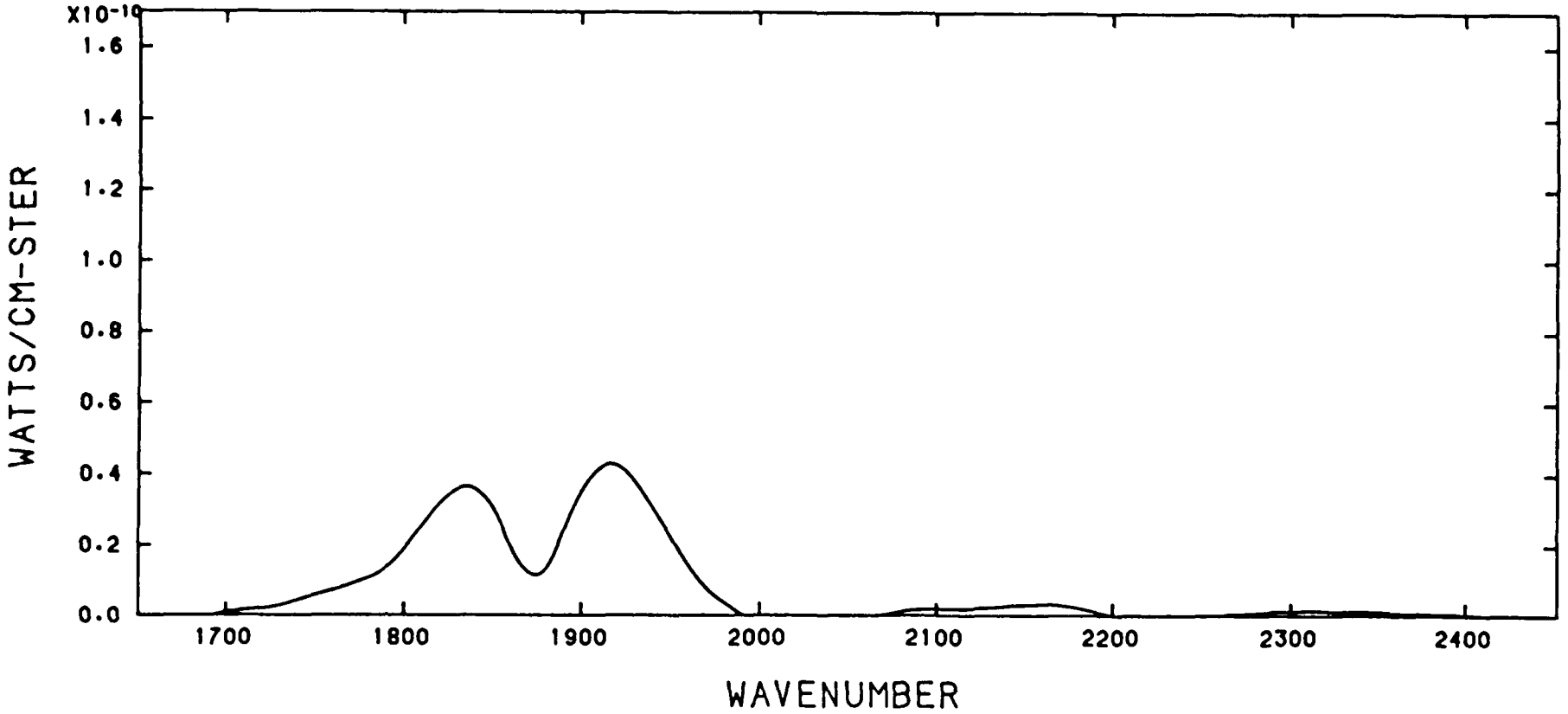
FILE 47, TIME 9: 8:58.360, ALT 134.5-134.6 KM

30-NOV-83 09:25



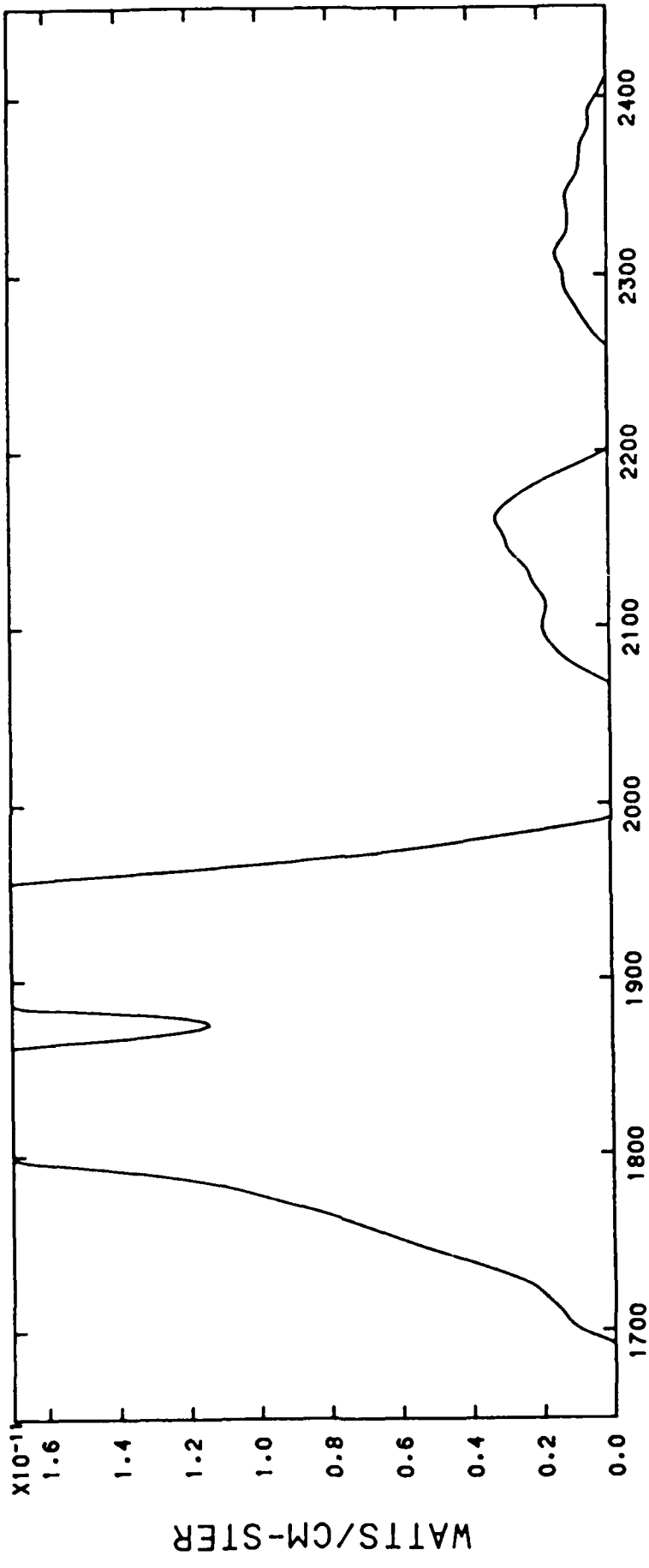
FILE 47, TIME 9: 8:58.360, ALT 134.5-134.6 KM

30-NOV-83 09:25

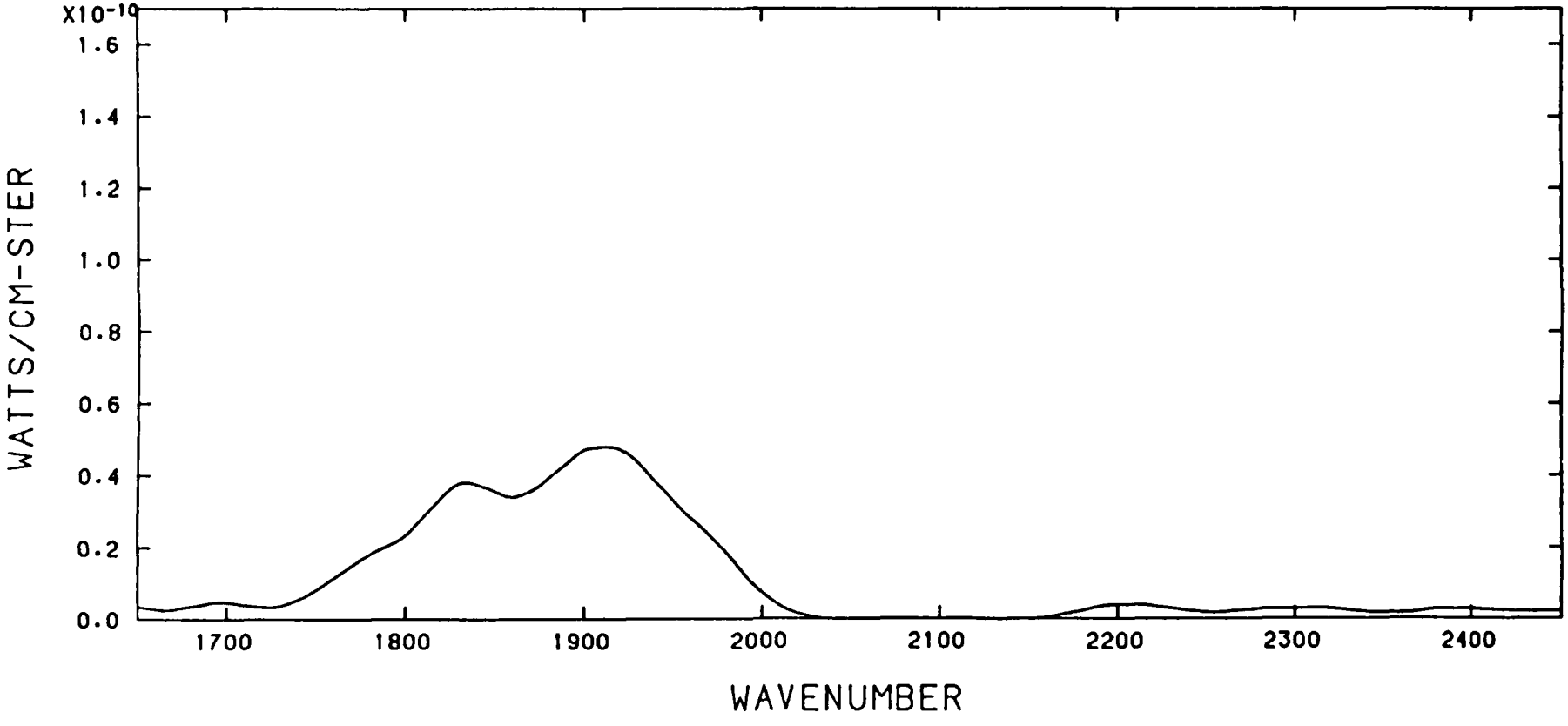


FILE 48, TIME 9: 9: 1.124, ALT 135.3-135.4 KM

30-NOV-83 09:25

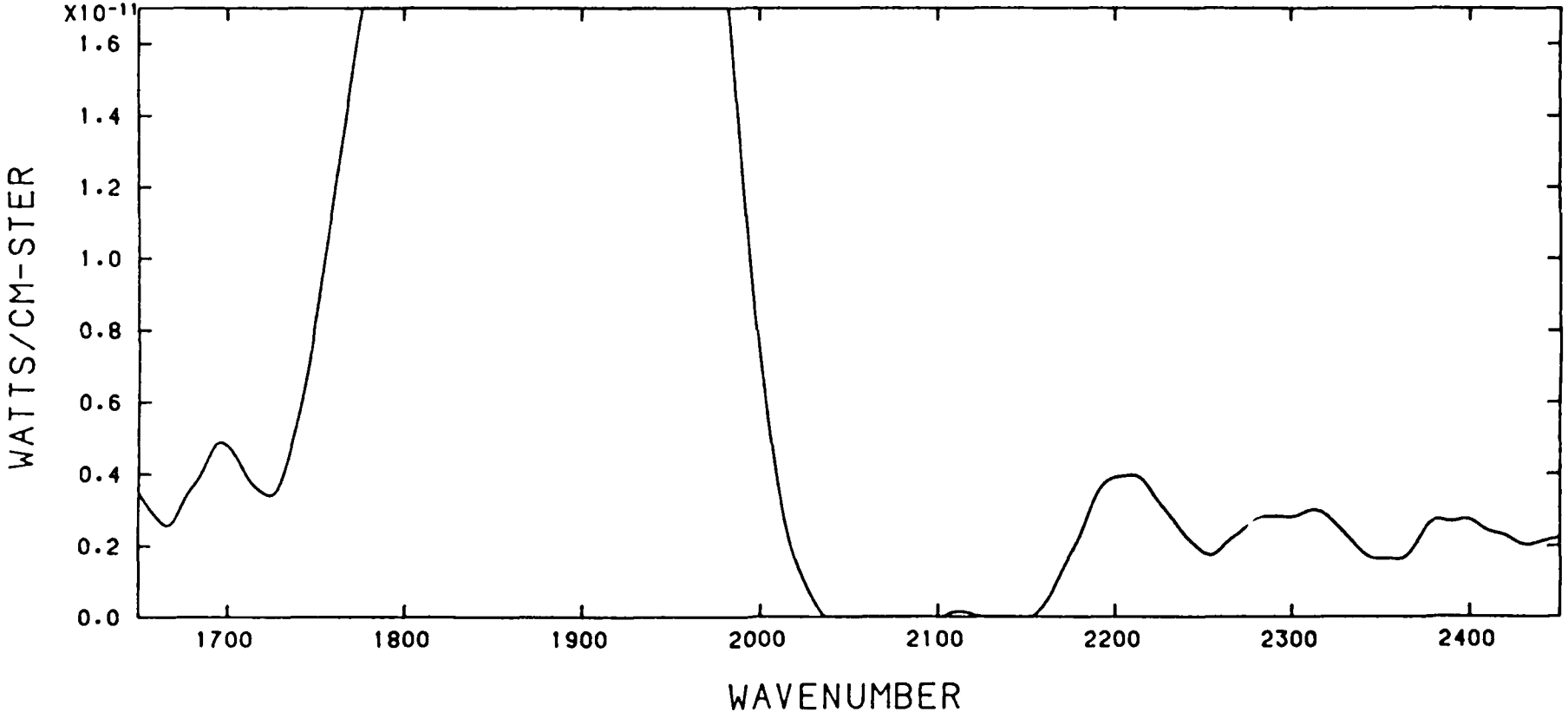


FILE 48, TIME 9: 9: 1.124, ALT 135.3-135.4 KM



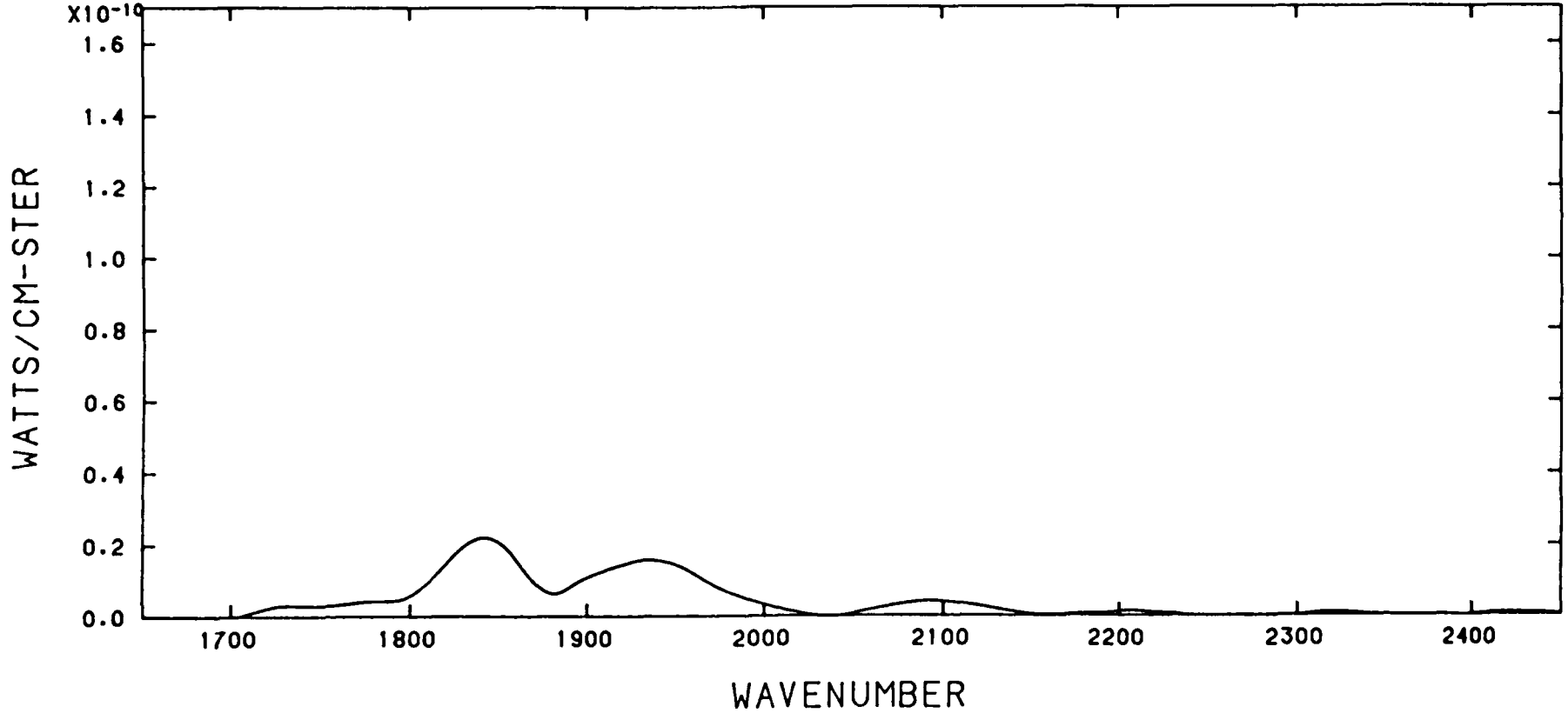
FILE 49, TIME 9: 9: 1.620, ALT 135.5-135.6 KM

30-NOV-83 09:25



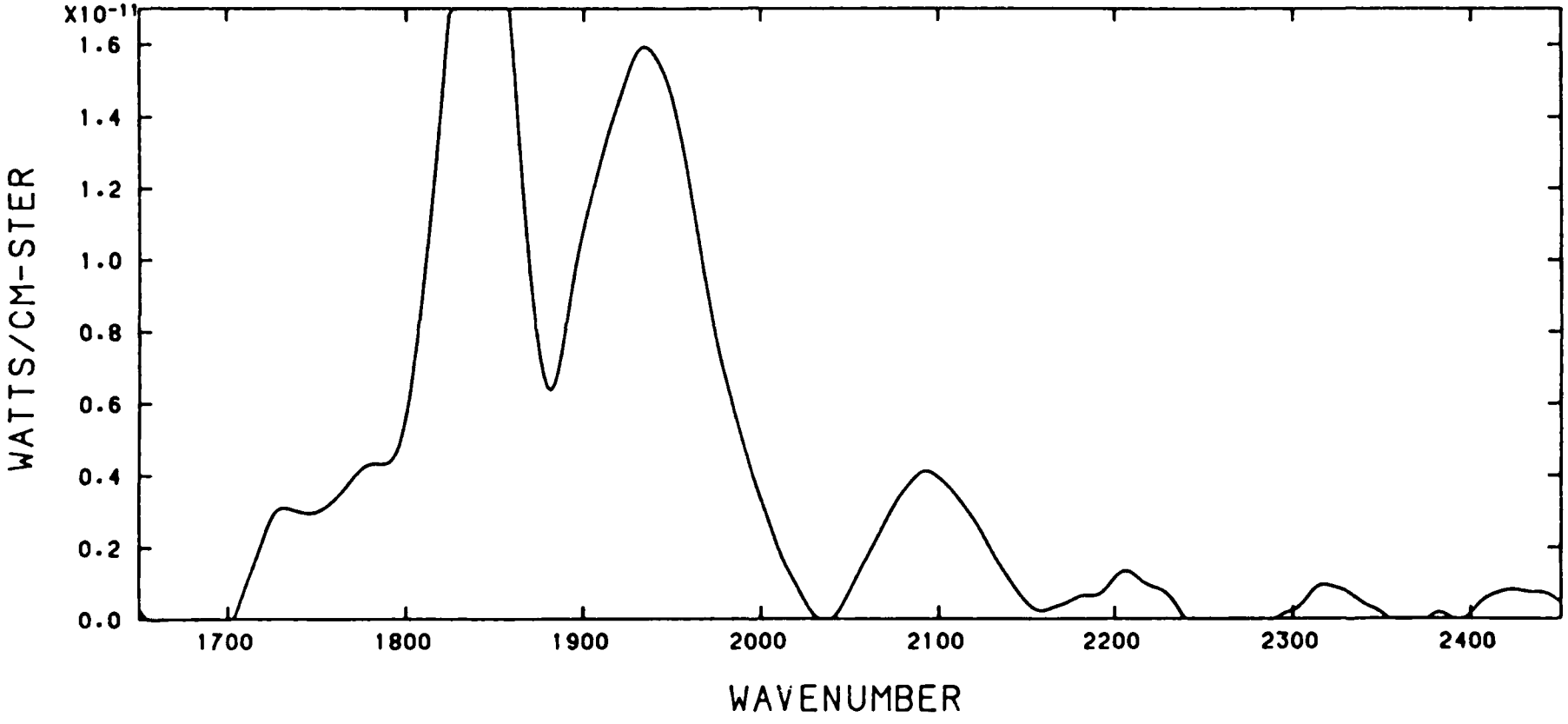
FILE 49, TIME 9: 9: 1.620, ALT 135.5-135.6 KM

30-NOV-83 09:25



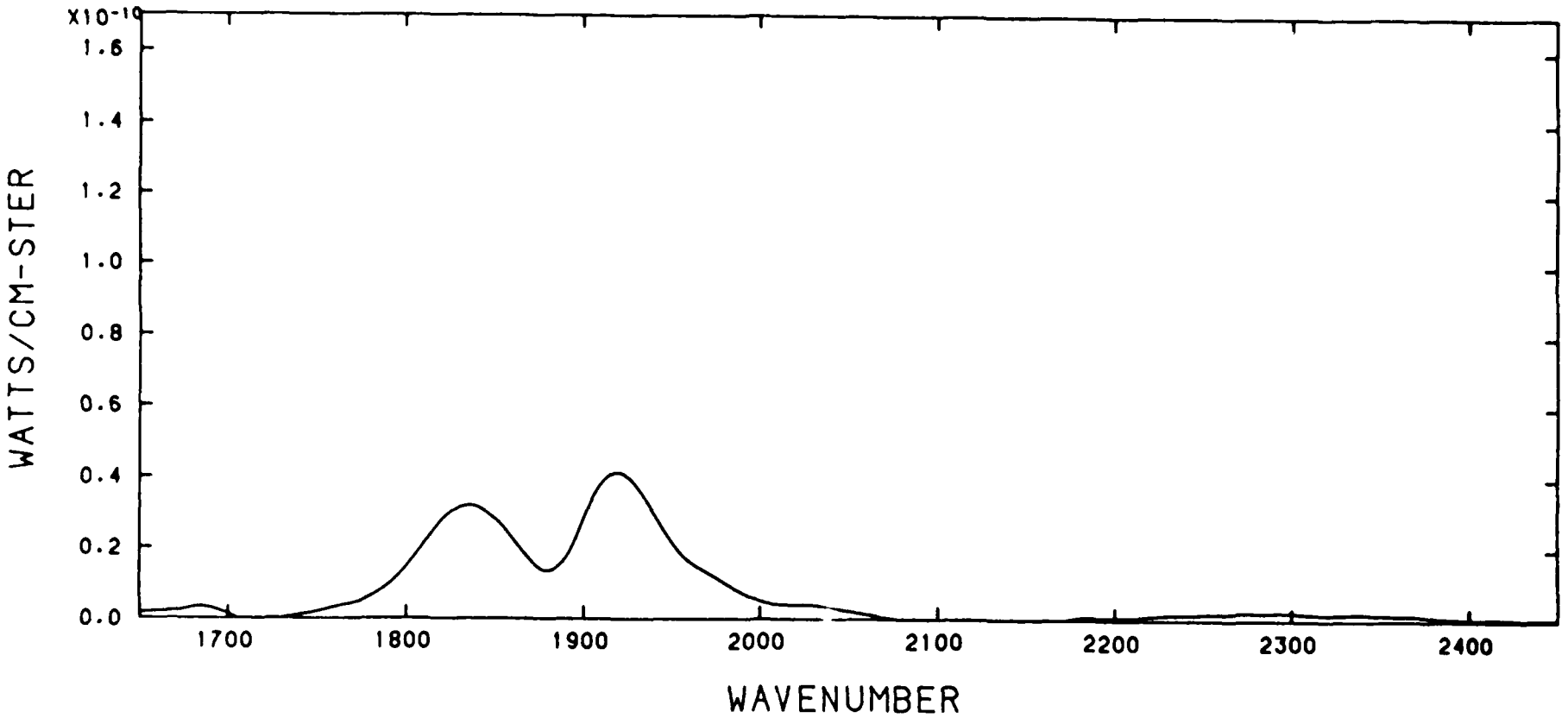
FILE 50, TIME 9: 9: 4.384, ALT 136.2-136.2 KM

30-NOV-83 09:25



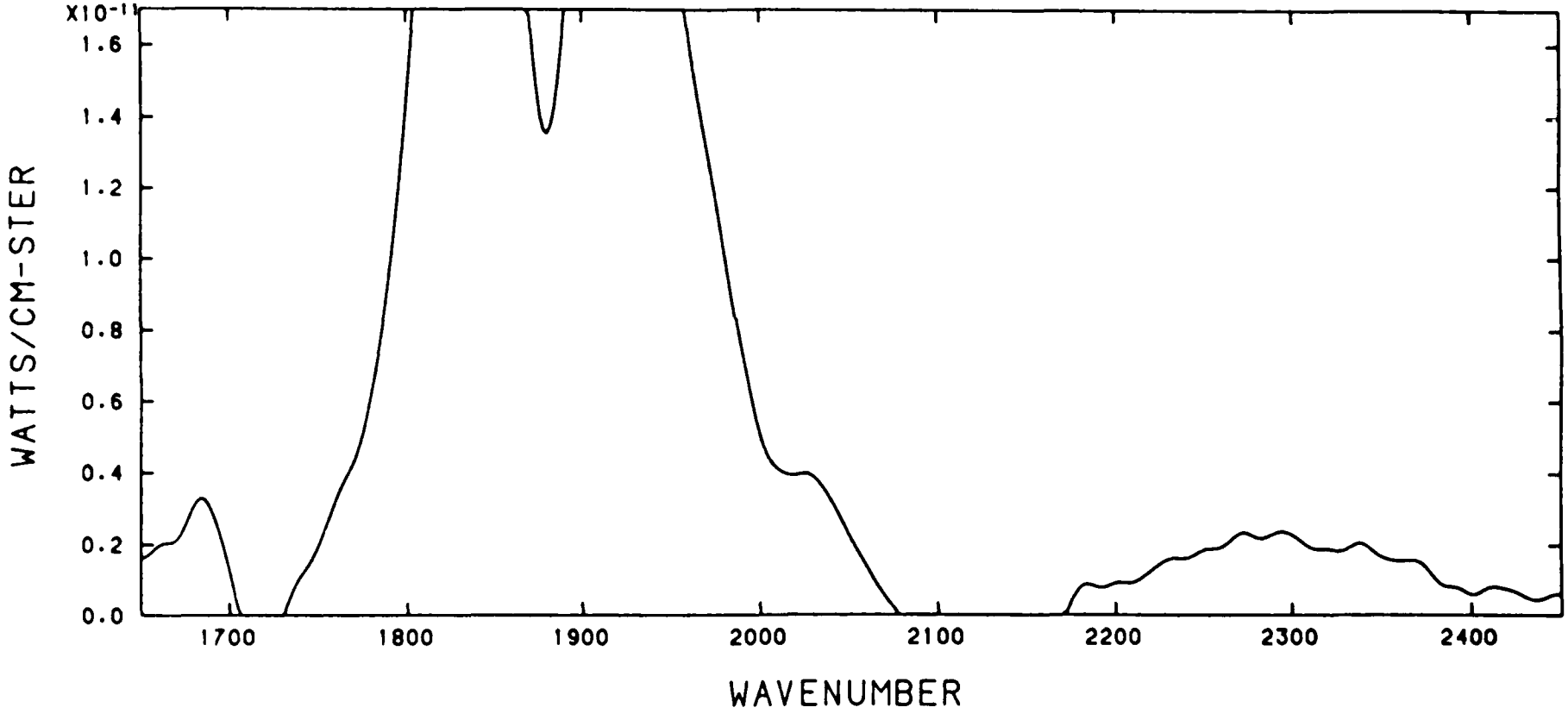
FILE 50, TIME 9: 9: 4.384, ALT 136.2-136.2 KM

30-NOV-83 09:25



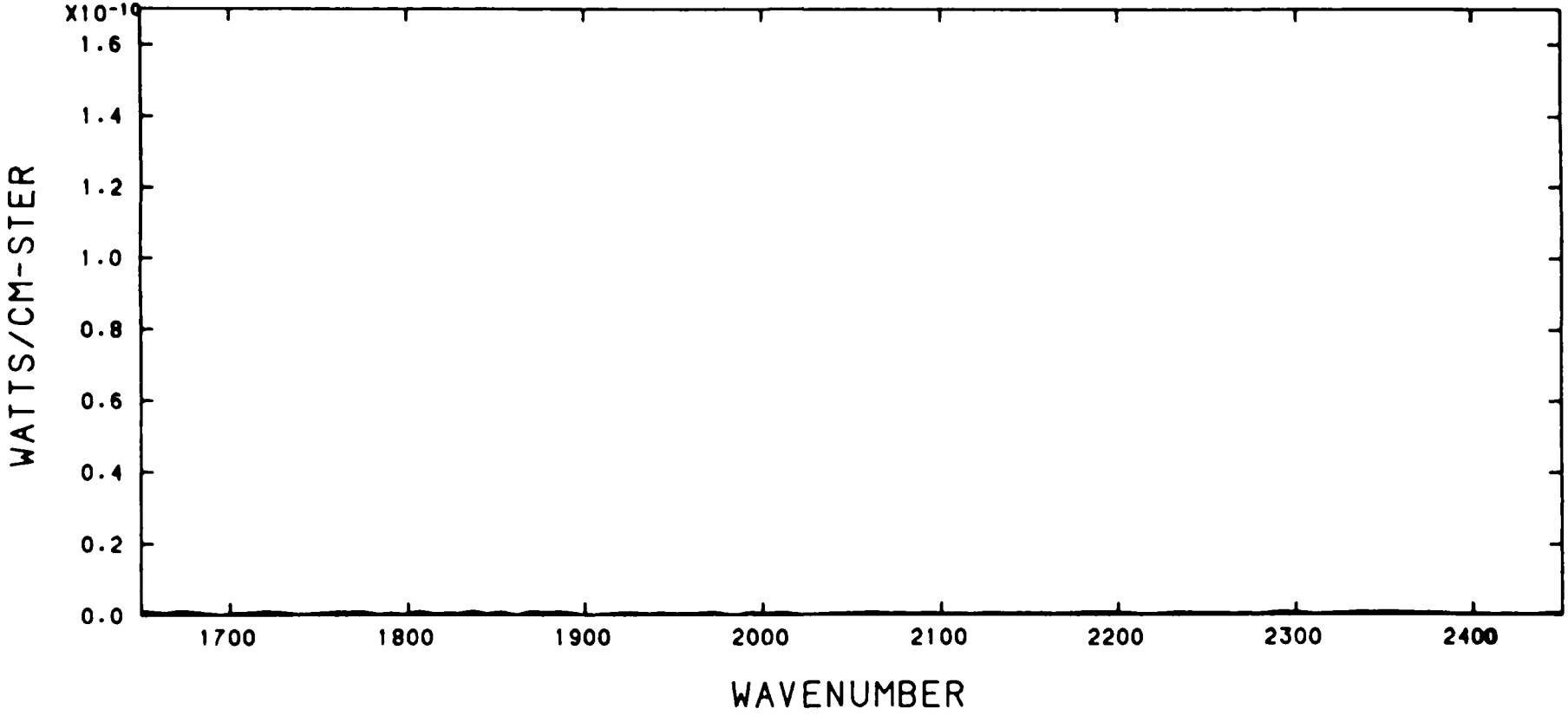
FILE 51, TIME 9: 9: 4.882, ALT 136.3-136.4 KM

30-NOV-83 09:26

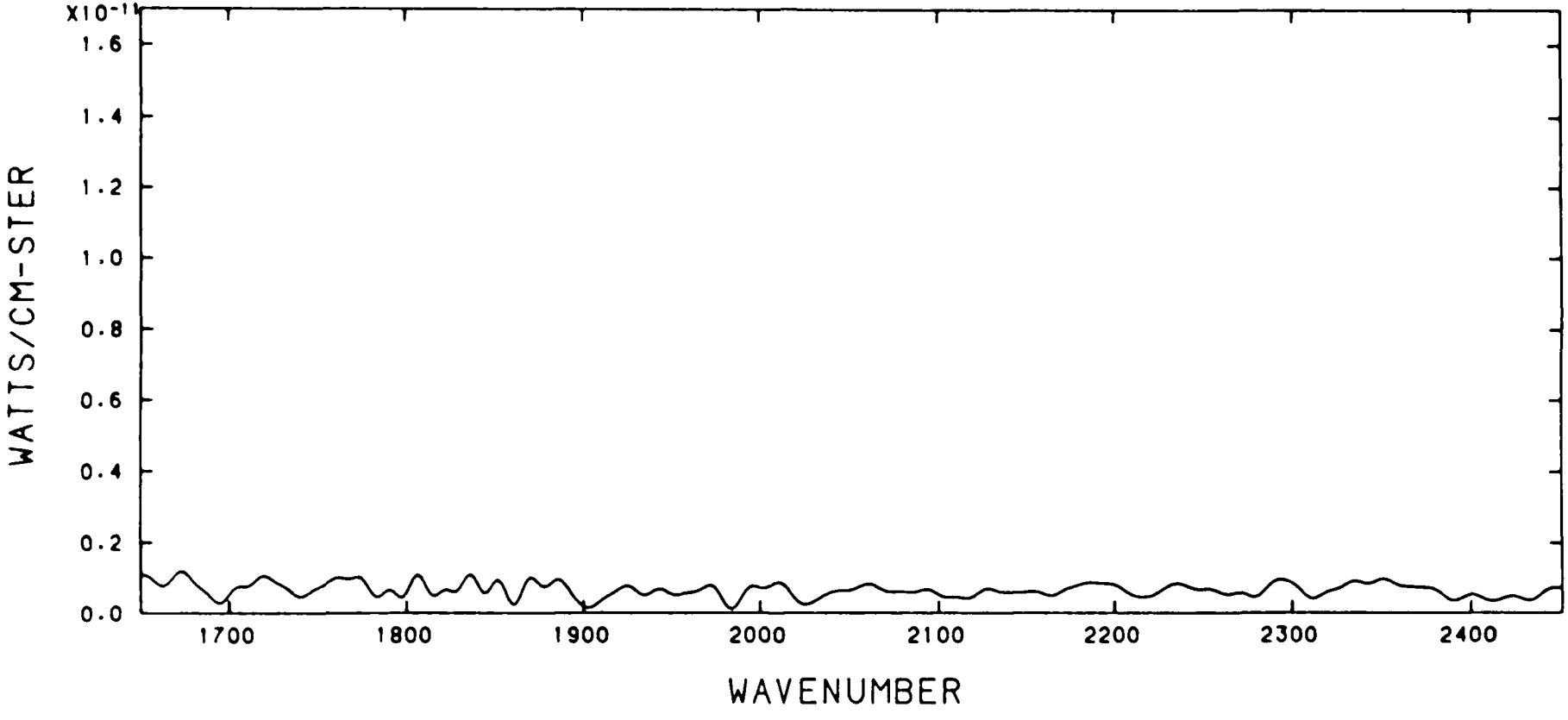


FILE 51, TIME 9: 9: 4.882, ALT 136.3-136.4 KM

30-NOV-83 09:28

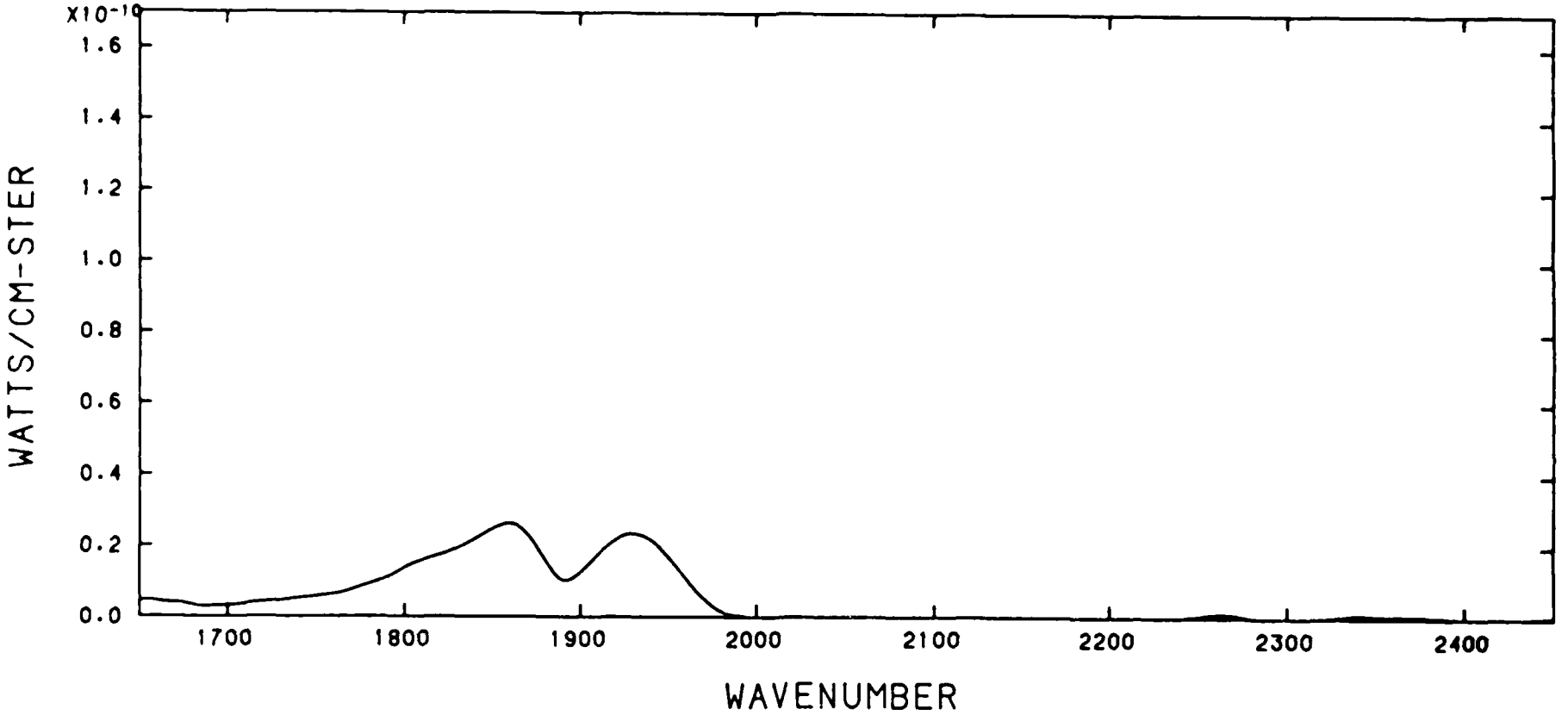


FILE 52, TIME 9: 9: 7.828, ALT 136.9-137.0 KM



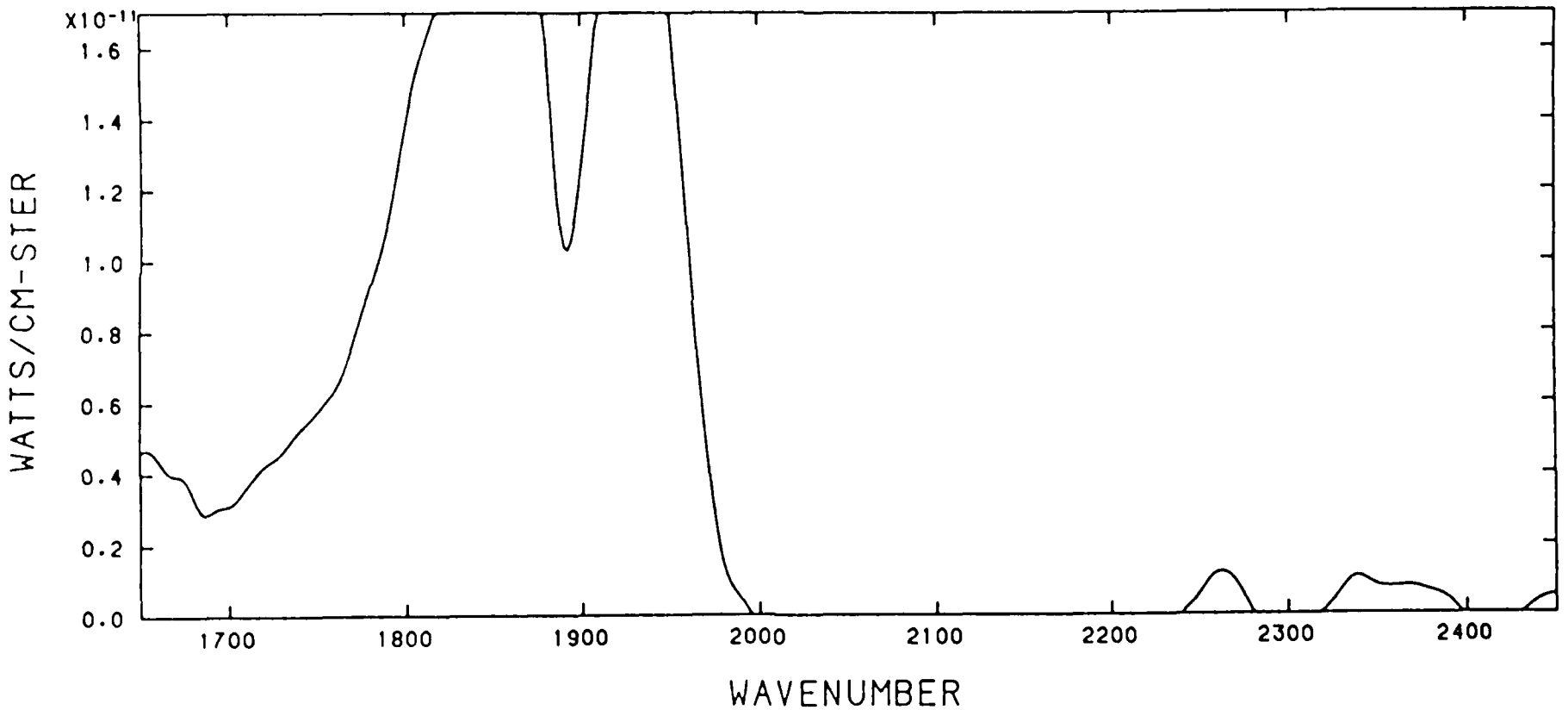
FILE 52, TIME 9: 9: 7.828, ALT 136.9-137.0 KM

30-NOV-83 09:27



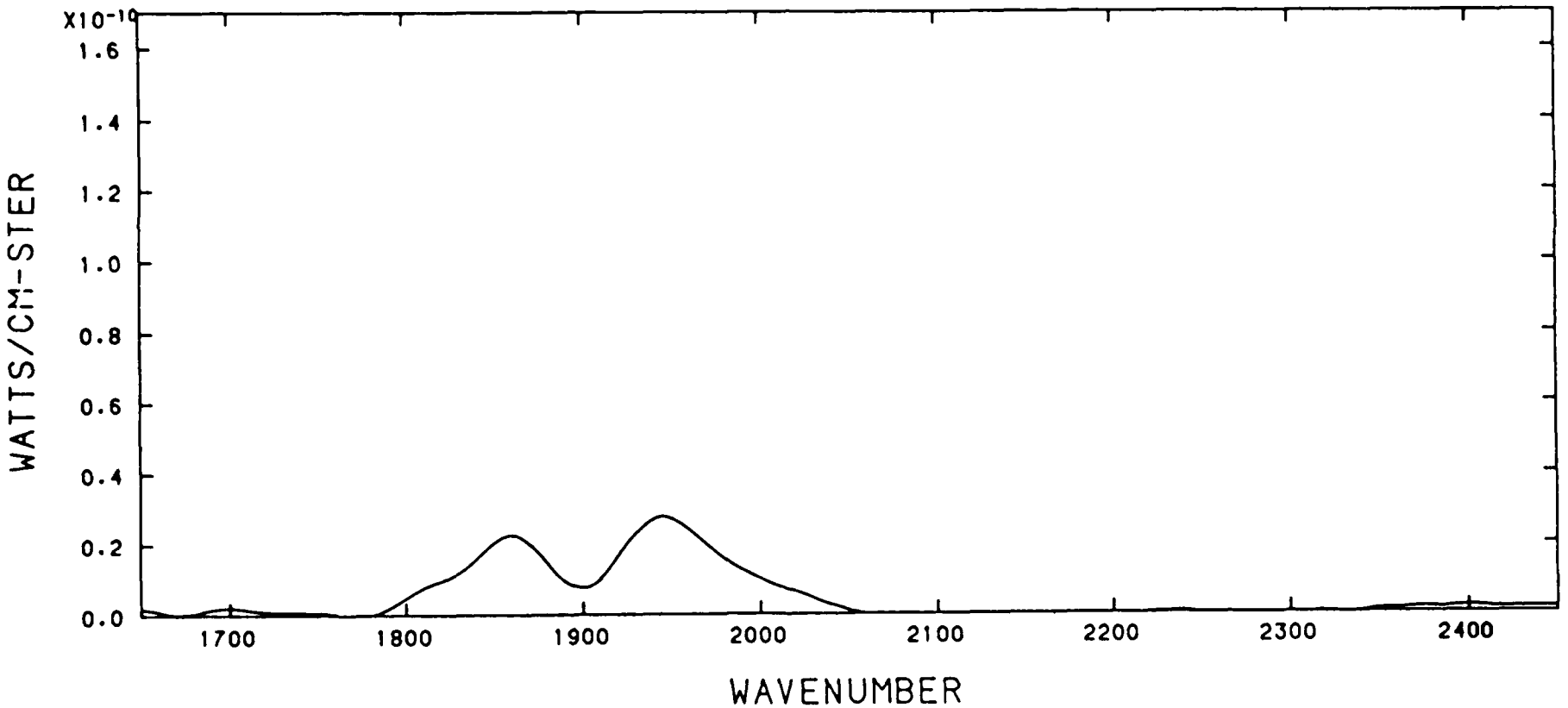
FILE 53, TIME 9: 9: 8.130, ALT 137.0-137.1 KM

30-NOV-83 09:27



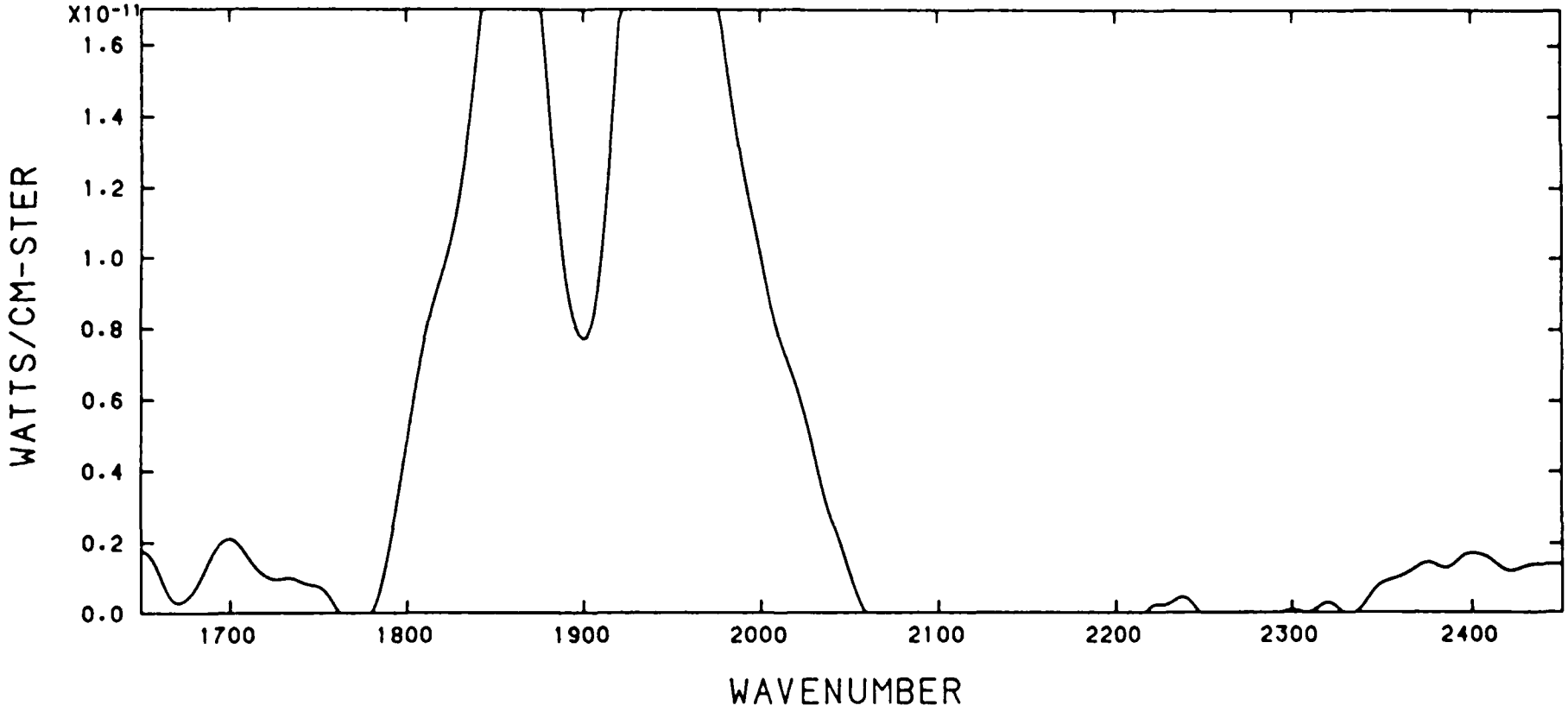
FILE 53, TIME 9: 9: 8.130, ALT 137.0-137.1 KM

30-NOV-83 09:27



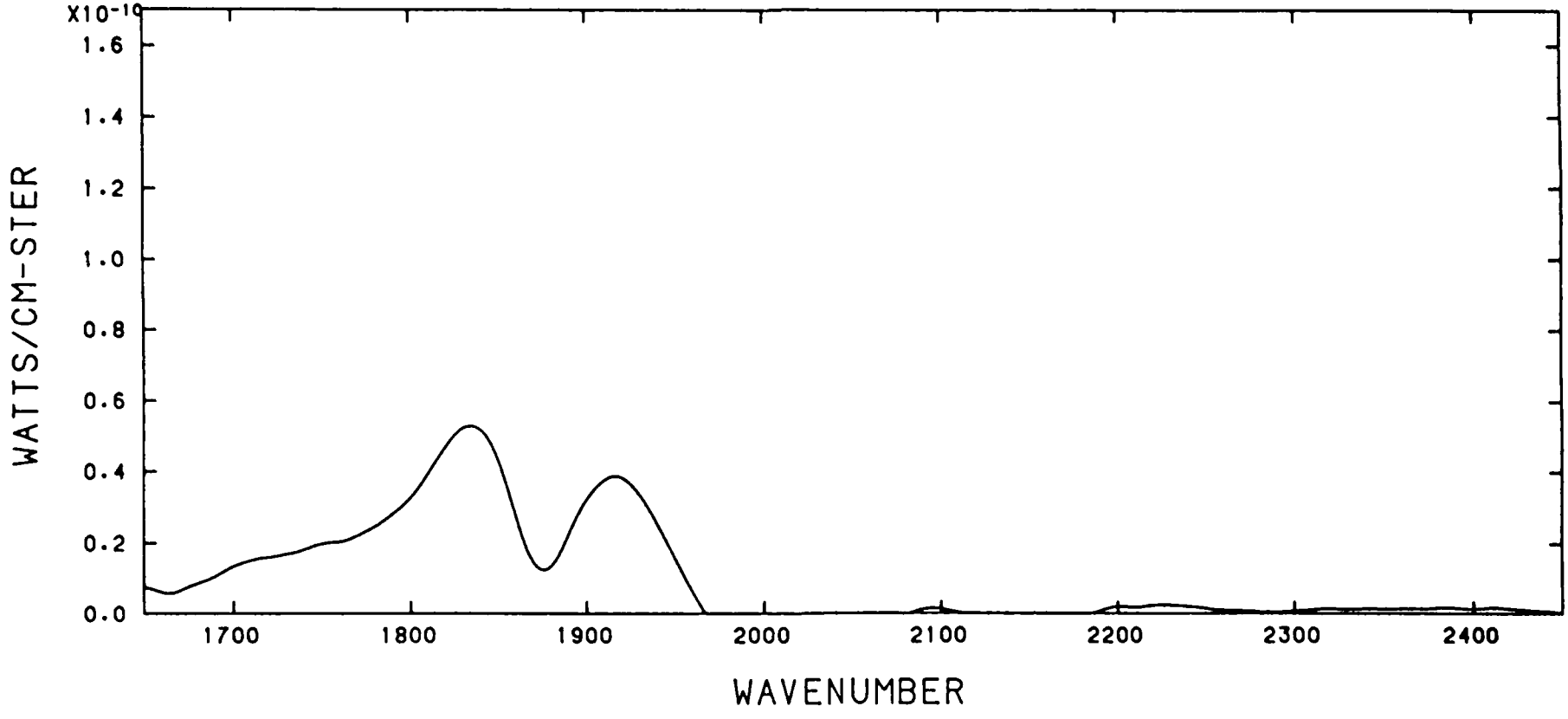
FILE 54, TIME 9: 9:10.884, ALT 137.5-137.6 KM

30-NOV-83 09:27



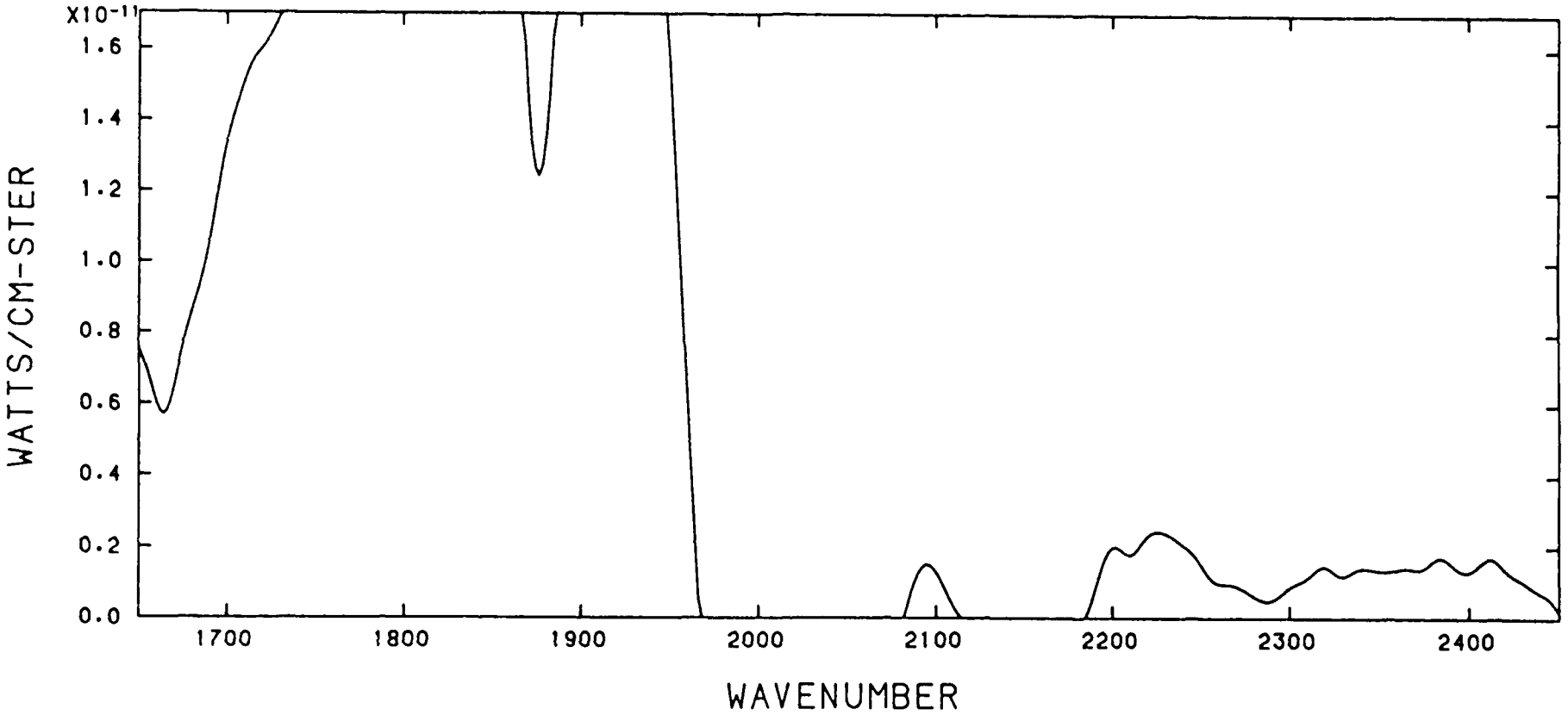
FILE 54, TIME 9: 9:10.884, ALT 137.5-137.6 KM

30-NOV-83 09:27



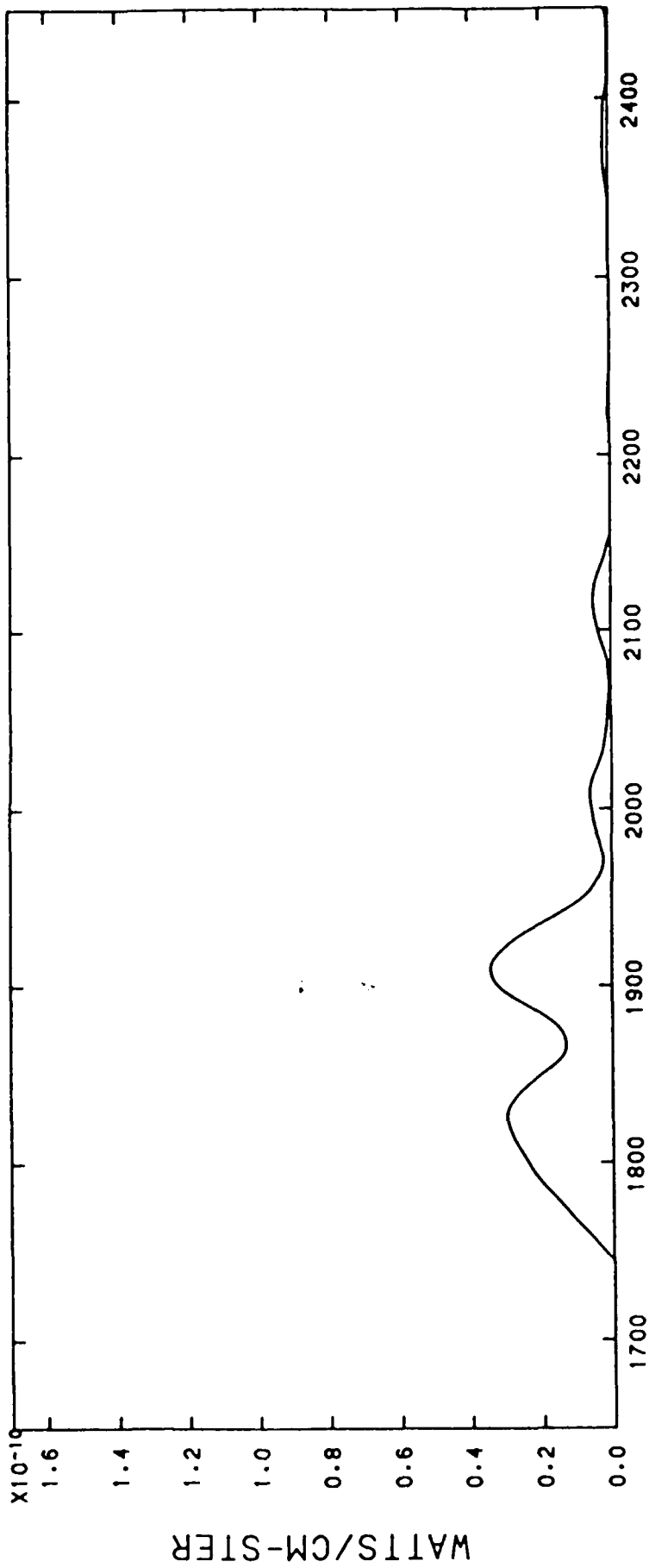
FILE 55, TIME 9: 9:11.380, ALT 137.6-137.7 KM

30-NOV-83 09:27

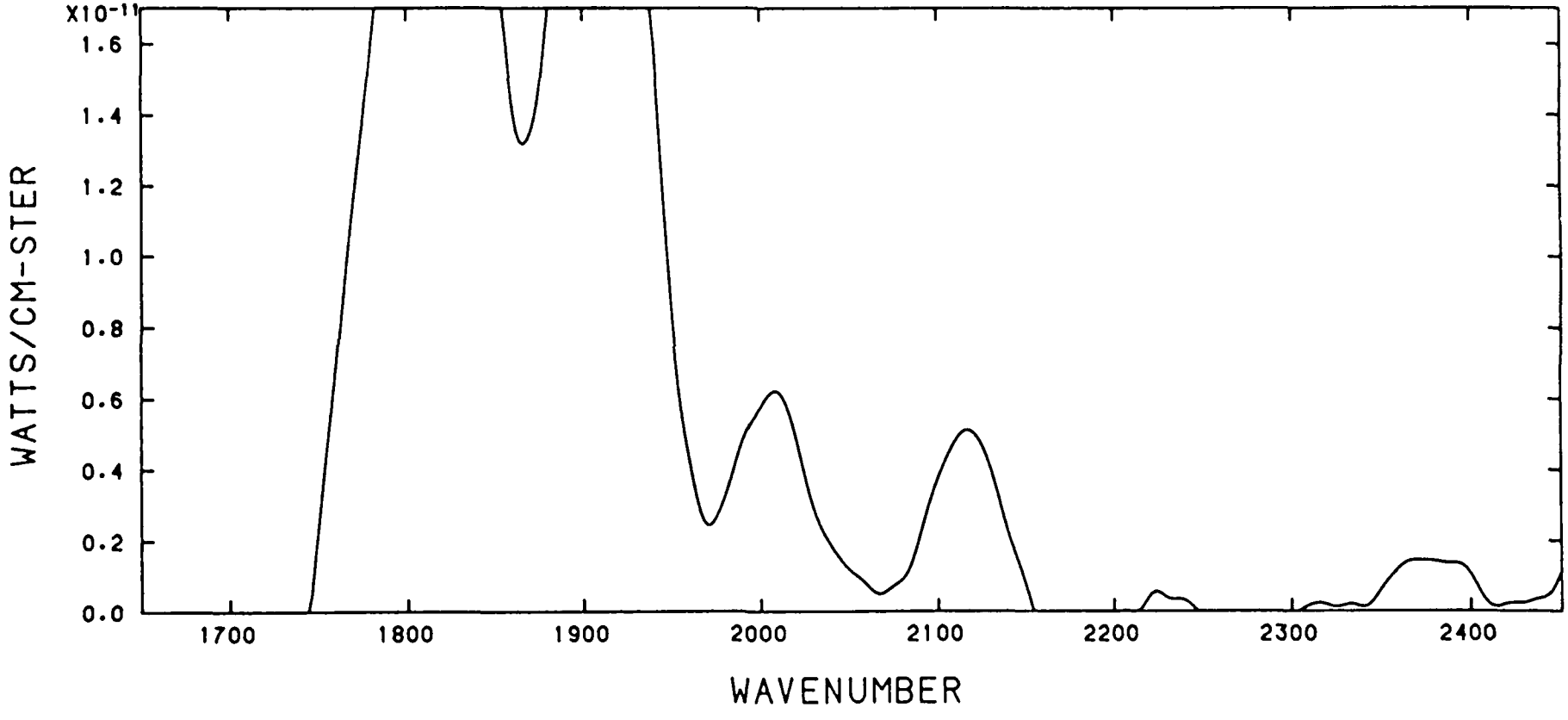


FILE 55, TIME 9: 9:11.380, ALT 137.6-137.7 KM

30-NOV-83 09:27

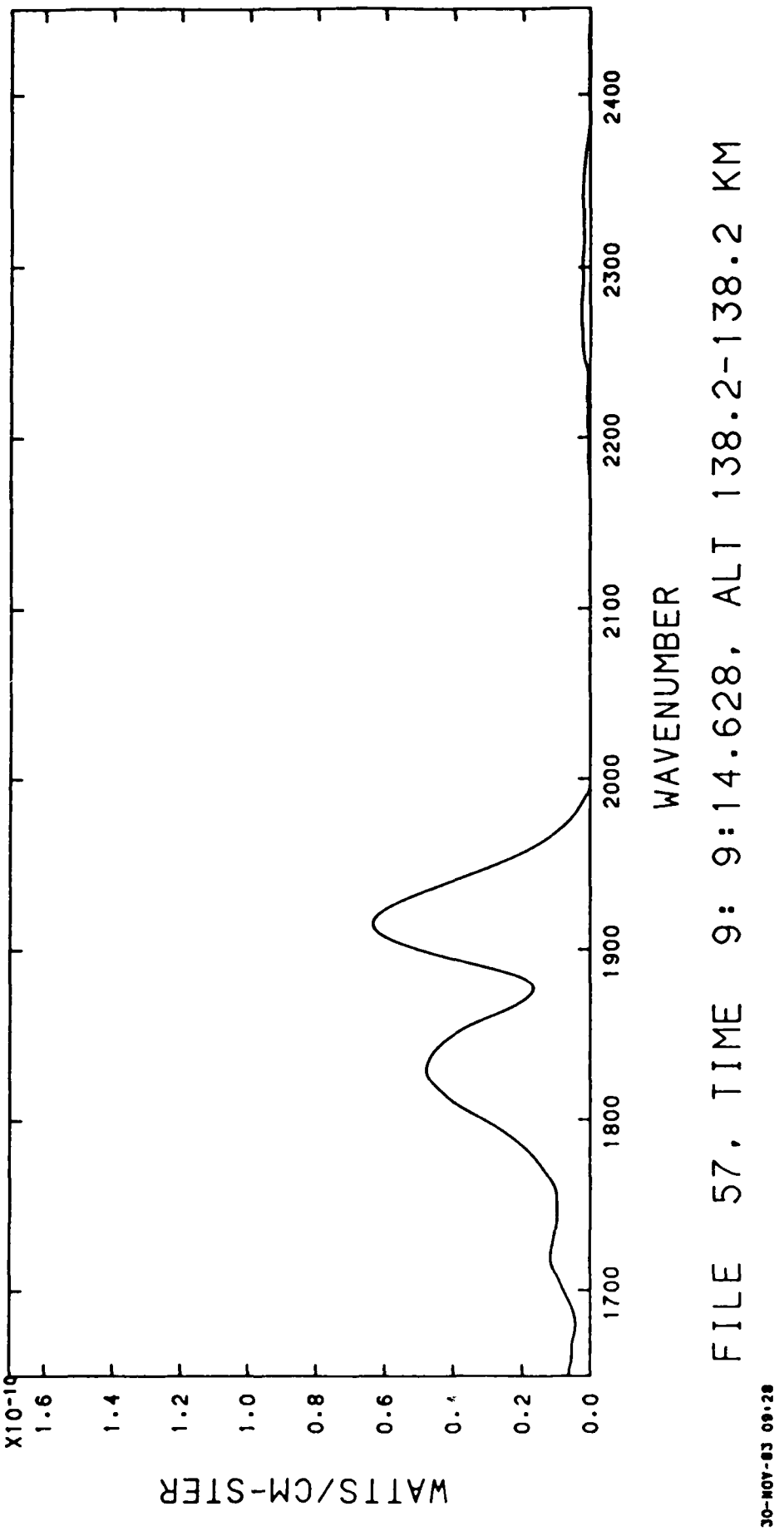


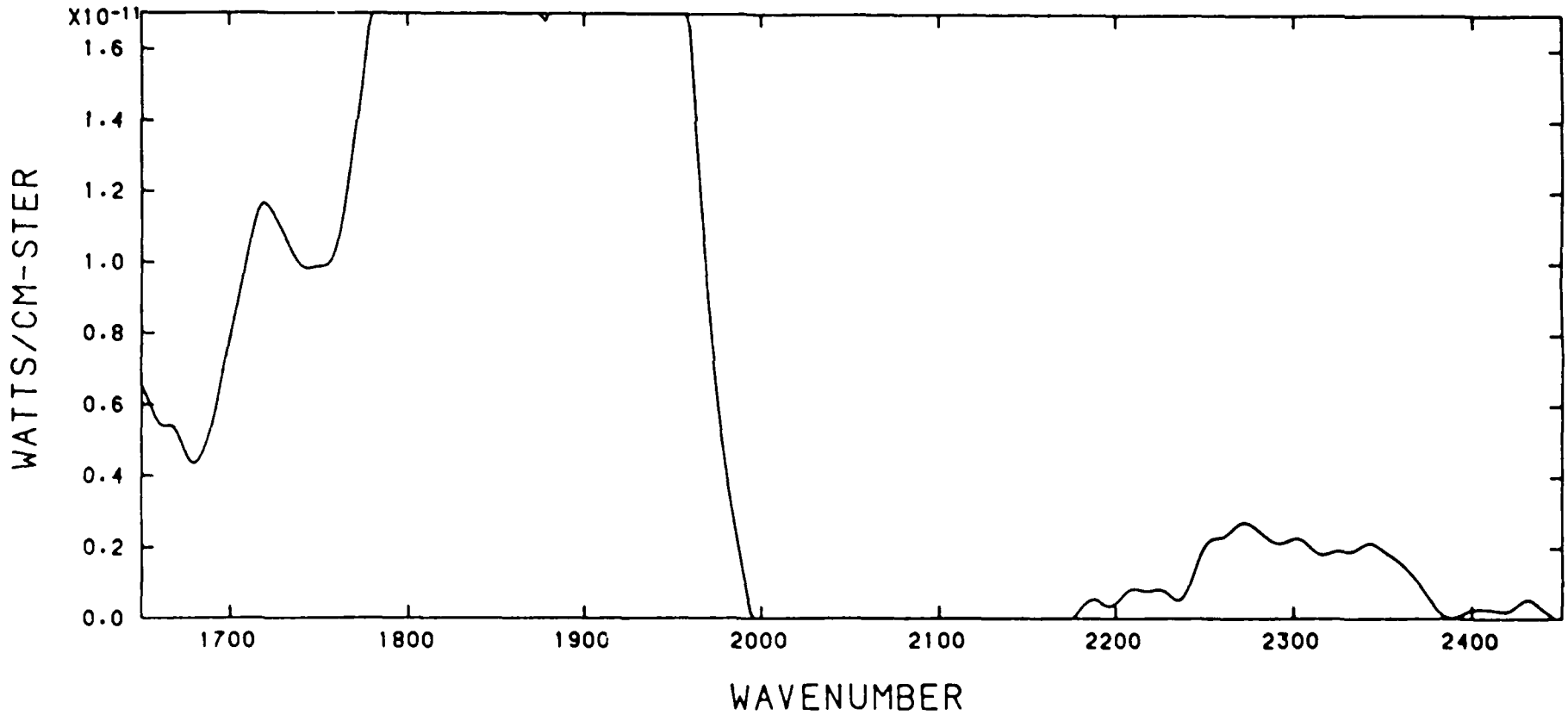
FILE 56, TIME 9: 9:14.132, ALT 138.1-138.1 KM



FILE 56, TIME 9: 9:14.132, ALT 138.1-138.1 KM

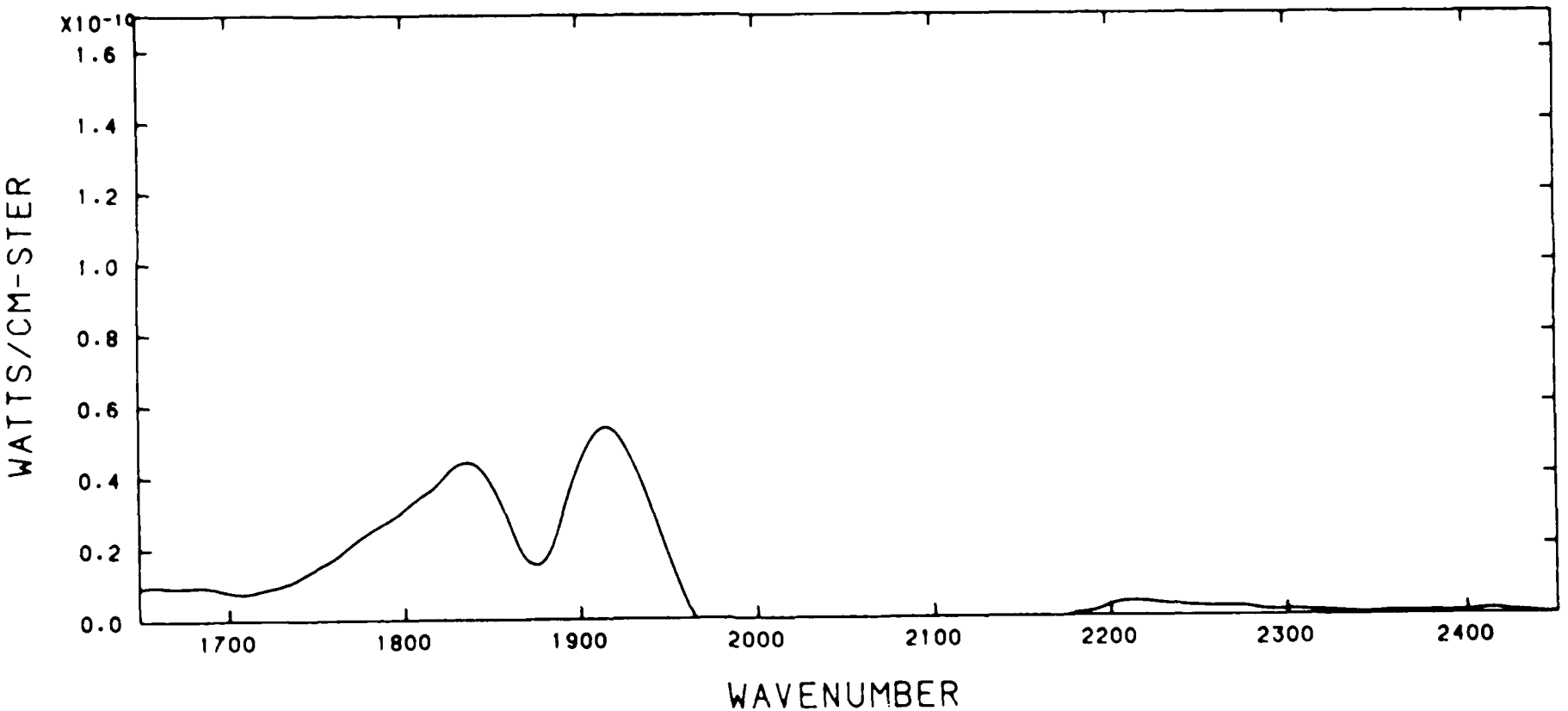
30-NOV-83 09:28


FILE 57, TIME 9: 9:14.628, ALT 138.2-138.2 KM
WAVENUMBER
1700
1800
1900
2000
2100
2200
2300
2400
WATTS/CM-STER
X10-1
0.0
0.2
0.4
0.6
0.8
1.0
1.2
1.4
1.6
30-NOV-83 09:28



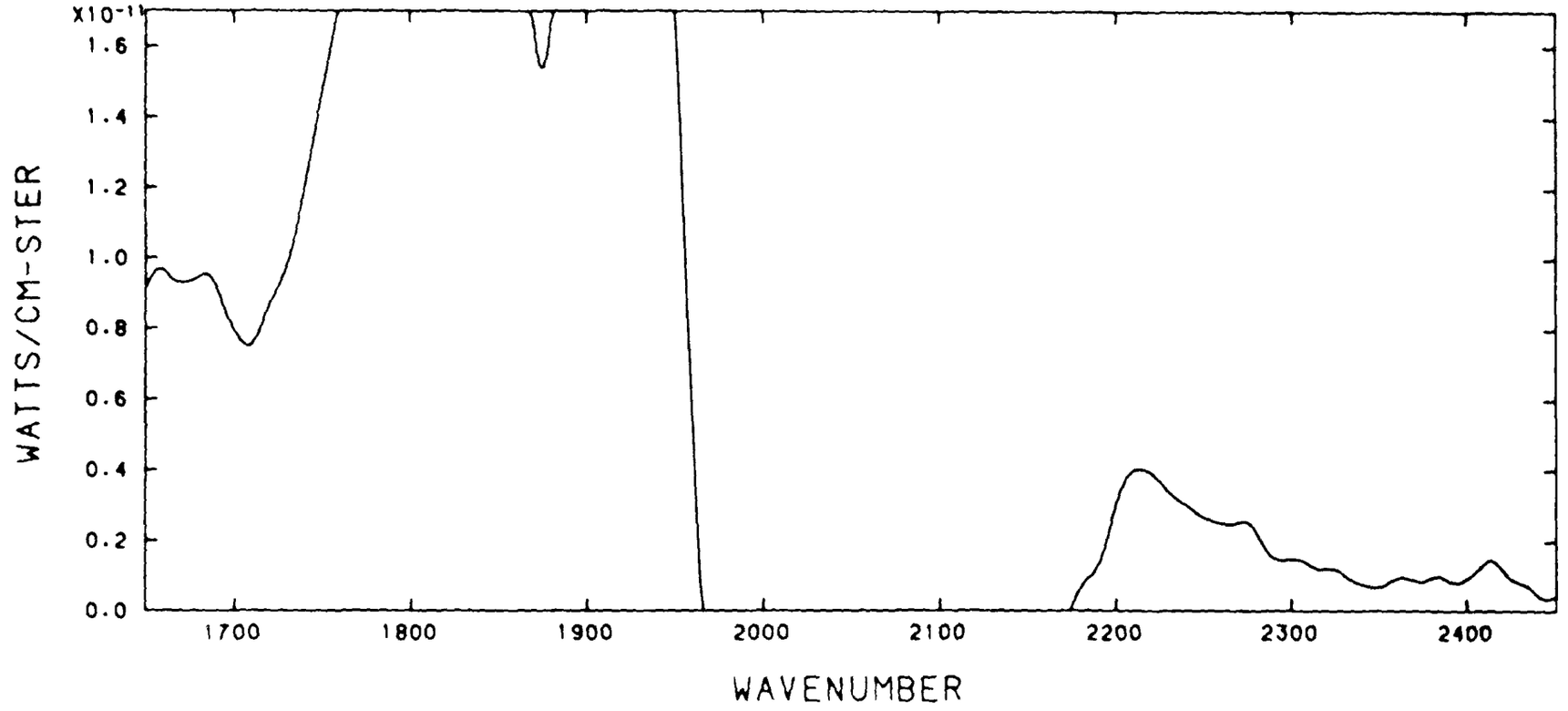
FILE 57, TIME 9: 9:14.628, ALT 138.2-138.2 KM

30-NOV-83 09:28



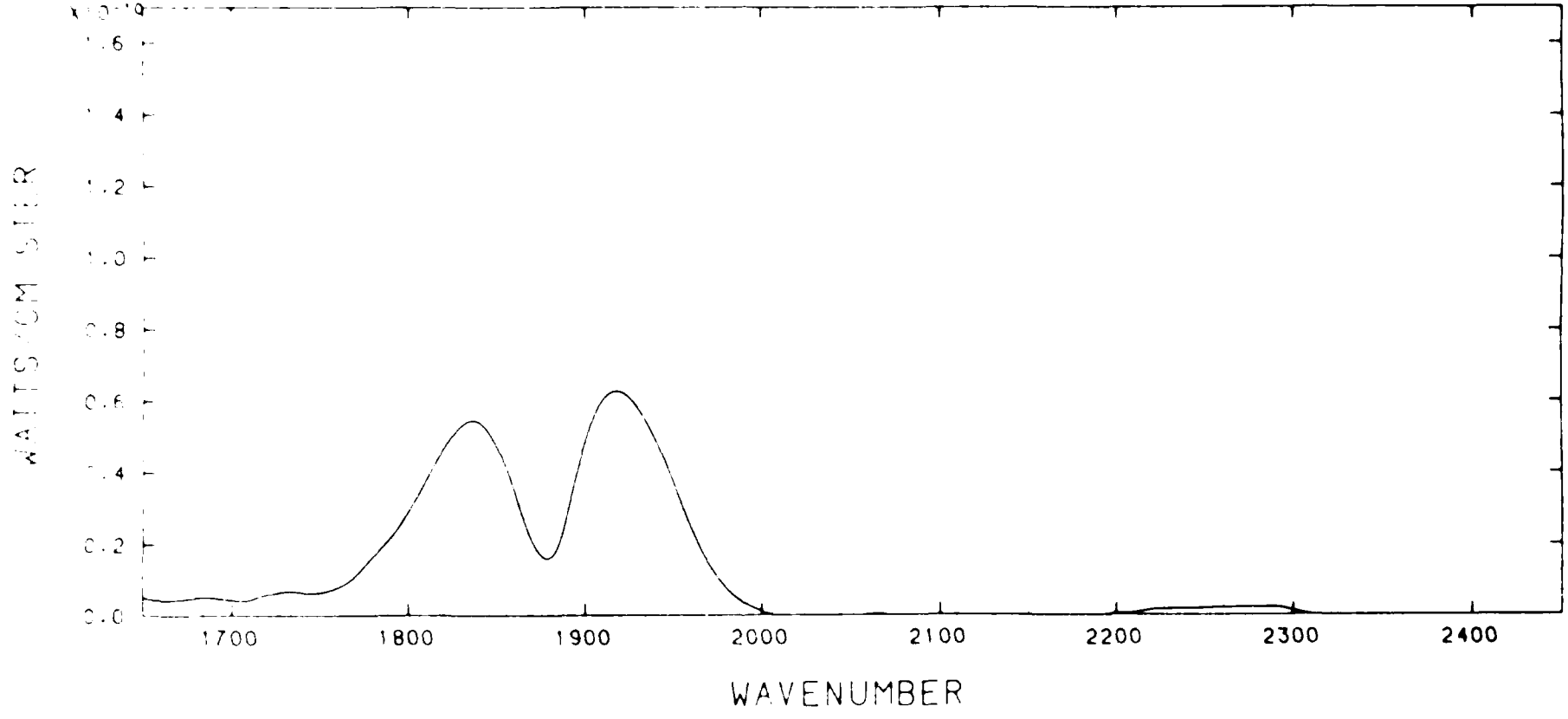
FILE 58, TIME 9: 9:17.382, ALT 138.5-138.6 KM

30-NOV-83 09:28



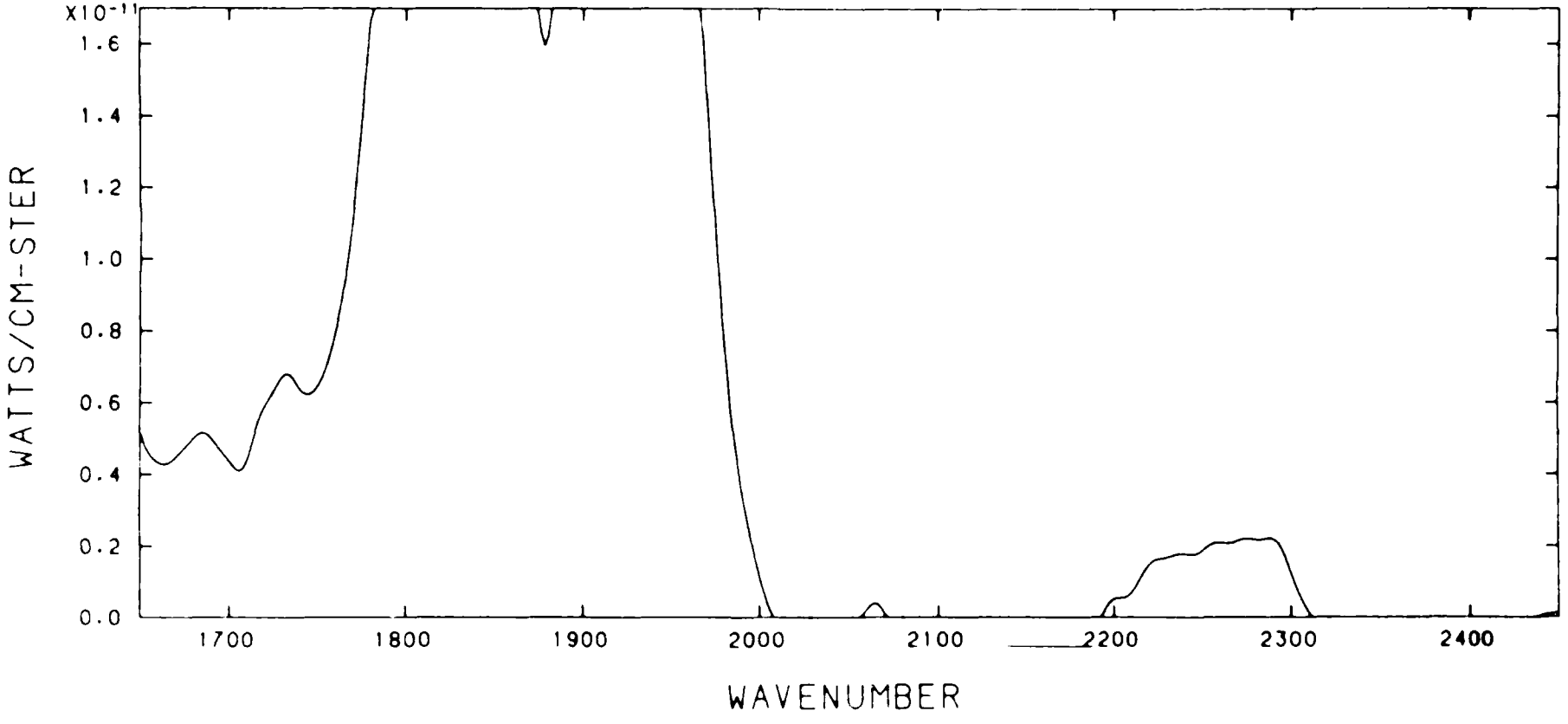
FILE 58, TIME 9: 9:17.382, ALT 138.5-138.6 KM

30-NOV-63 09:28



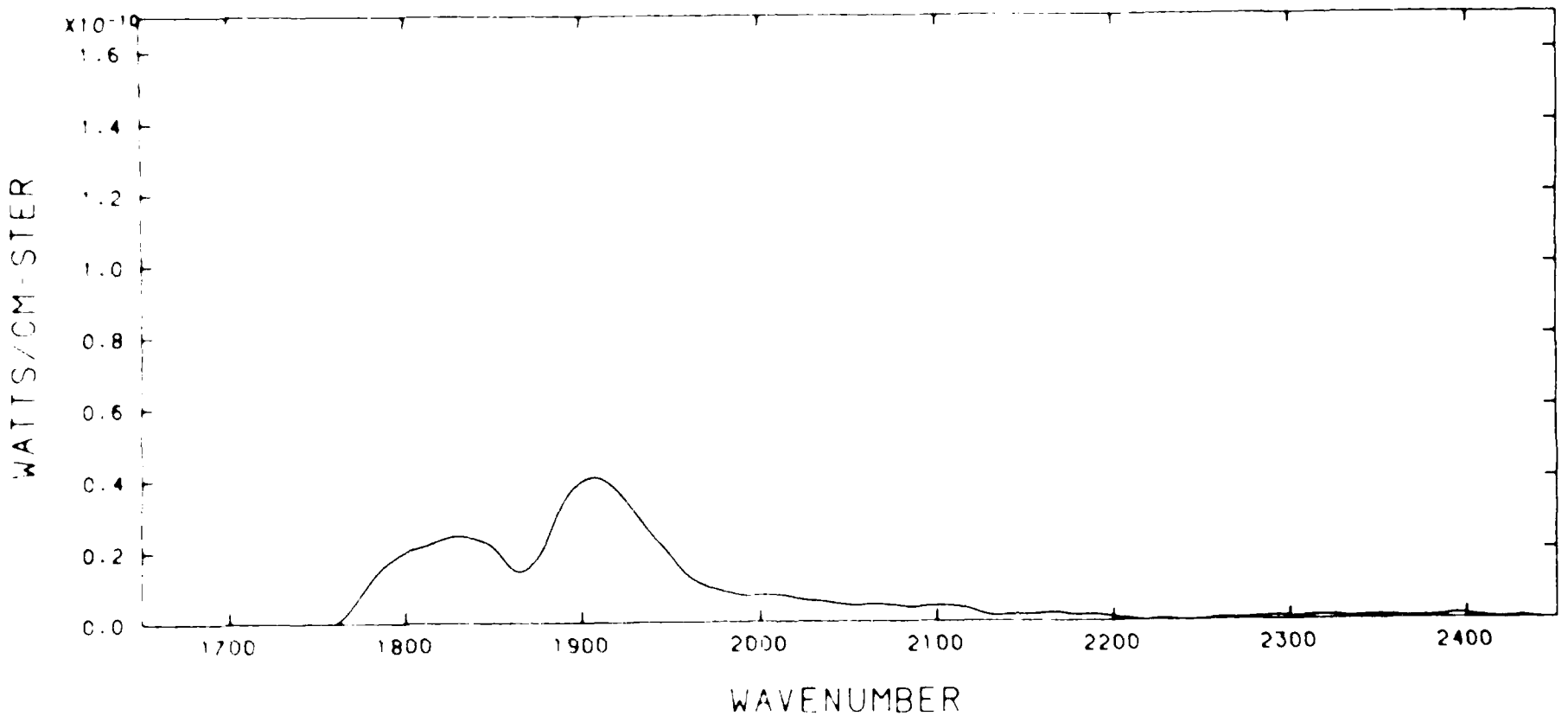
FILE 59, TIME 9: 9:17.880, ALT 138.6-138.6 KM

30-NOV-83 09:28



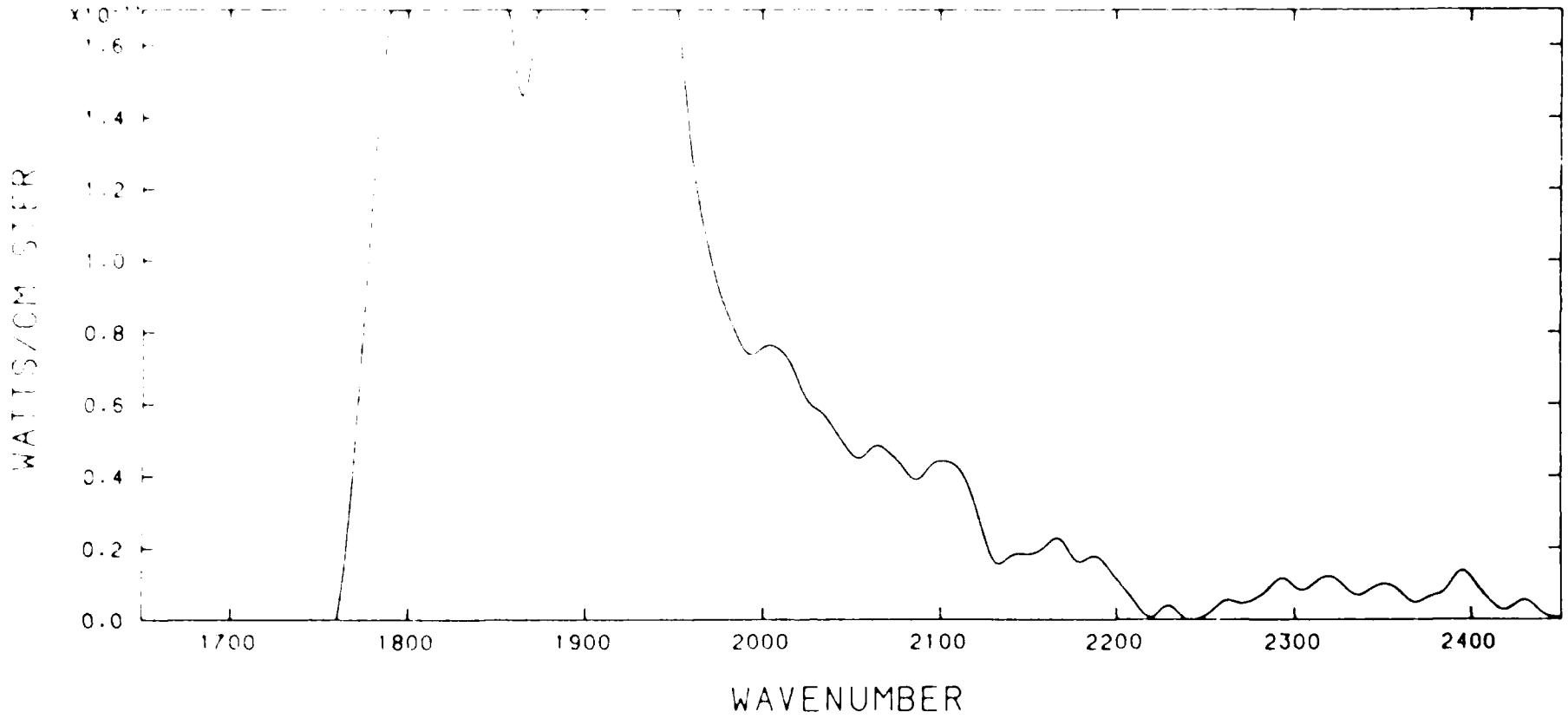
FILE 59, TIME 9: 9:17.880, ALT 138.6-138.6 KM

30-NOV-83 09:28



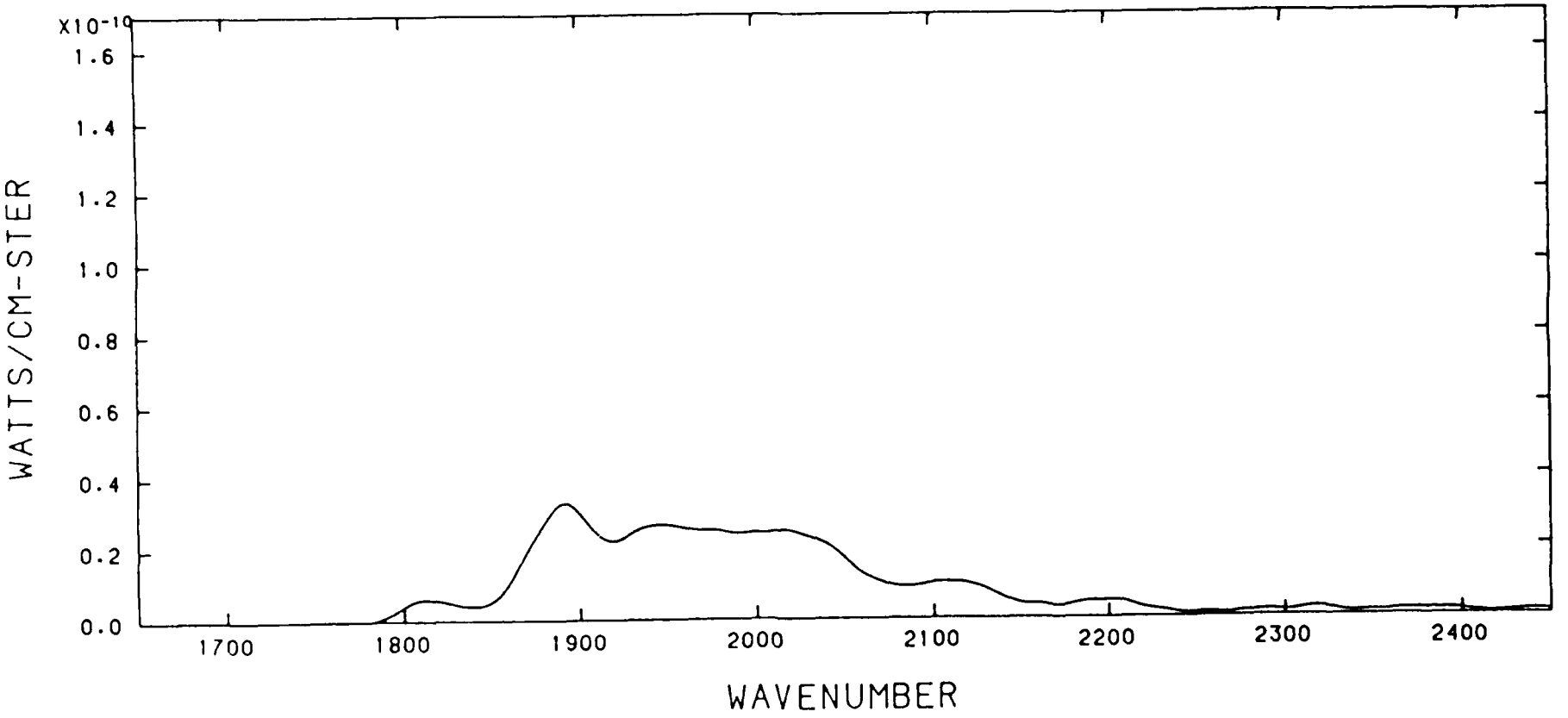
FILE 60, TIME 9: 9:20.630, ALT 138.9-138.9 KM

30-NOV-83 09:20



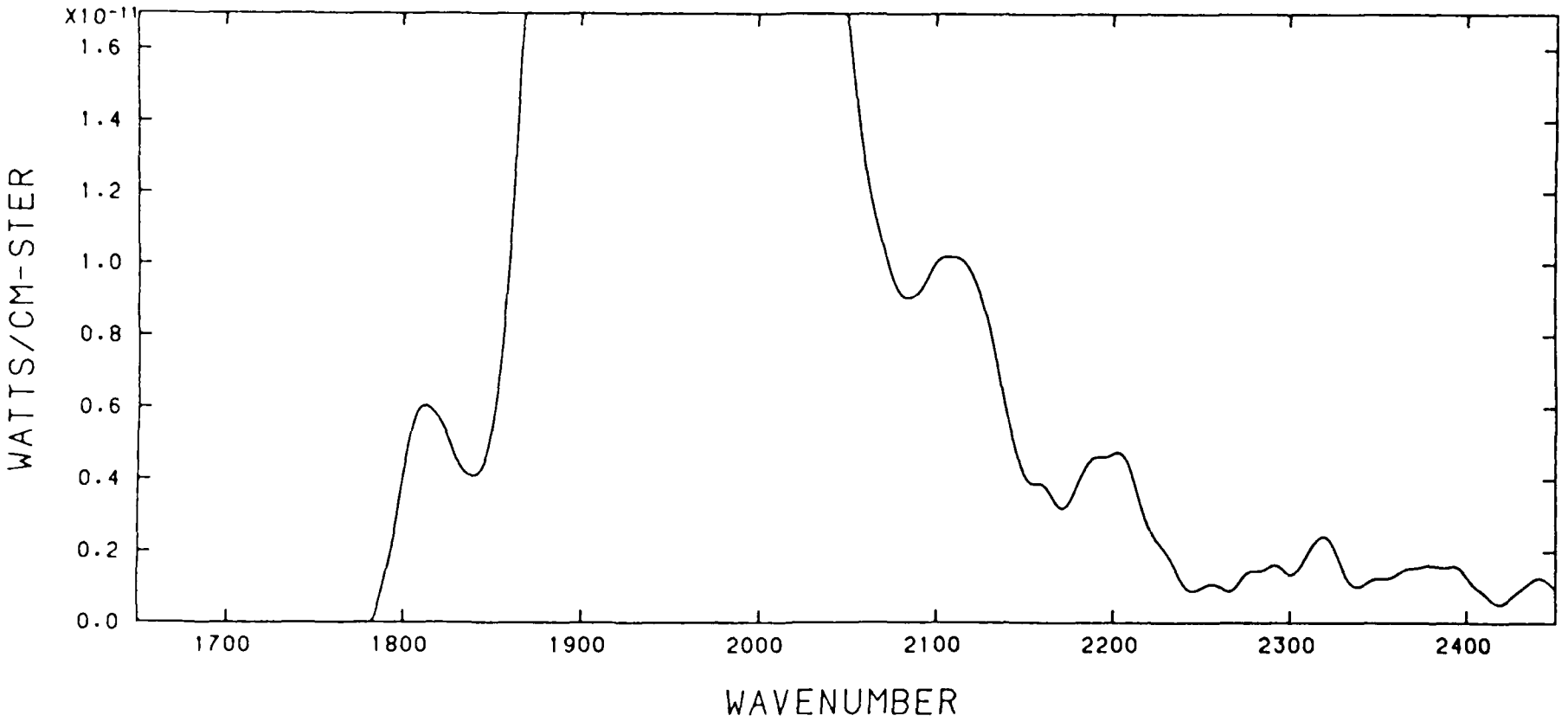
FILE 60, TIME 9: 9:20.630, ALT 138.9-138.9 KM

30-NOV-83 09:29



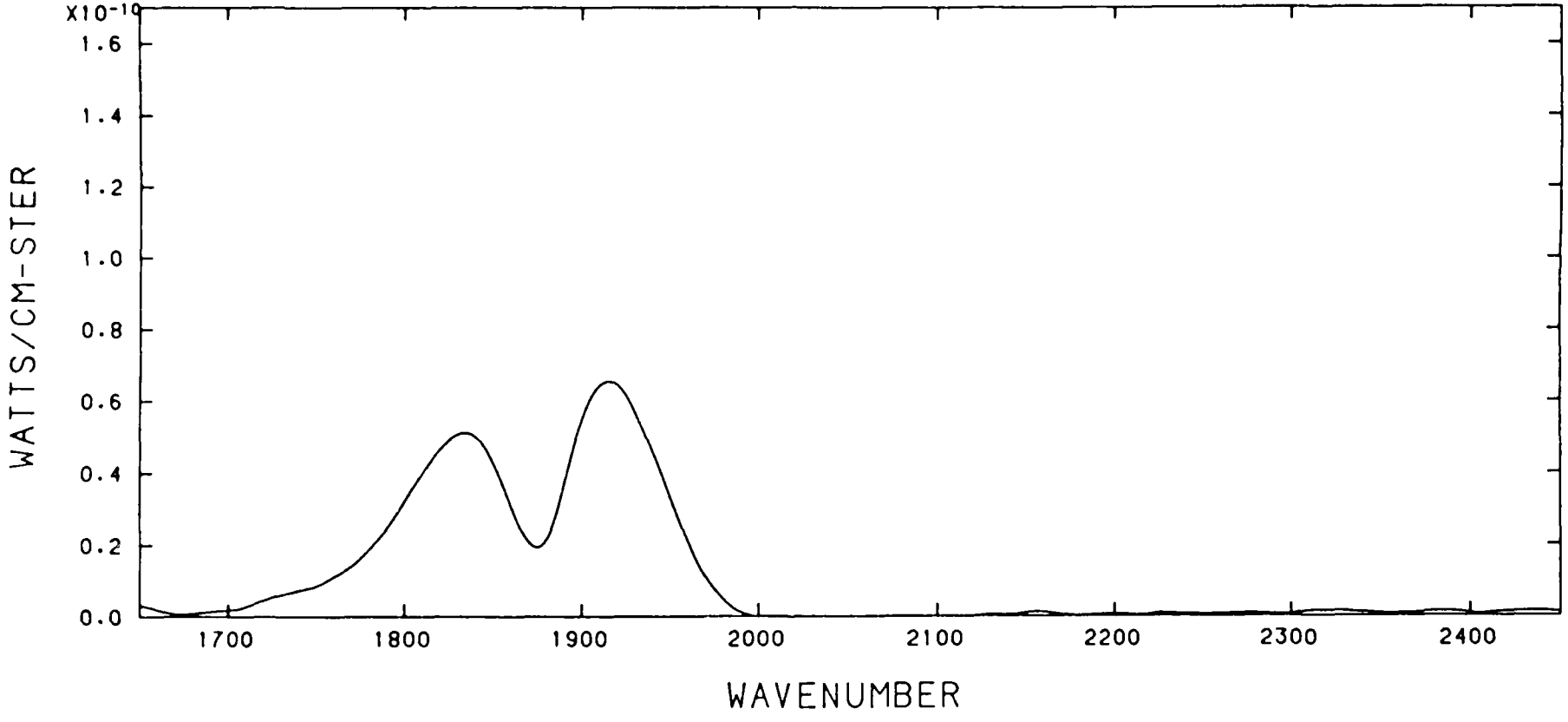
FILE 61, TIME 9: 9:21.128, ALT 138.9-138.9 KM

30-NOV-83 09:29



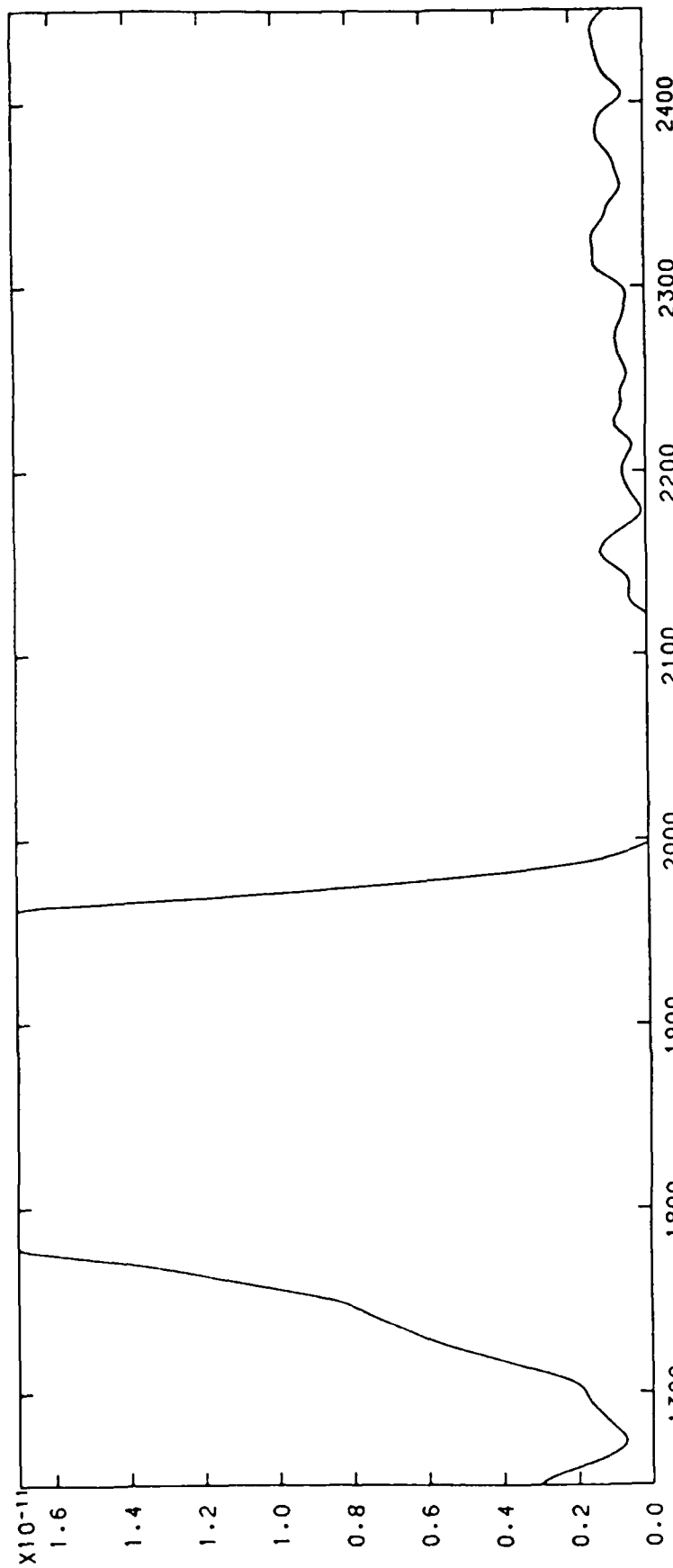
FILE 61, TIME 9: 9:21.128, ALT 138.9-138.9 KM

30-NOV-83 09:29

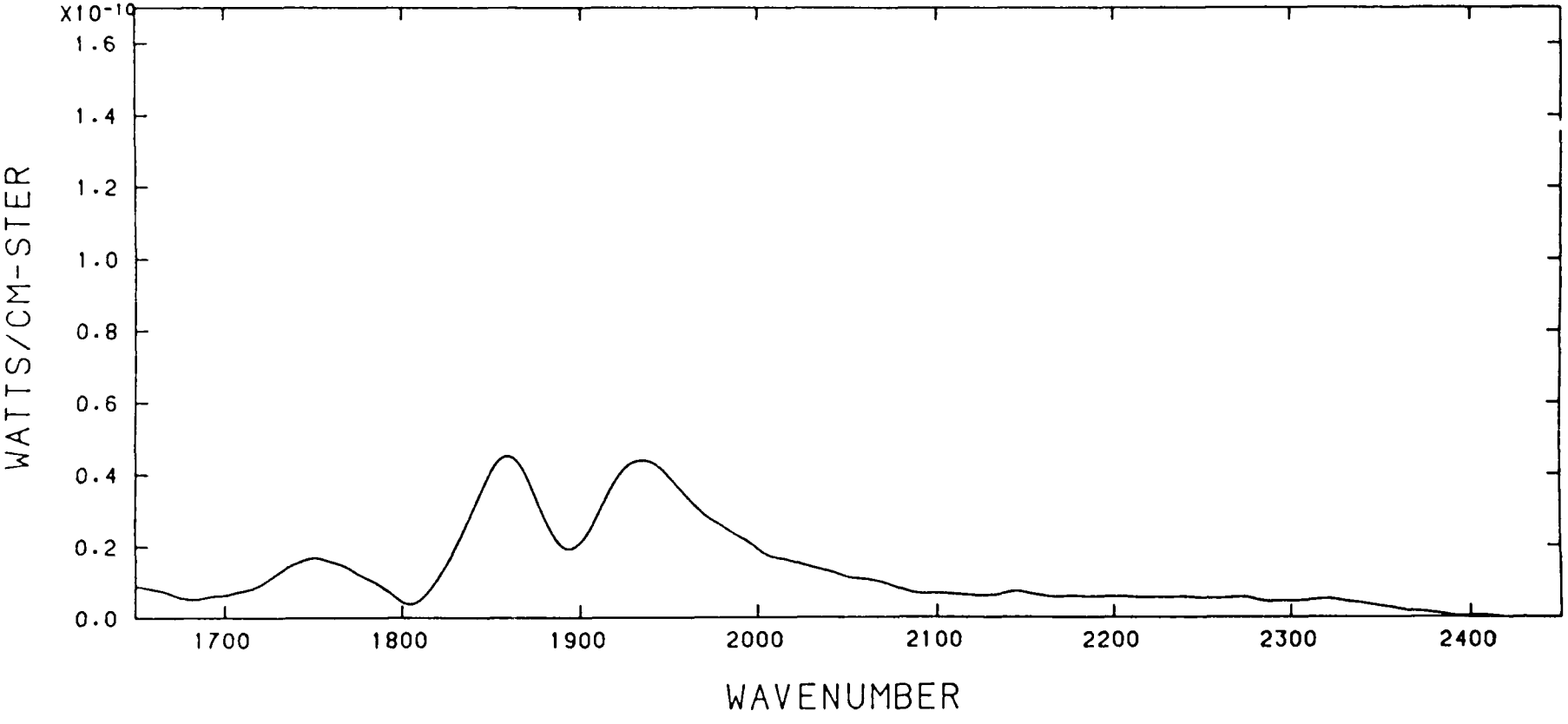


FILE 62, TIME 9: 9:23.882, ALT 139.1-139.1 KM

30-NOV-83 09:29

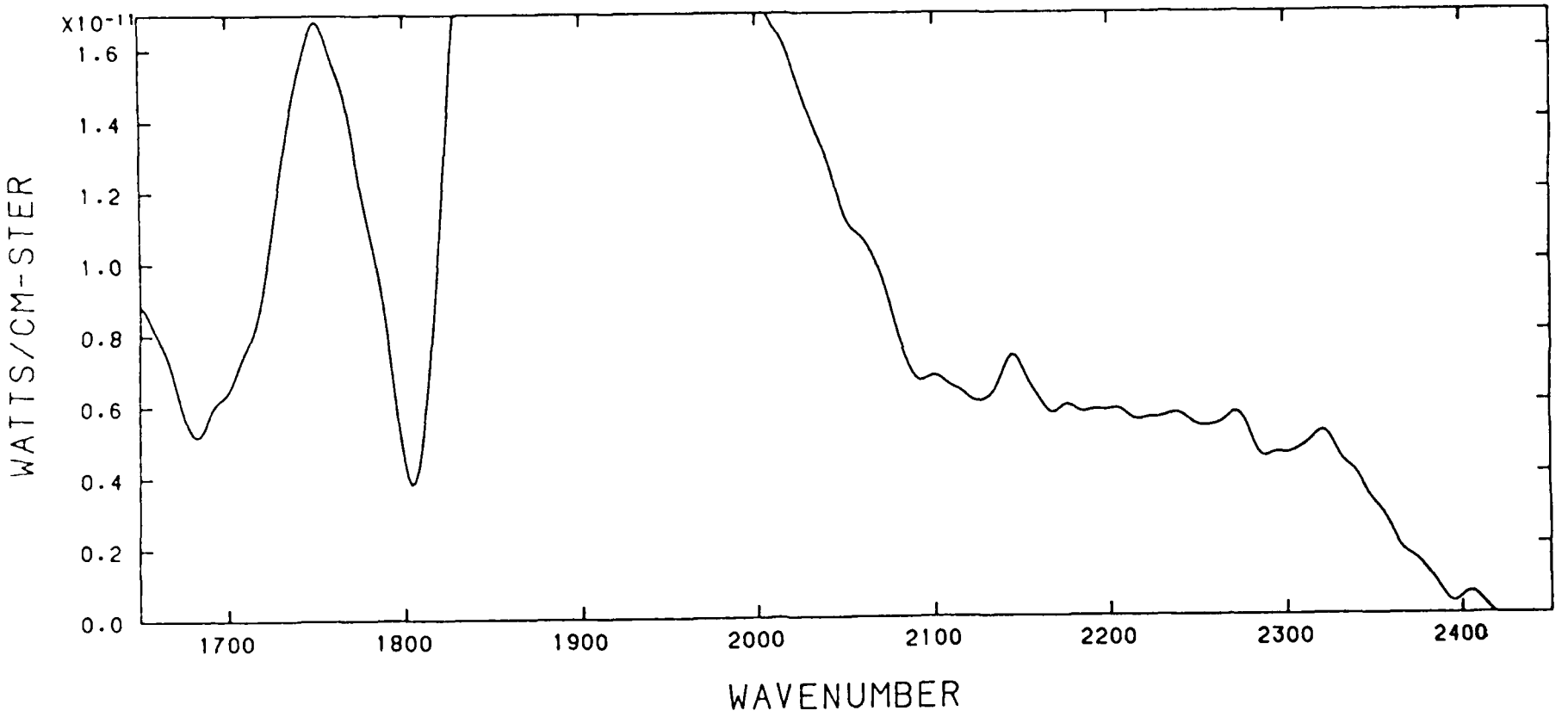


FILE 62, TIME 9: 9:23.882, ALT 139.1-139.1 KM



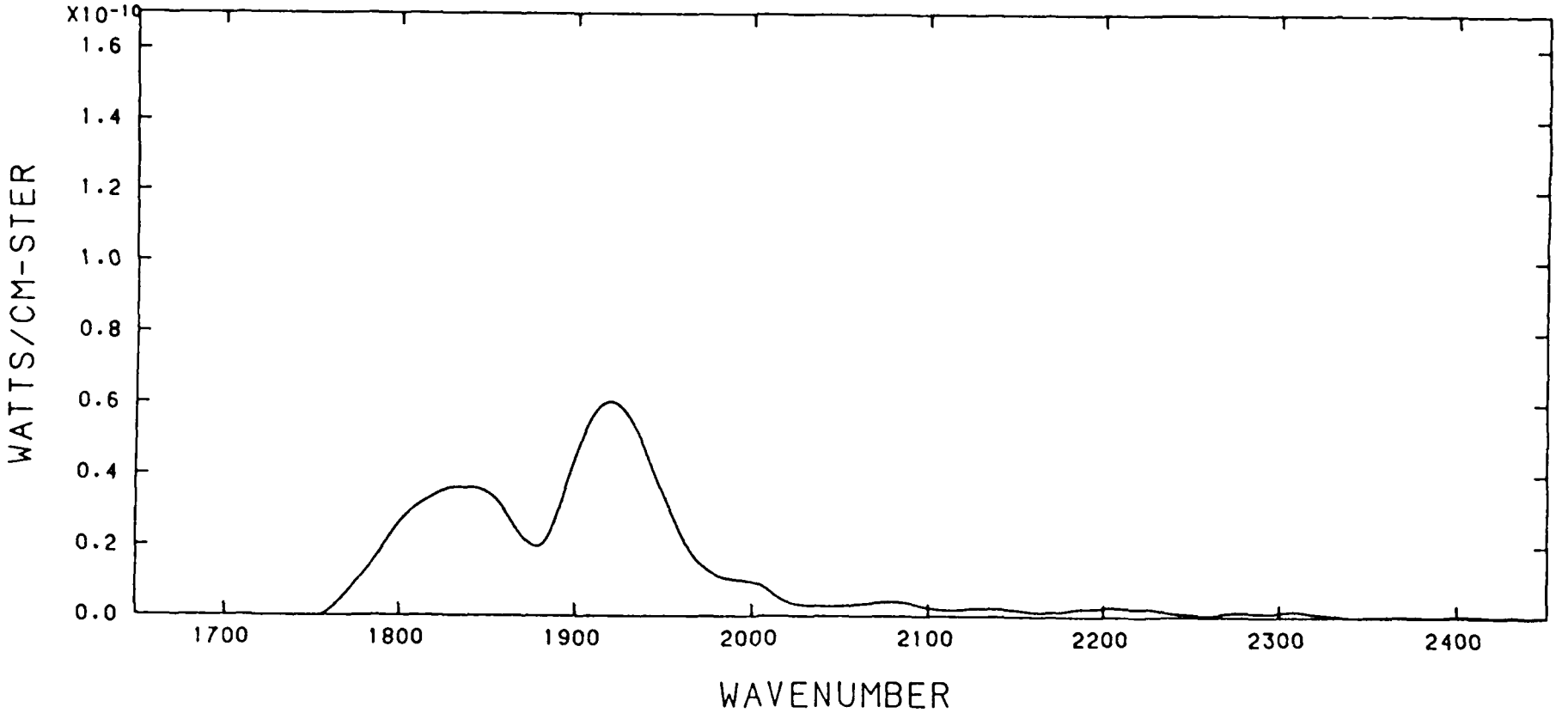
FILE 63, TIME 9: 9:24.380, ALT 139.1-139.2 KM

30-NOV-83 09:29



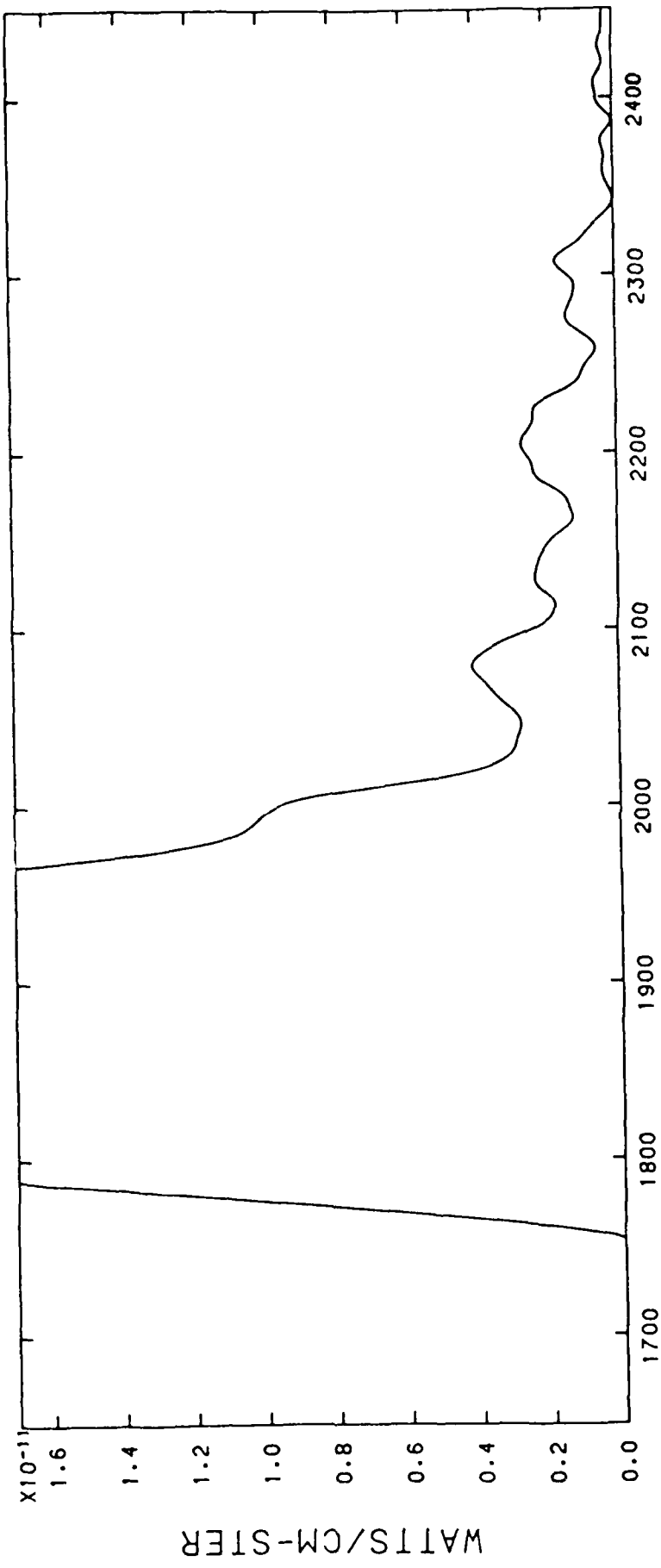
FILE 63, TIME 9: 9:24.380, ALT 139.1-139.2 KM

30-NOV-83 09:29

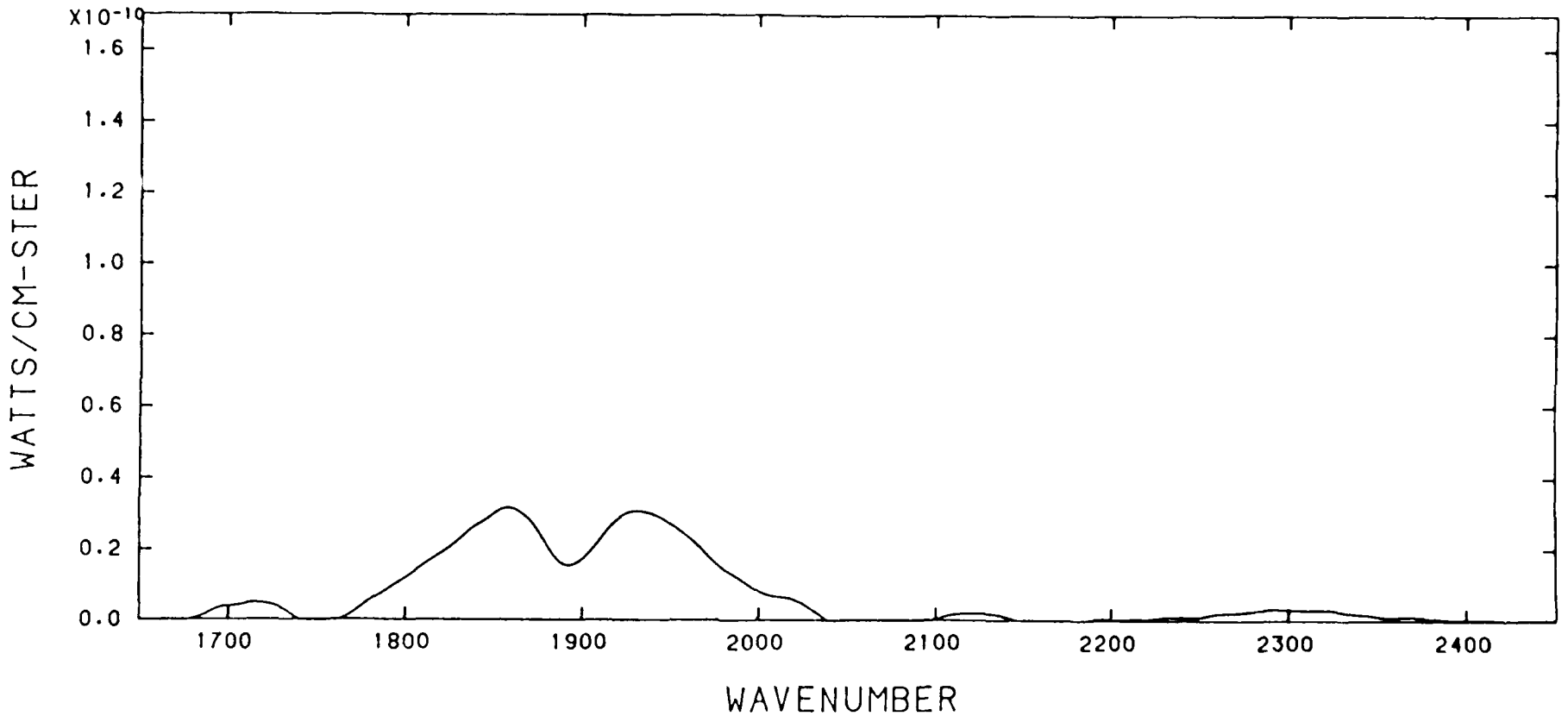


FILE 64, TIME 9: 9:27.132, ALT 139.3-139.3 KM

30-NOV-83 09:29

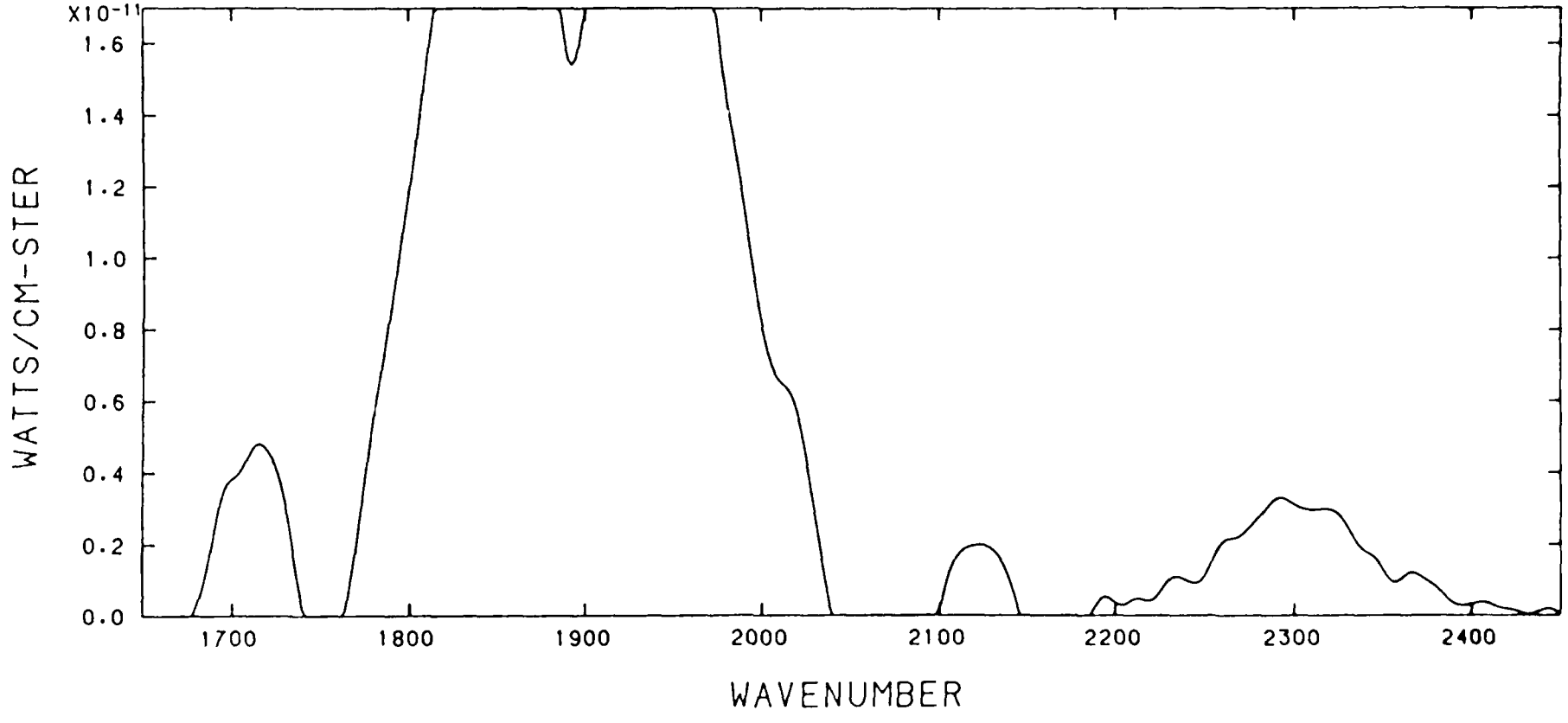


FILE 64, TIME 9: 9:27.132, ALT 139.3-139.3 KM



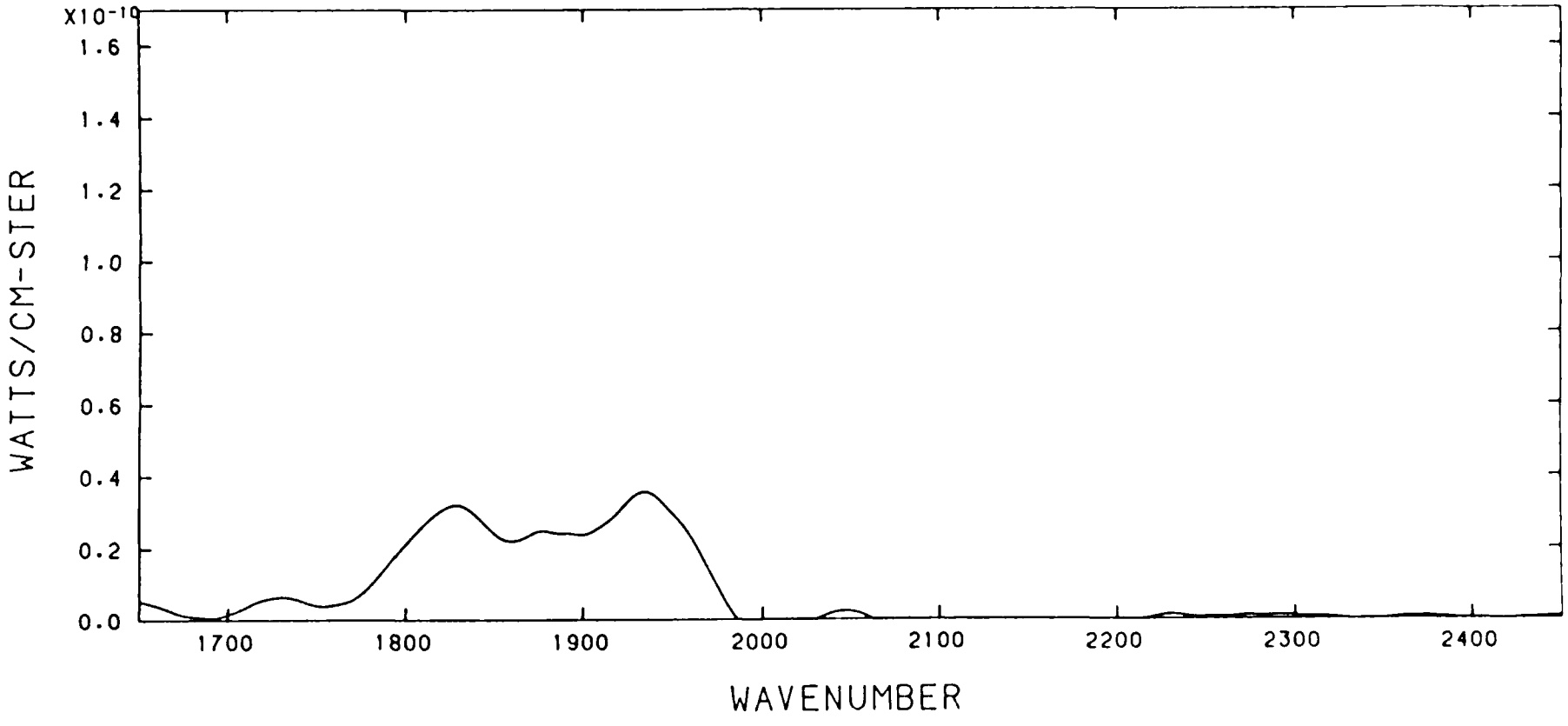
FILE 65, TIME 9: 9:27.632, ALT 139.3-139.3 KM

30-NOV-83 09:30



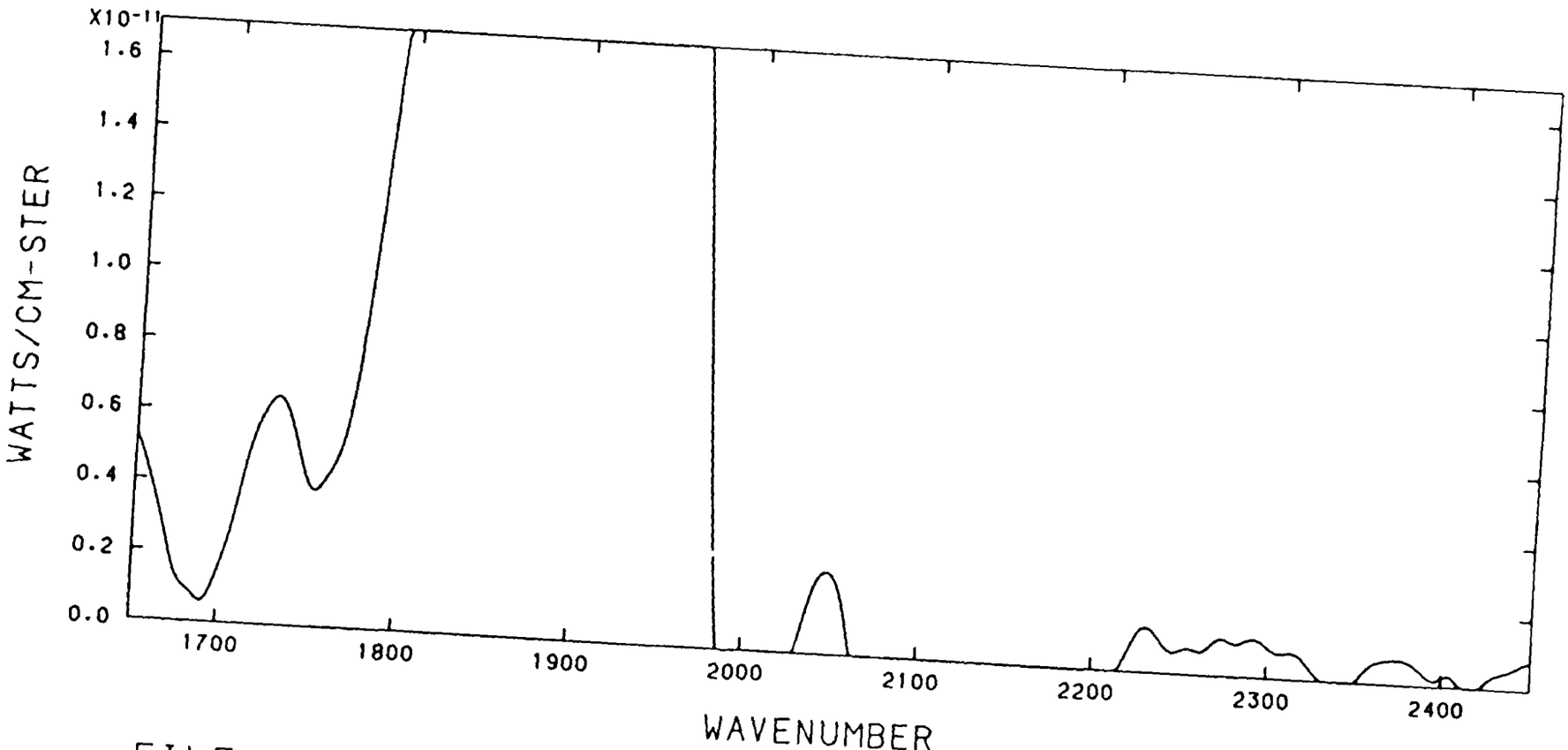
FILE 65, TIME 9: 9:27.632, ALT 139.3-139.3 KM

30-NOV-83 09:30



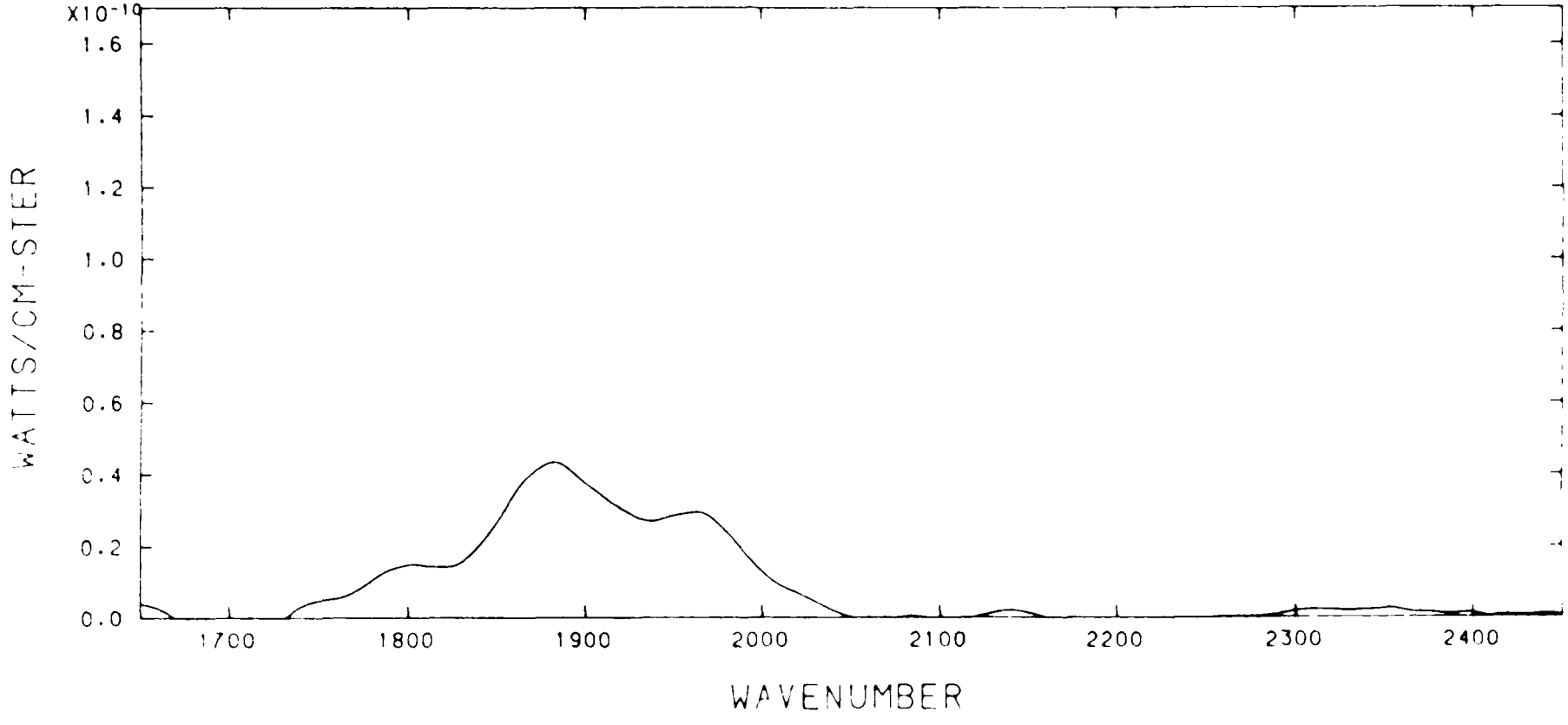
FILE 66, TIME 9: 9:30.424, ALT 139.3-139.3 KM

30-NOV-83 09:30



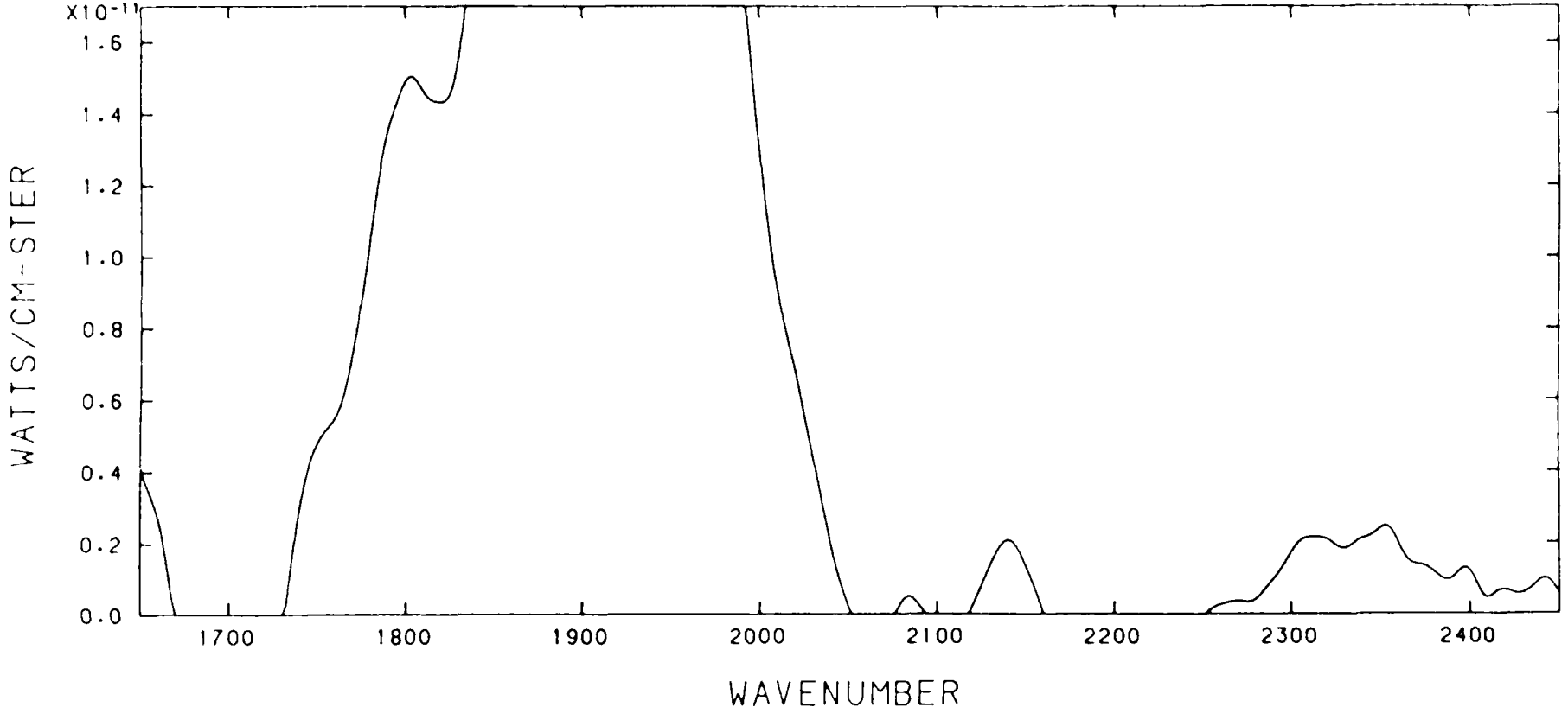
FILE 66, TIME 9: 9:30.424, ALT 139.3-139.3 KM

30-NOV-83 09:30



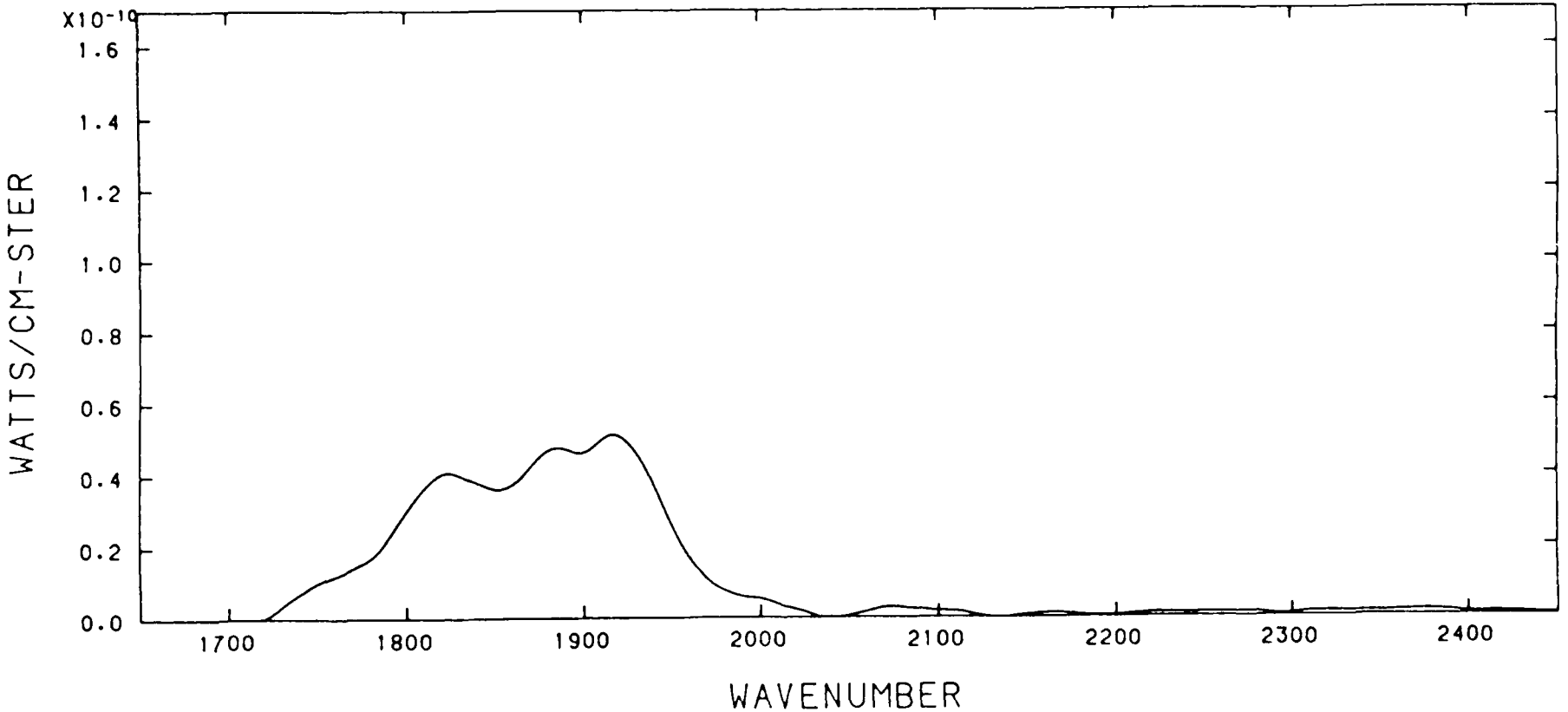
FILE 67, TIME 9: 9:30.926, ALT 139.3-139.3 KM

30-NOV-83 09:30



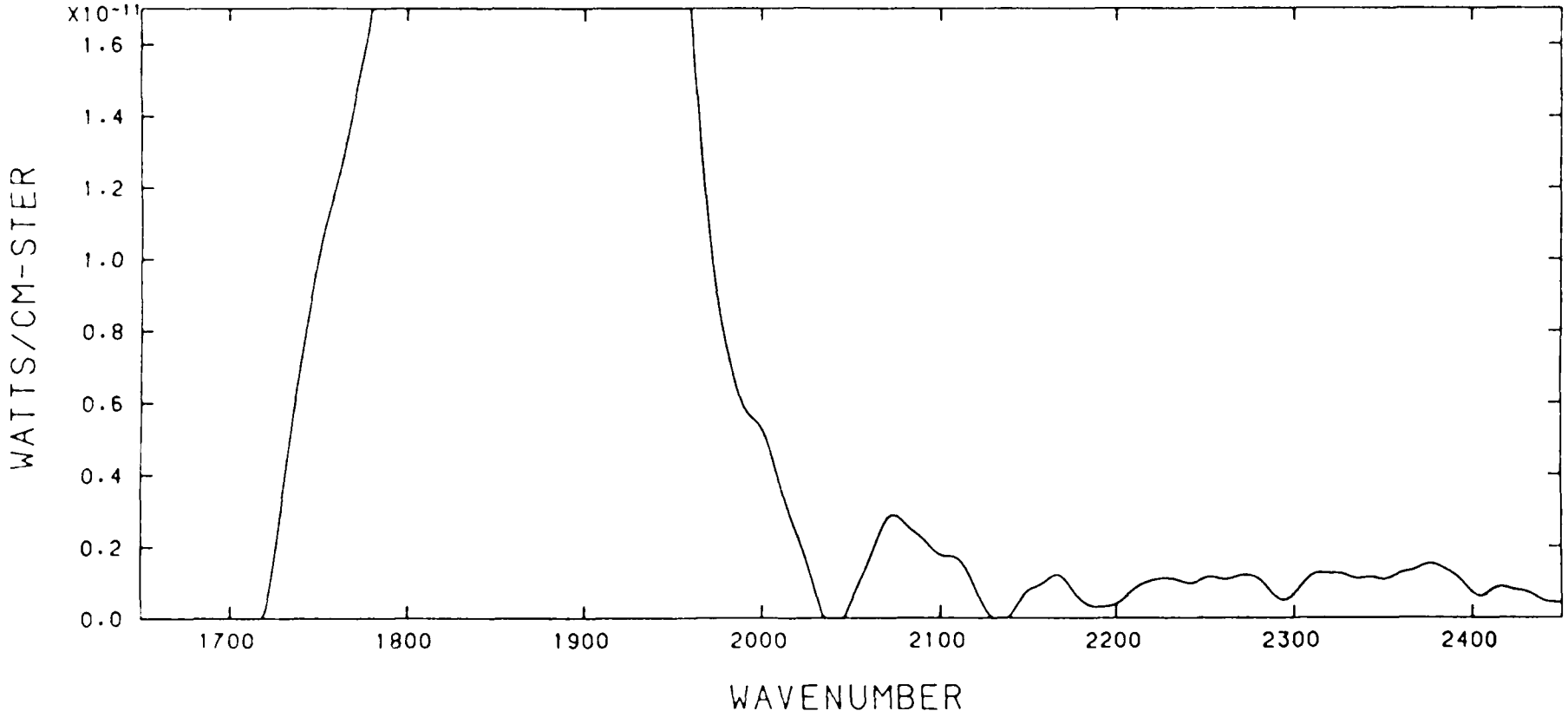
FILE 67, TIME 9: 9:30.926, ALT 139.3-139.3 KM

30-NOV-83 09:30



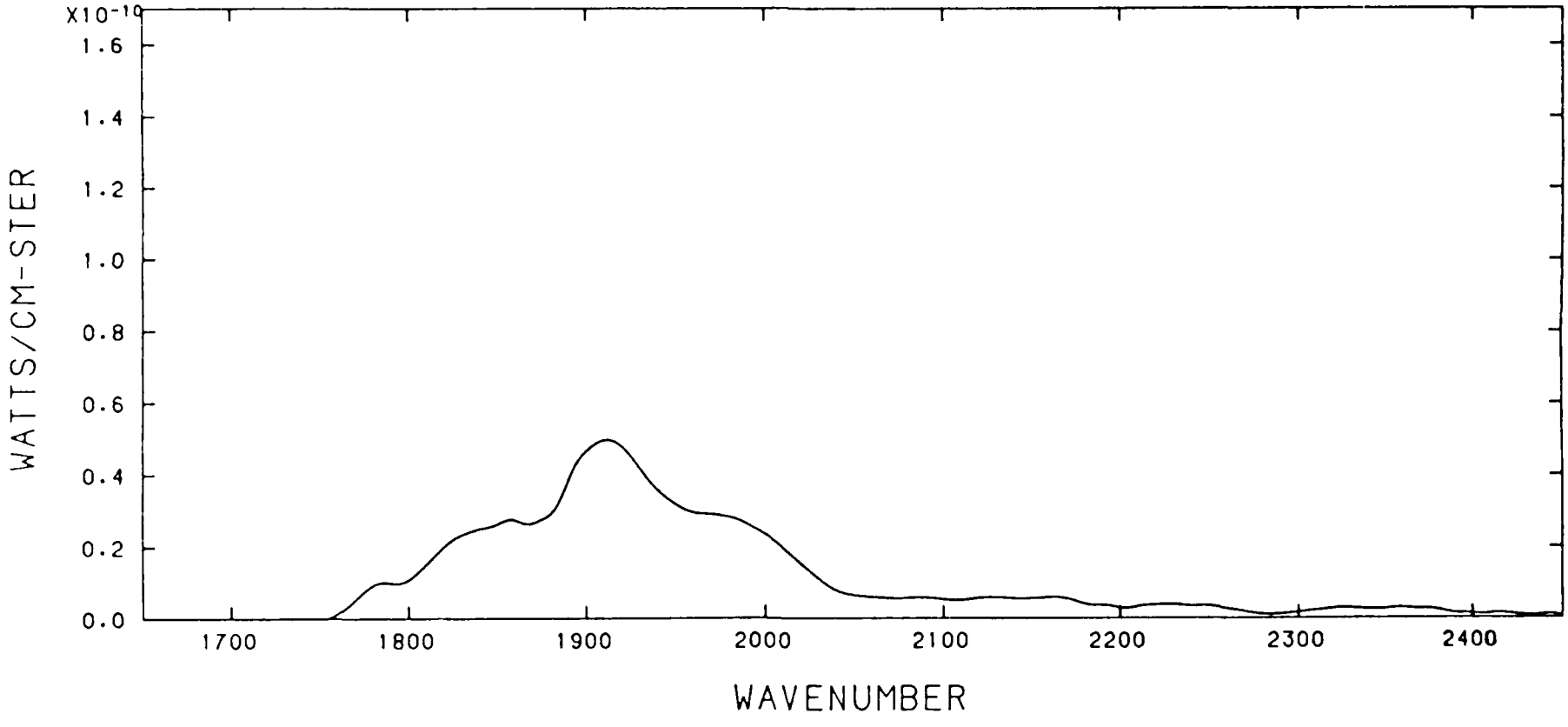
FILE 68, TIME 9: 9:33.704, ALT 139.2-139.2 KM

30-NOV-83 09:30



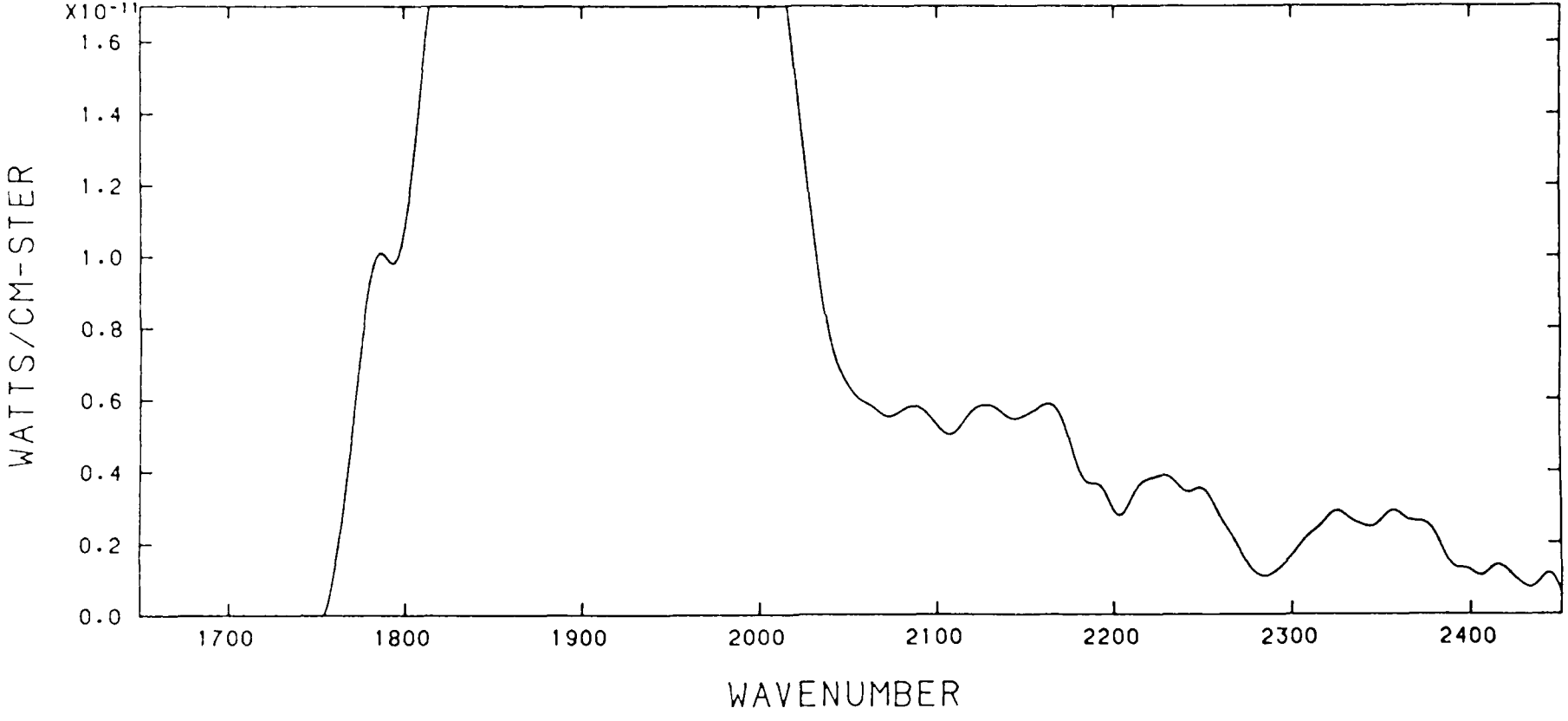
FILE 68, TIME 9: 9:33.704, ALT 139.2-139.2 KM

30-NOV-83 09:30



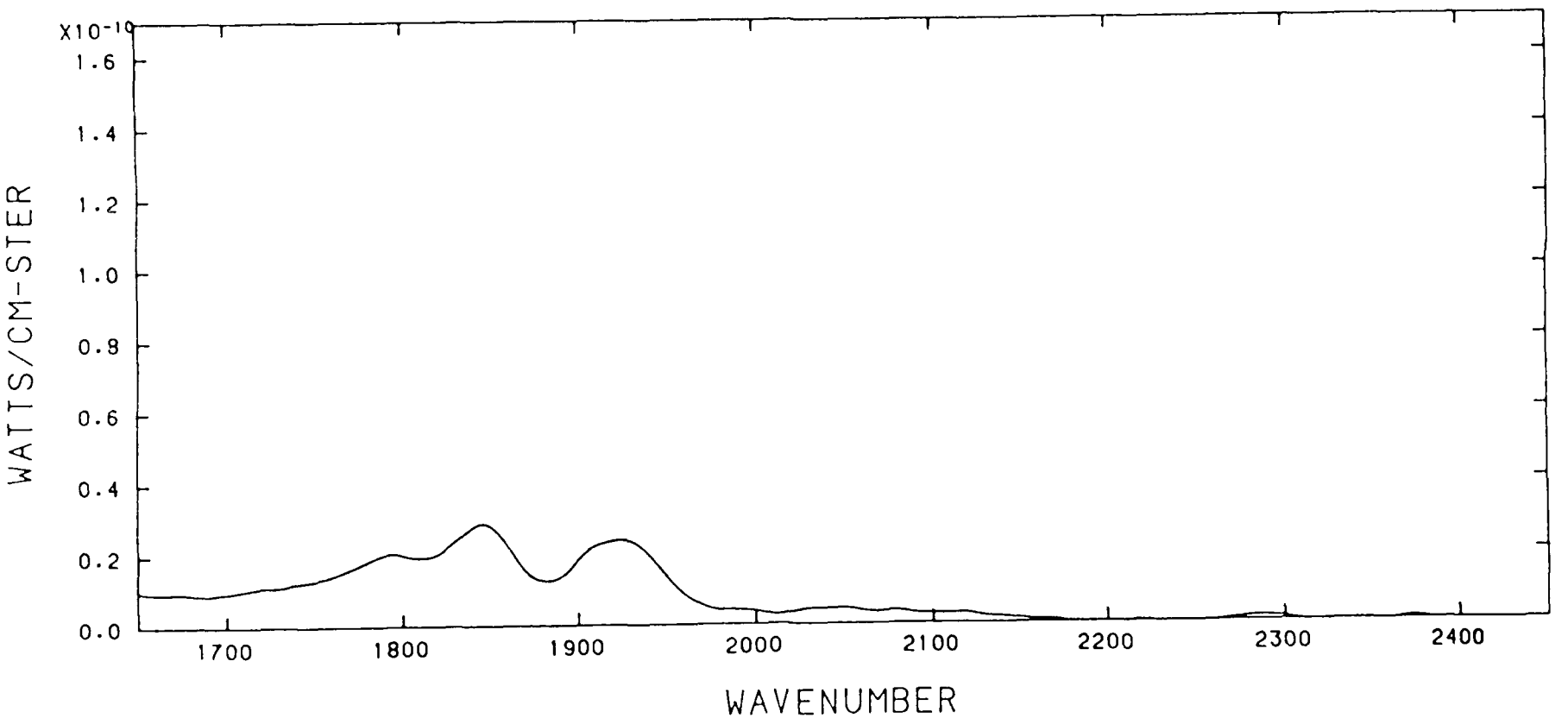
FILE 69, TIME 9: 9:34.210, ALT 139.2-139.2 KM

30-NOV-83 09:30



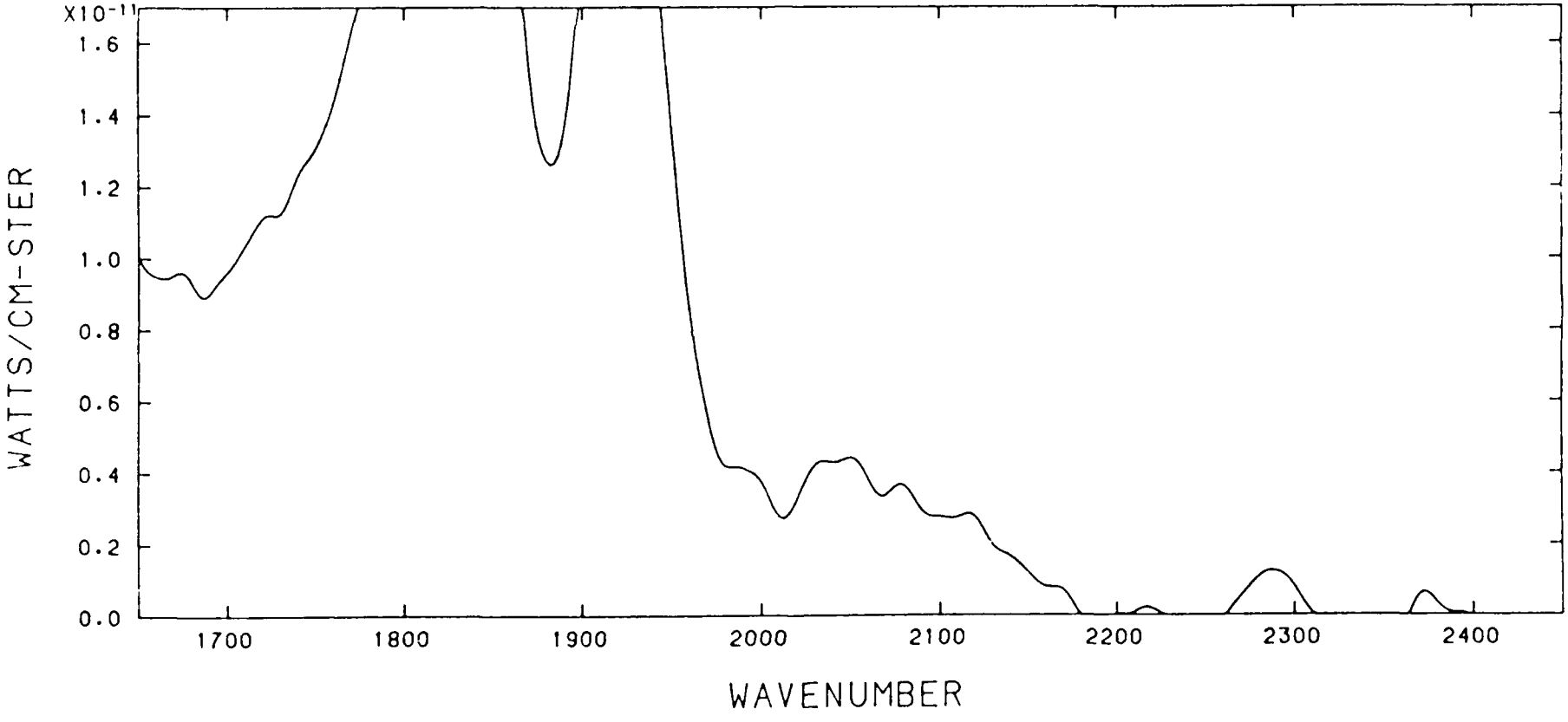
FILE 69, TIME 9: 9:34.210, ALT 139.2-139.2 KM

30-NOV-83 09:30



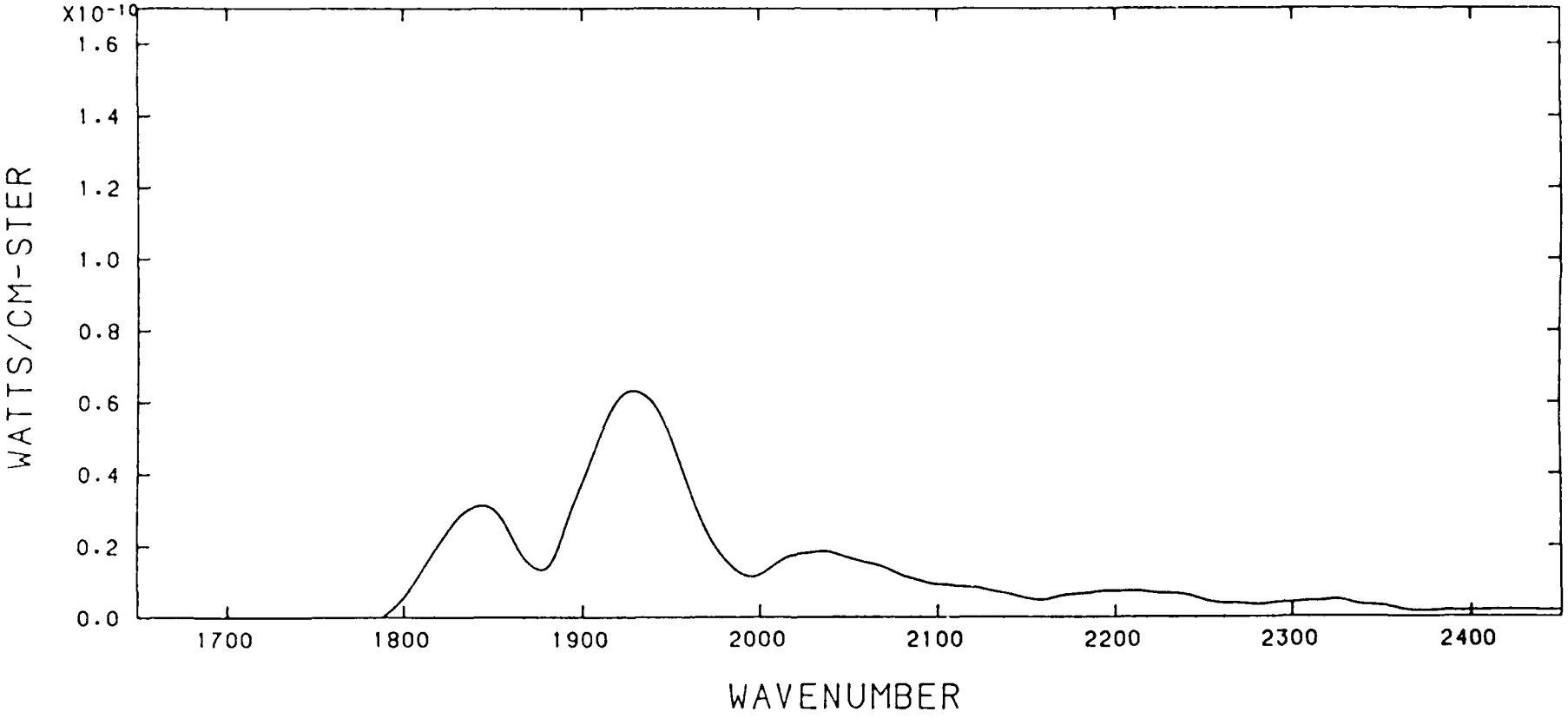
FILE 70, TIME 9: 9:36.998, ALT 139.1-139.1 KM

30-NOV-83 09:30



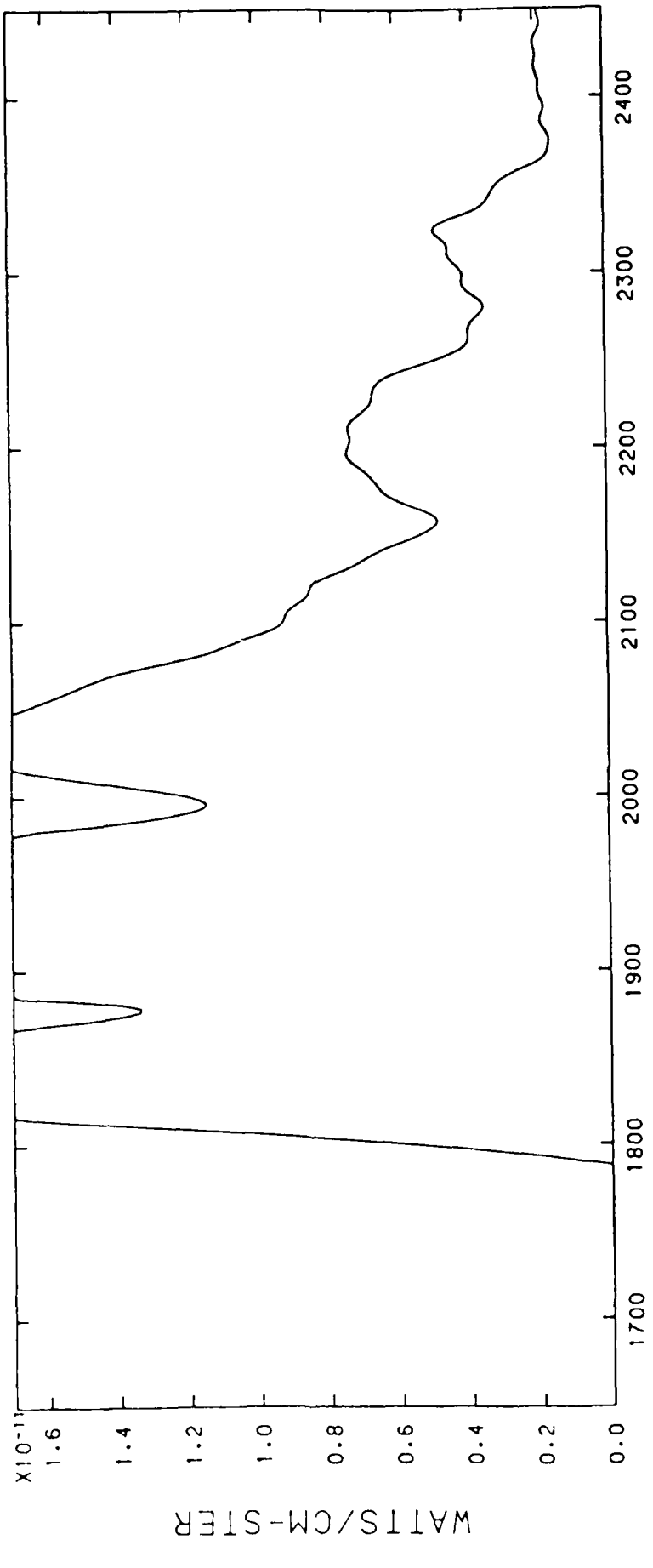
FILE 70, TIME 9: 9:36.998, ALT 139.1-139.1 KM

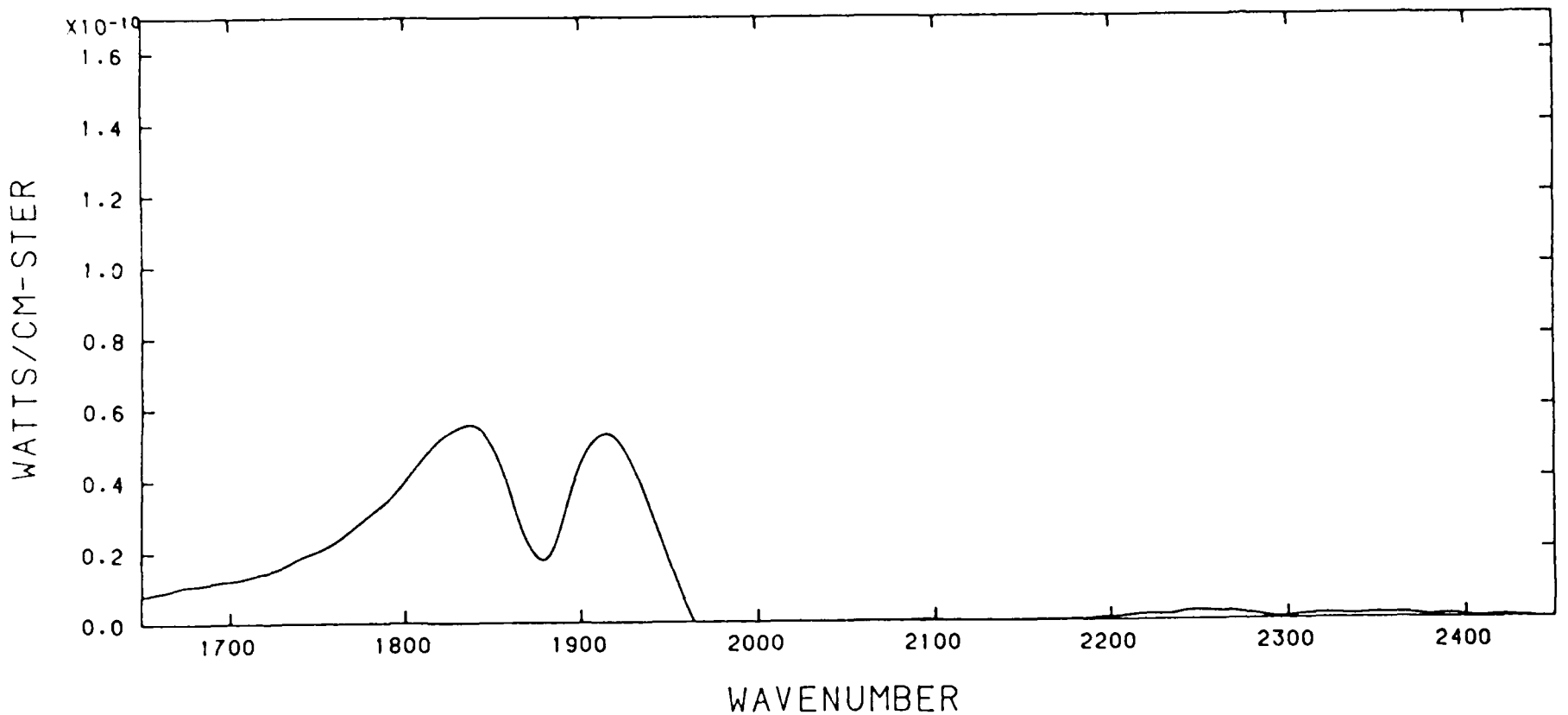
30-NOV-83 09:30



FILE 71, TIME 9: 9:37.502, ALT 139.0-139.0 KM

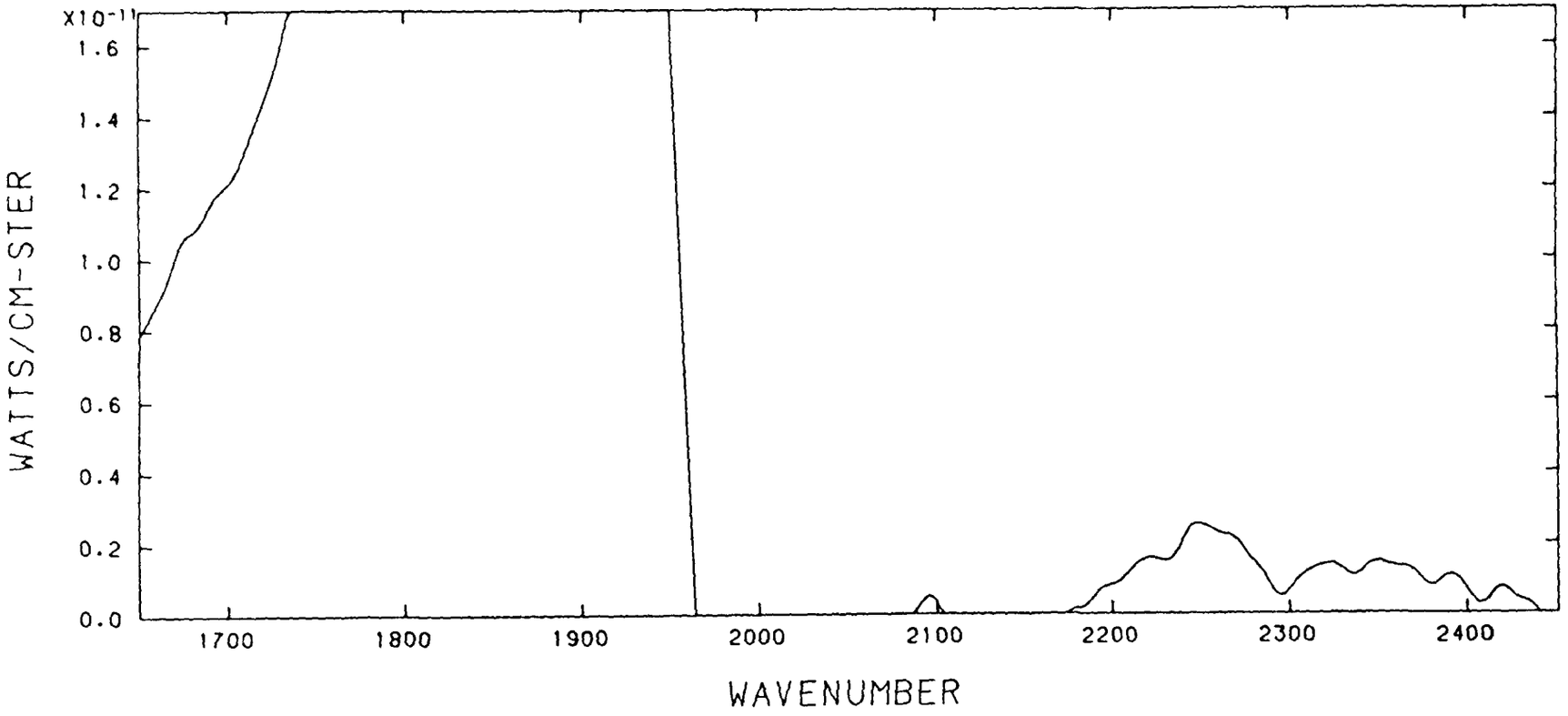
30-NOV-83 09:30


FILE 71, TIME 9: 9:37.502, ALT 139.0-139.0 KM
WAVENUMBER
1700
1800
1900
2000
2100
2200
2300
2400
WATTS/CM-STER
X10⁻¹¹
0.0
0.2
0.4
0.6
0.8
1.0
1.2
1.4
1.6
30-NOV-83 09:30



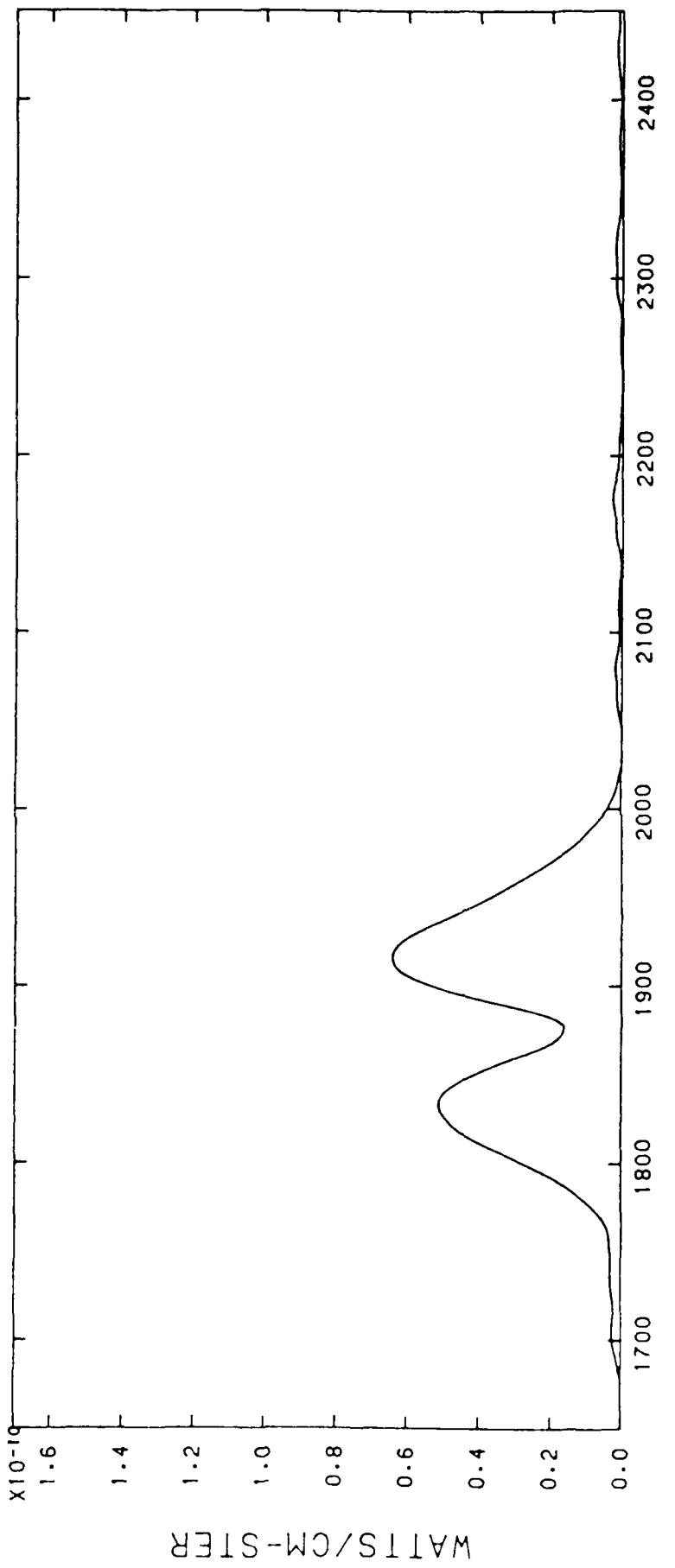
FILE 72, TIME 9: 9:40.278, ALT 138.8-138.8 KM

30-NOV-83 09:31



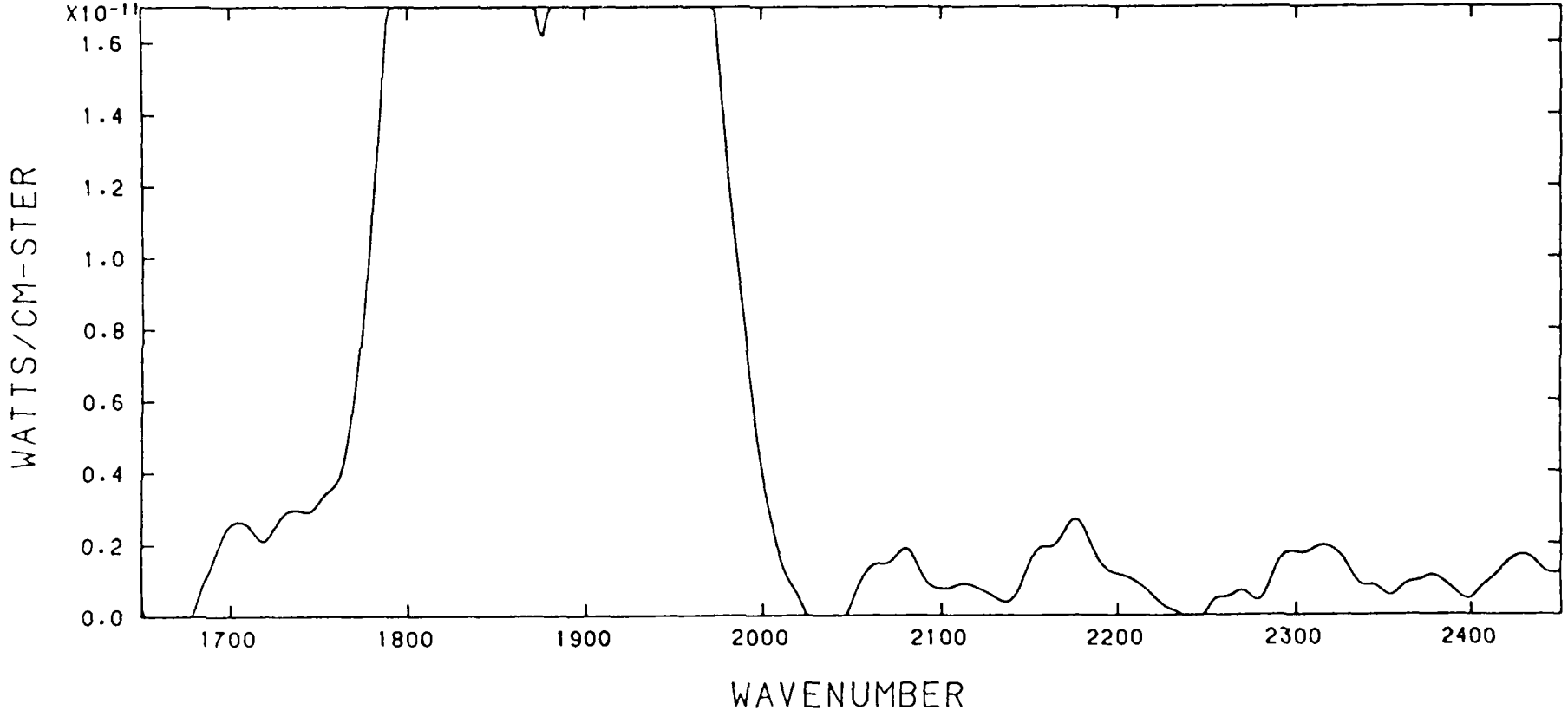
FILE 72, TIME 9: 9:40.278, ALT 138.8-138.8 KM

30-NOV-83 09:31



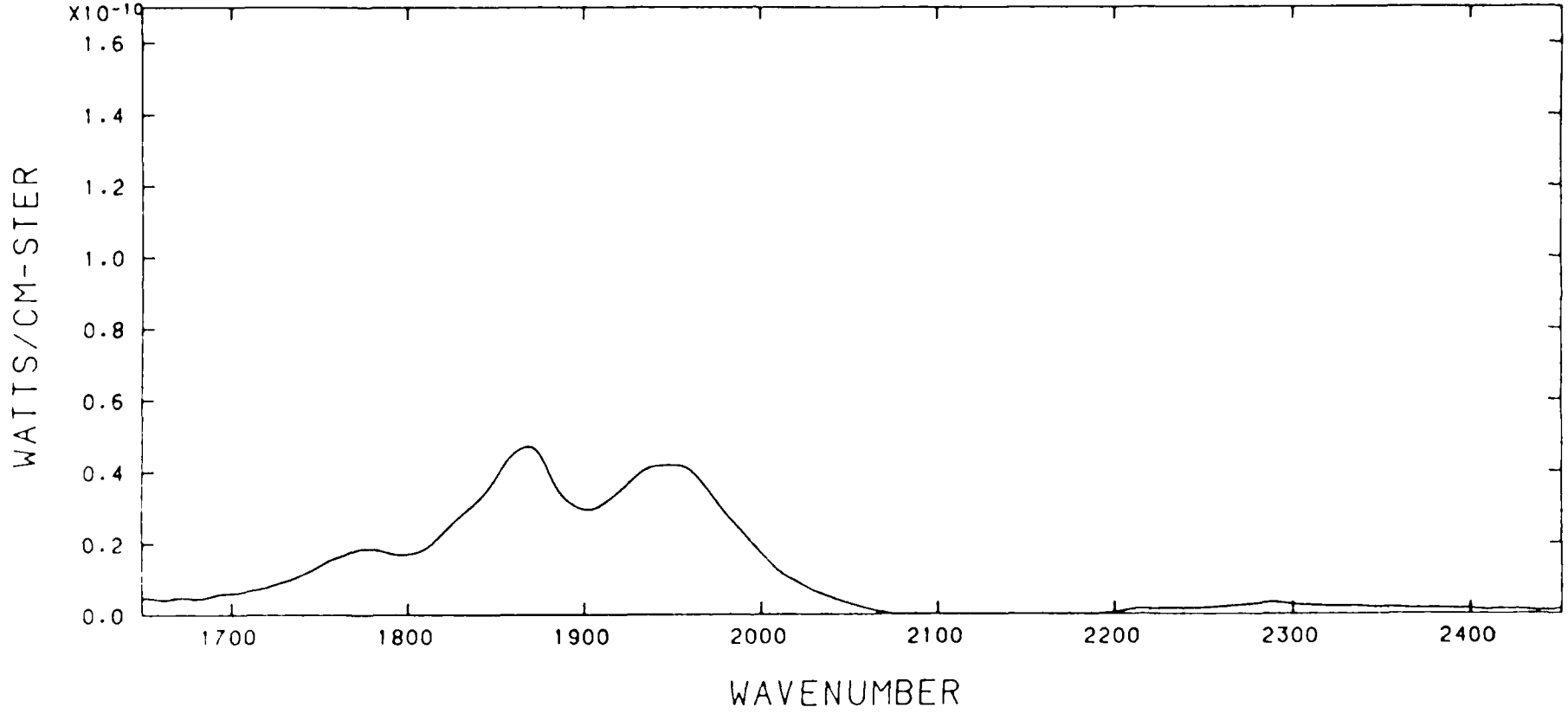
FILE 73, TIME 9: 9:40.774, ALT 138.8-138.7 KM

30-NOV-83 09:31



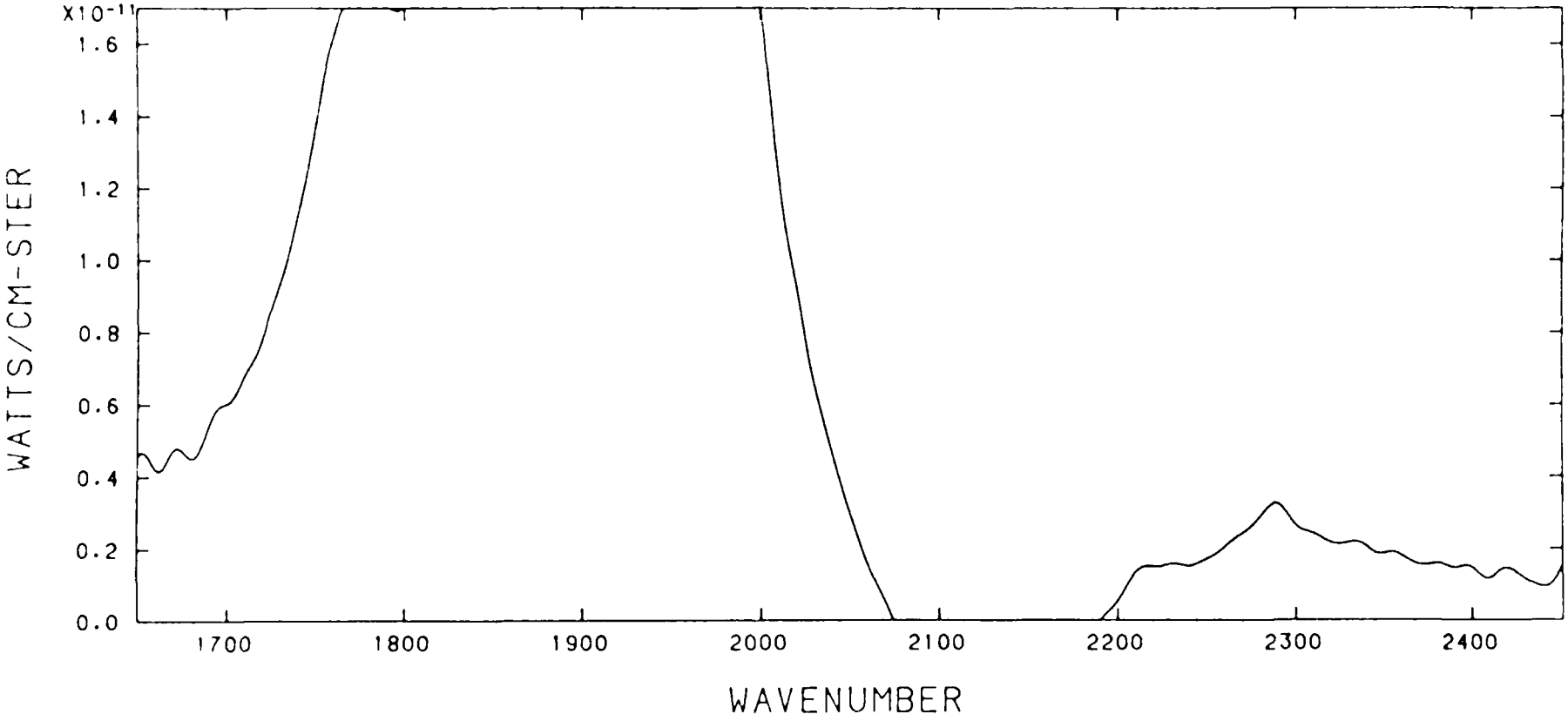
FILE 73, TIME 9: 9:40.774, ALT 138.8-138.7 KM

30-NOV-83 09:31



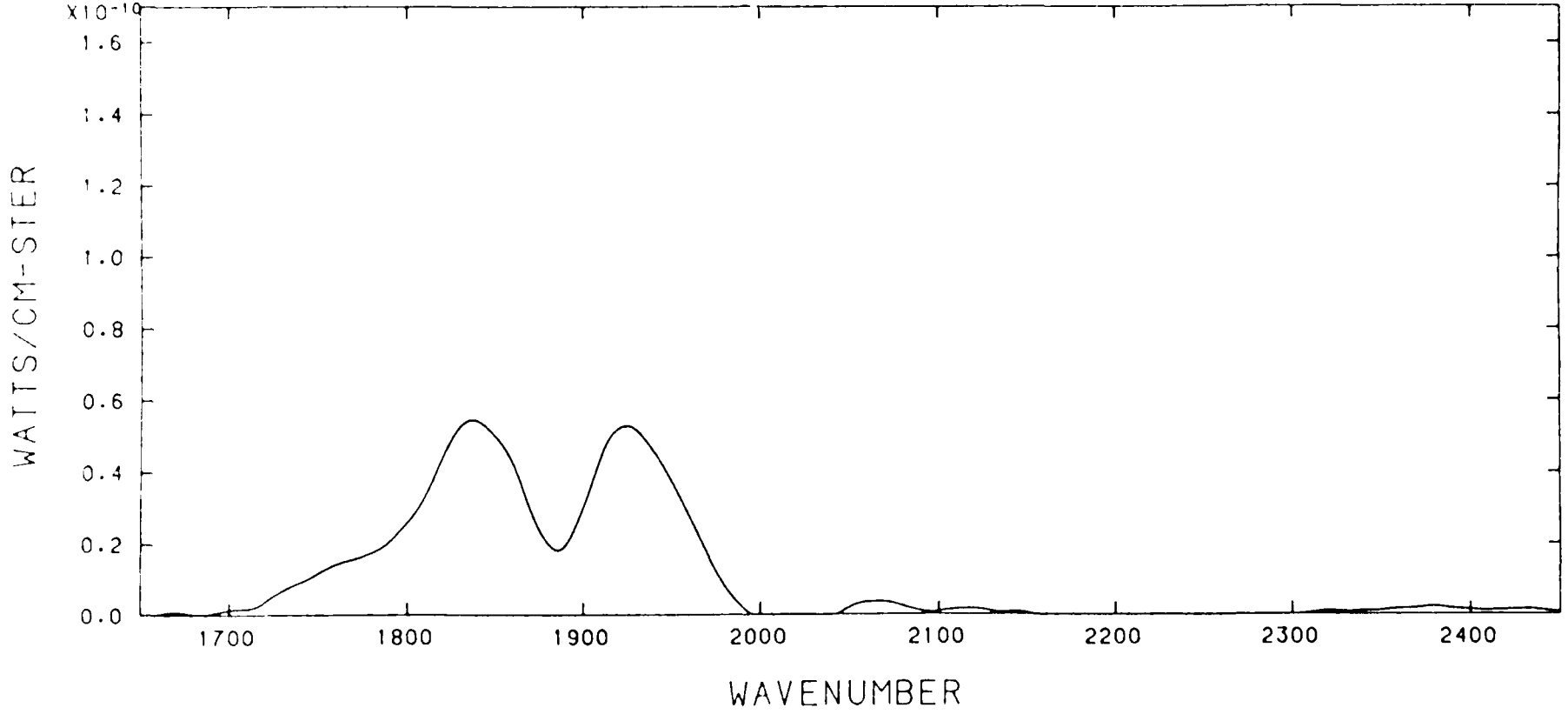
FILE 74, TIME 9: 9:43.554, ALT 138.5-138.4 KM

30-NOV-83 09:31



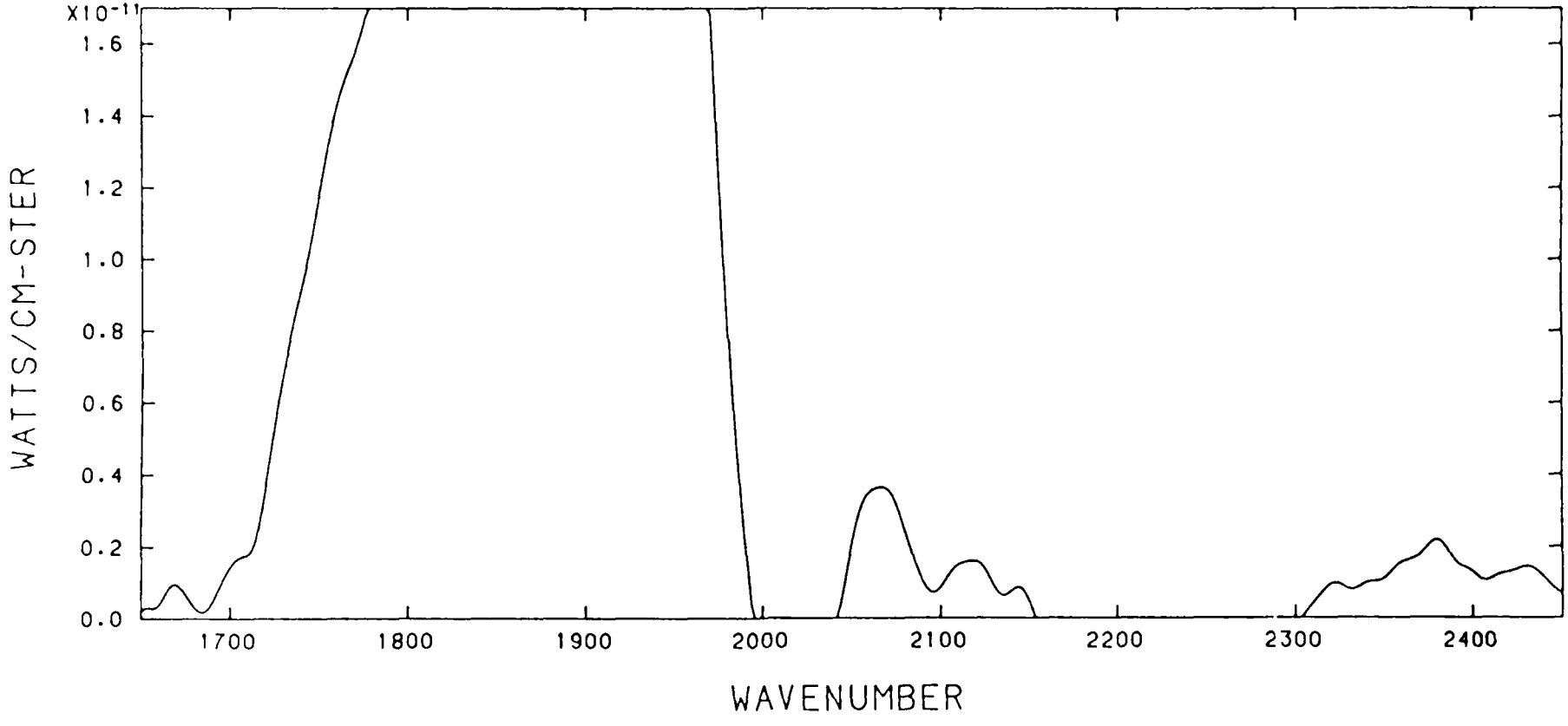
FILE 74, TIME 9: 9:43.554, ALT 138.5-138.4 KM

30-NOV-83 09:31



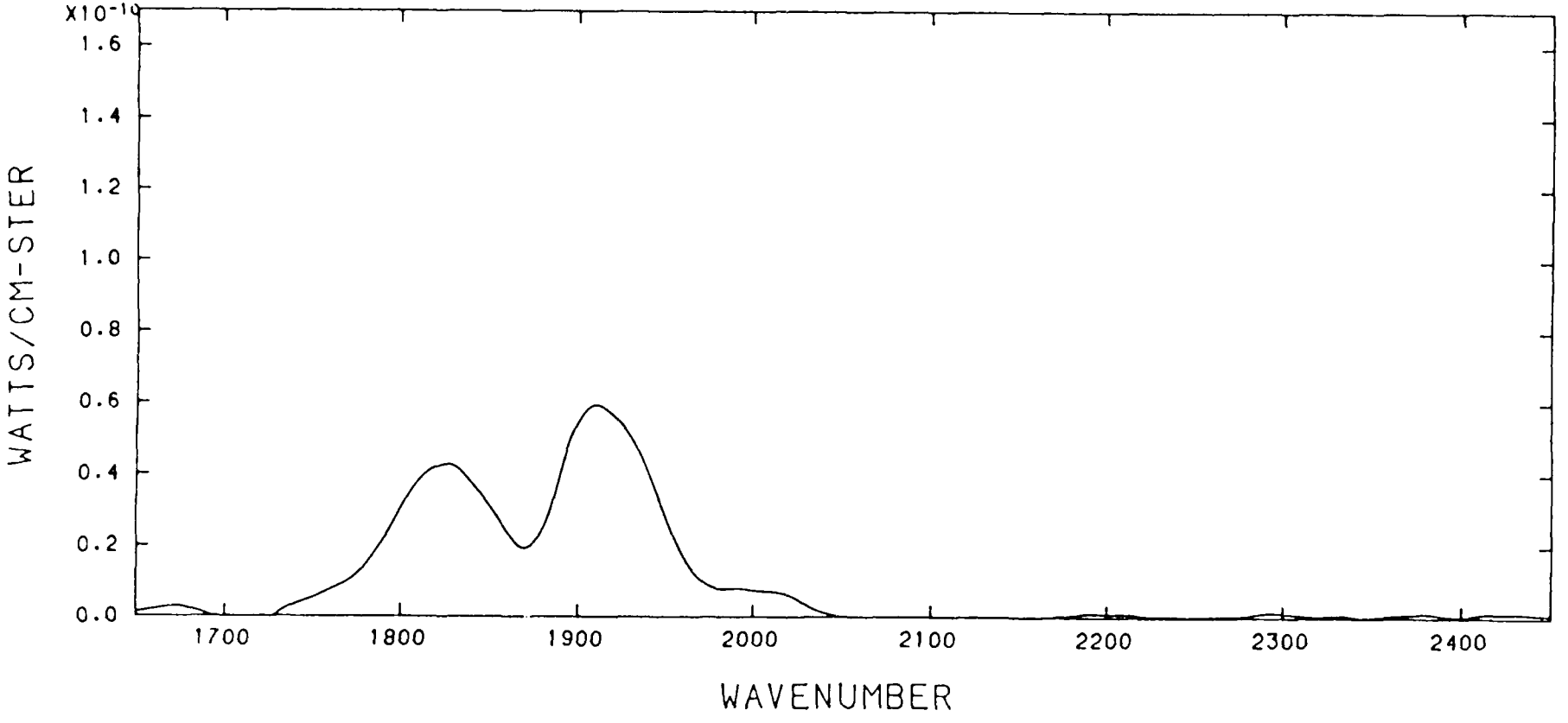
FILE 75, TIME 9: 9:44. 54, ALT 138.4-138.3 KM

30-NOV-83 09:31



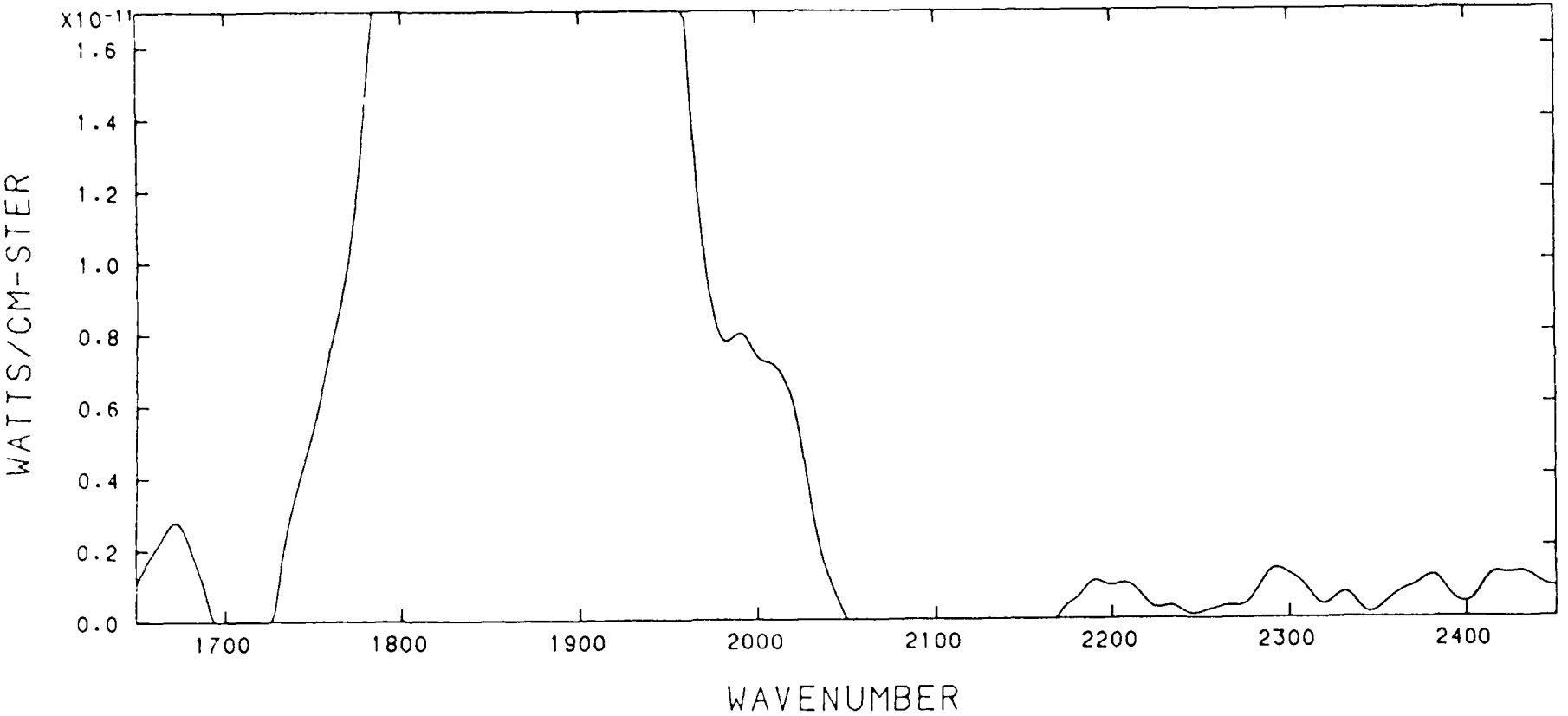
FILE 75, TIME 9: 9:44. 54, ALT 138.4-138.3 KM

30-NOV-83 09:31



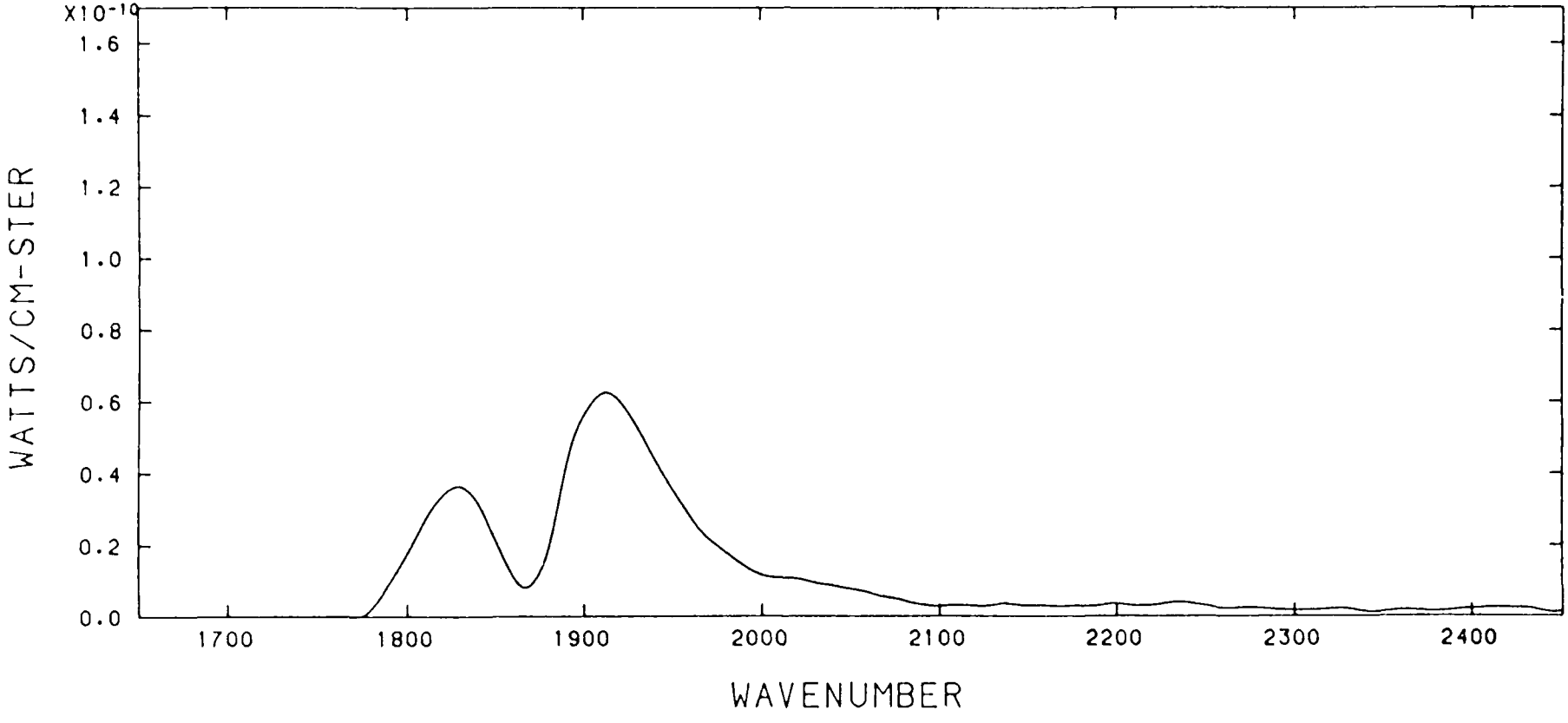
FILE 76, TIME 9: 9:46.822, ALT 138.0-137.9 KM

30-NOV-83 09:31



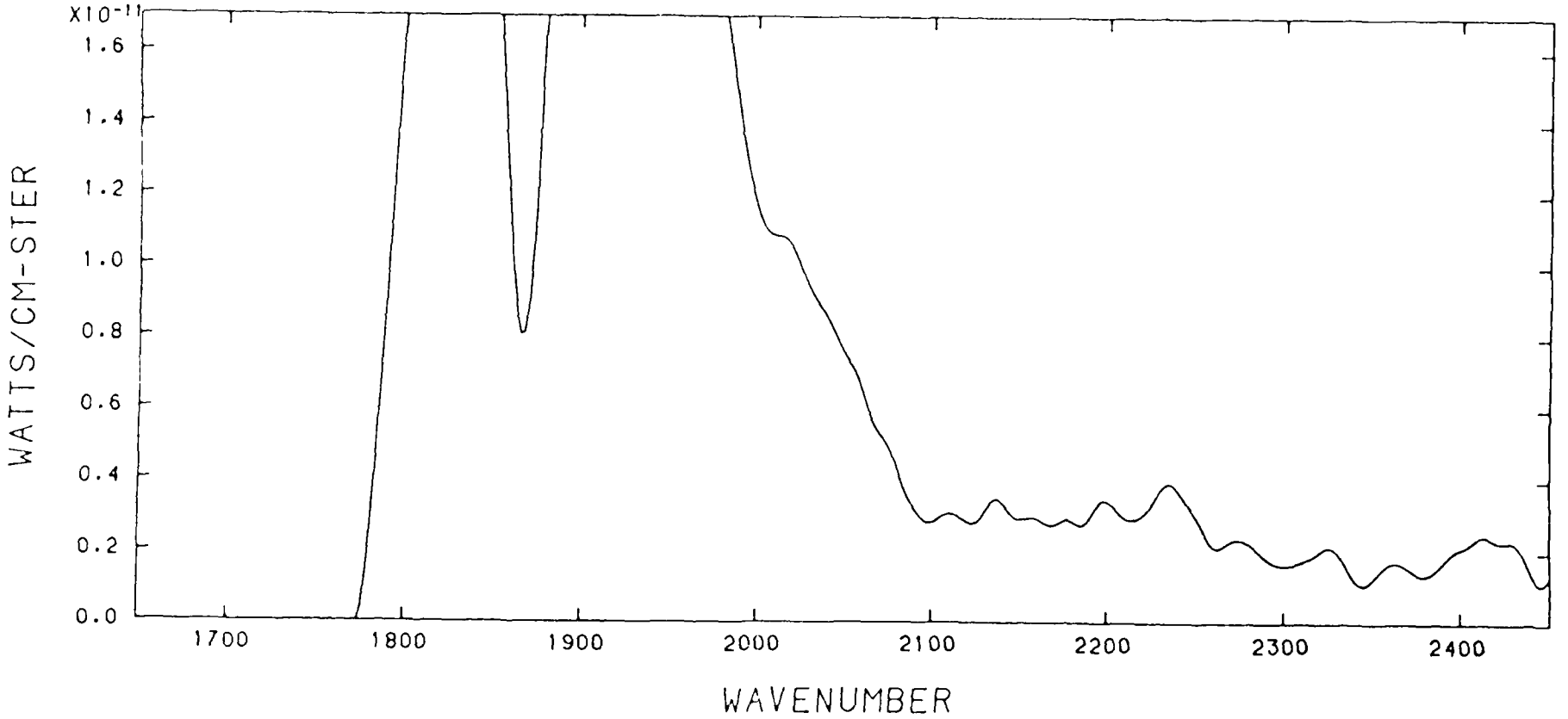
FILE 76, TIME 9: 9:46.822, ALT 138.0-137.9 KM

30-NOV-83 09:31



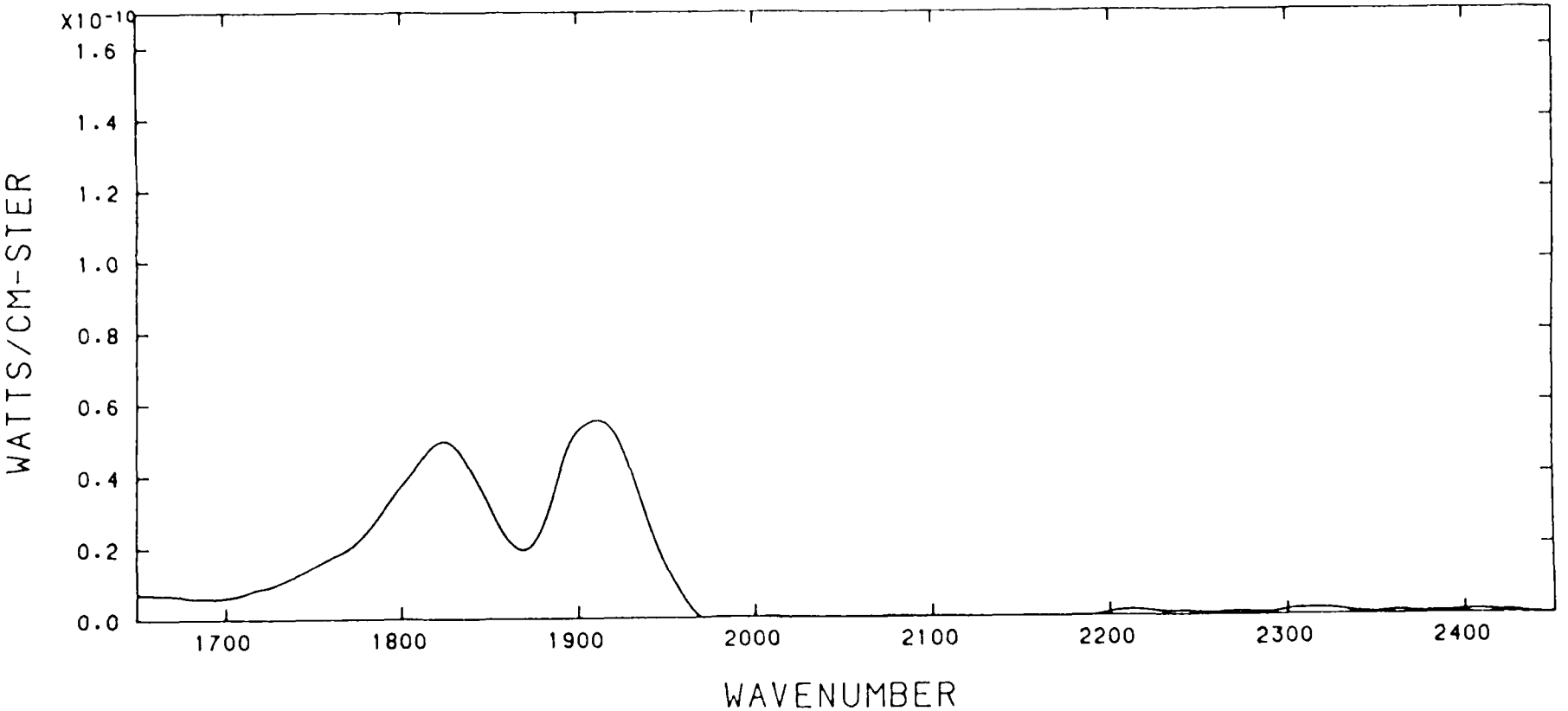
FILE 77, TIME 9: 9:47.320, ALT 137.9-137.9 KM

30-NOV-83 09:31



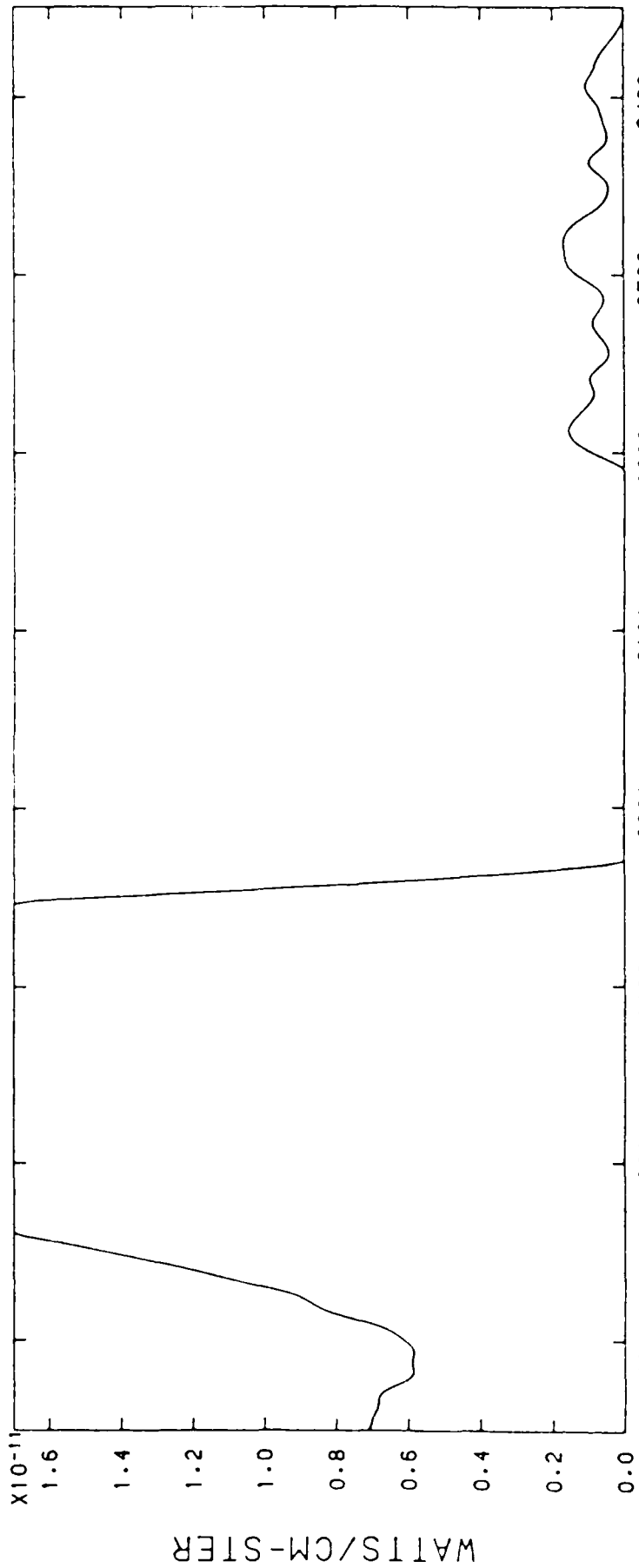
FILE 77, TIME 9: 9:47.320, ALT 137.9-137.9 KM

30-NOV-83 09:31



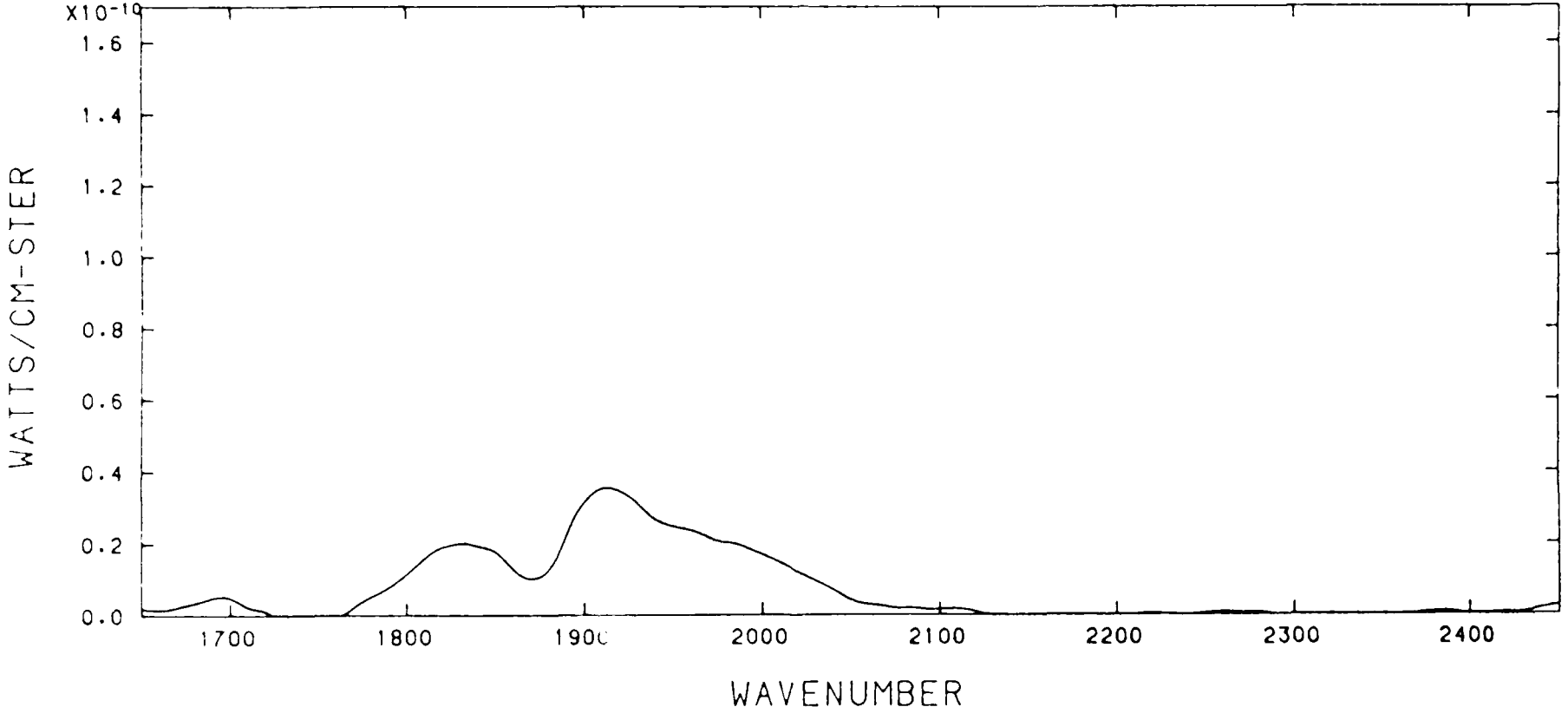
FILE 78, TIME 9: 9:50. 92, ALT 137.4-137.4 KM

30-NOV-83 09:31



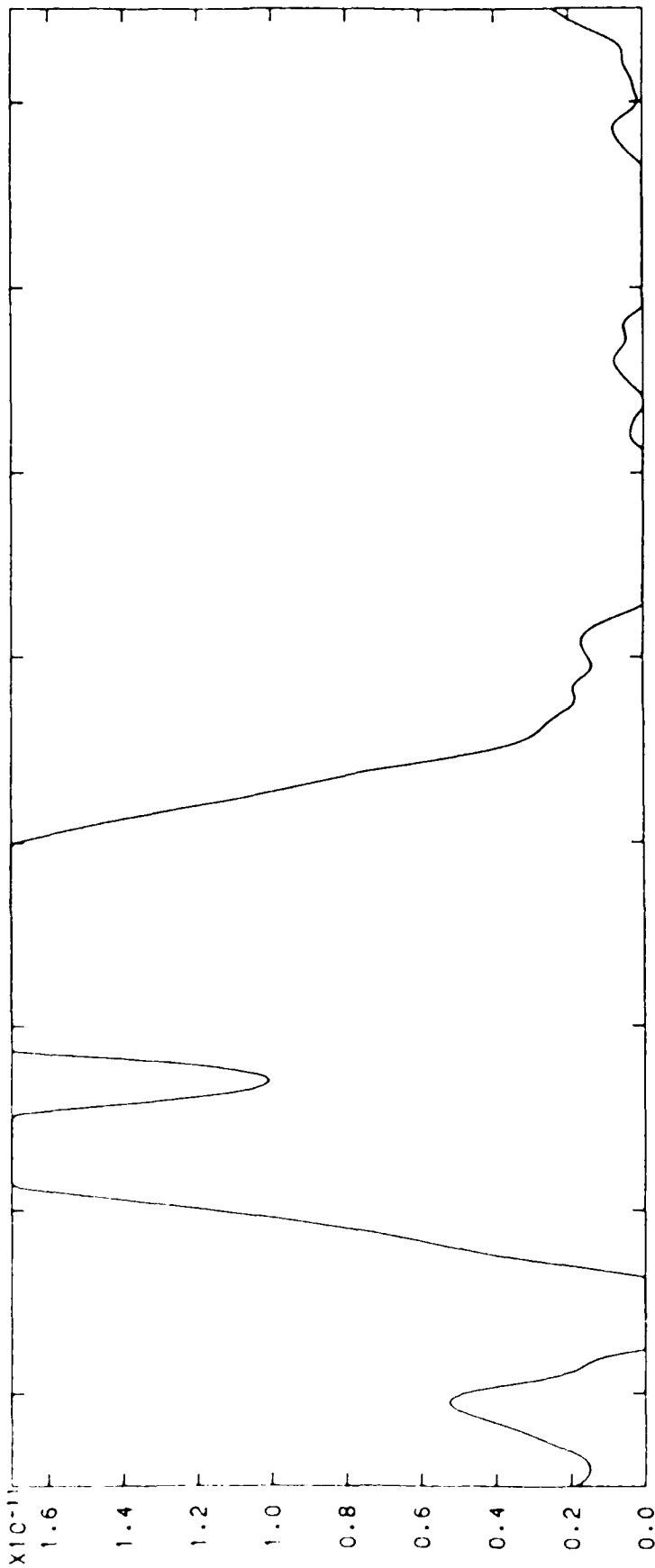
FILE 78, TIME 9: 9:50. 92, ALT 137.4-137.4 KM

30-NOV-83 08:31



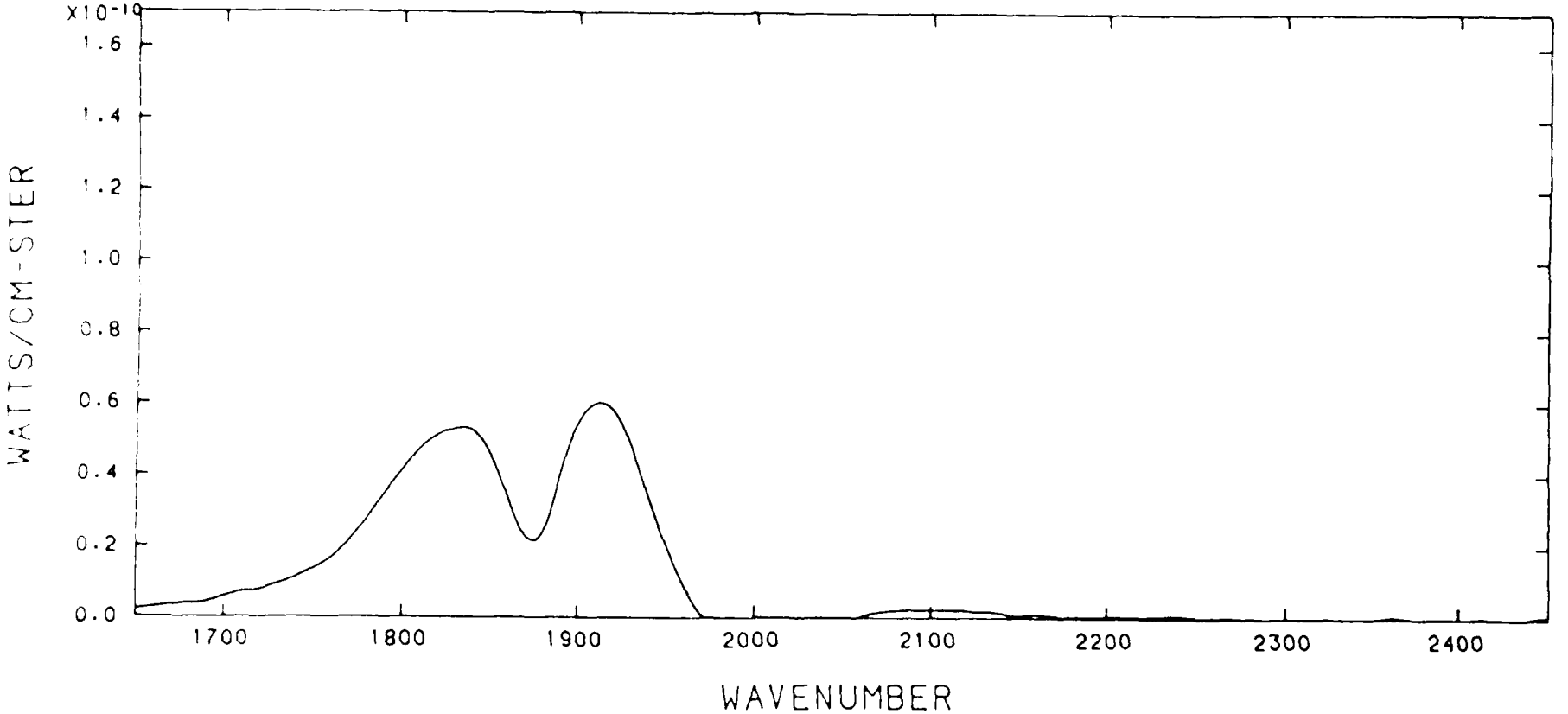
FILE 79, TIME 9: 9:50.594, ALT 137.3-137.3 KM

30-NOV-83 09:31



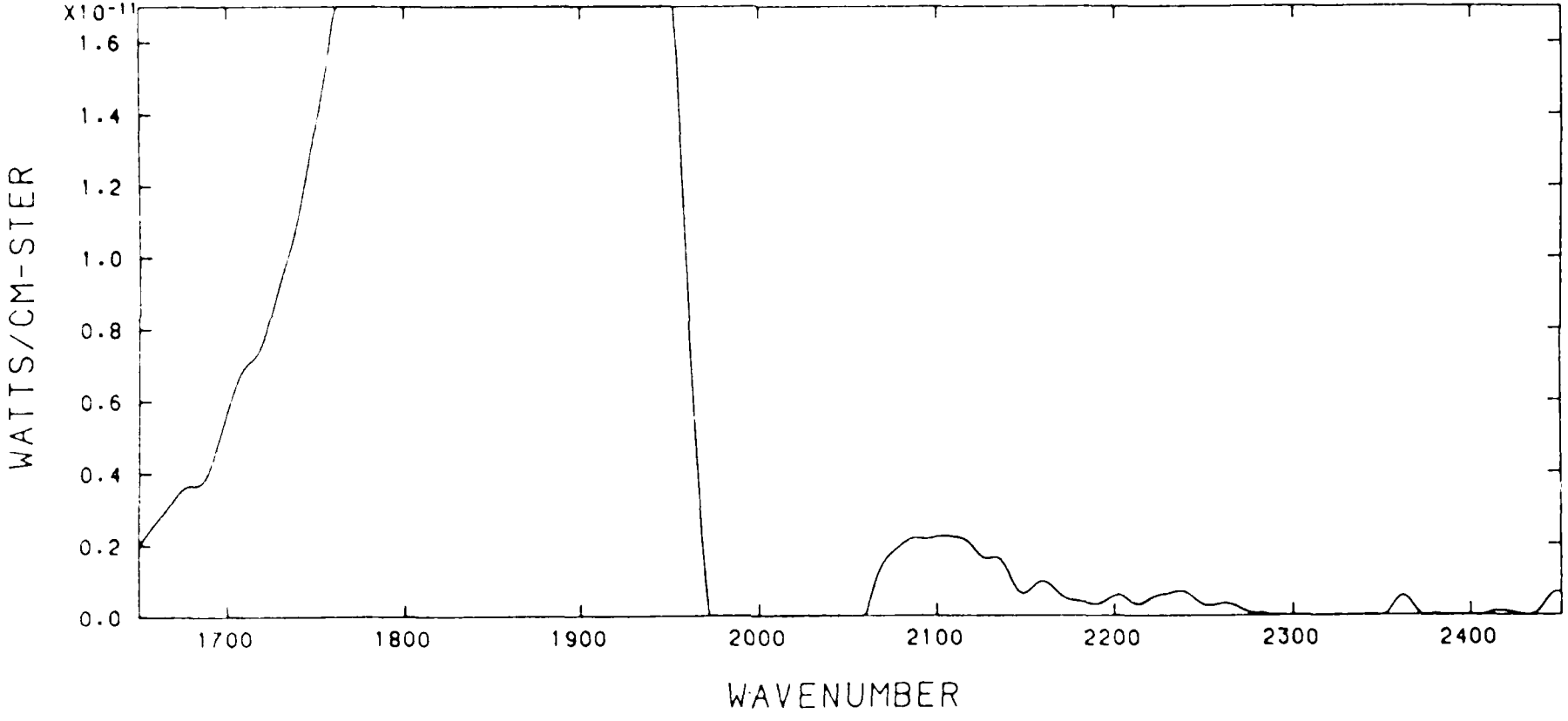
FILE 79, TIME 9: 9:50.594, ALT 137.3-137.3 KM

30-NOV-83 09:31



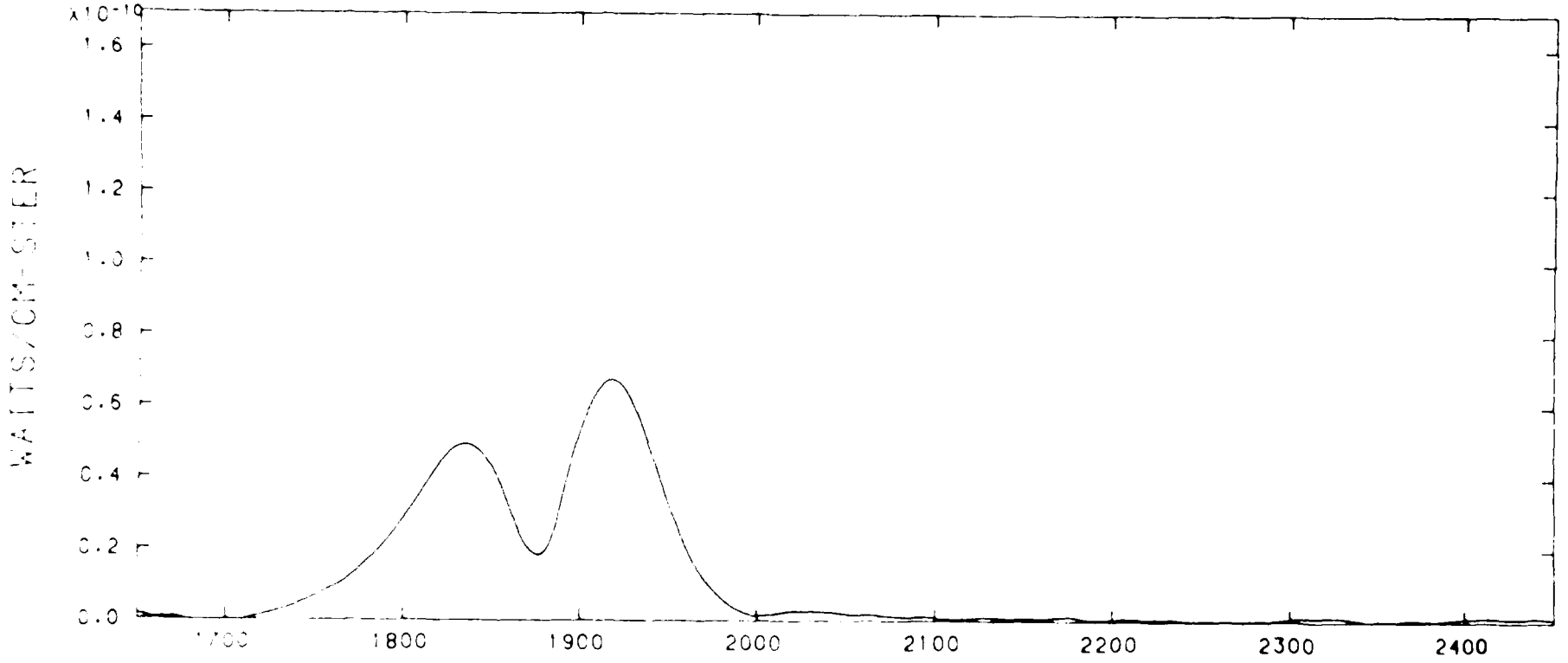
FILE 80, TIME 9: 9:53.374, ALT 136.8-136.7 KM

30-NOV-83 09:31



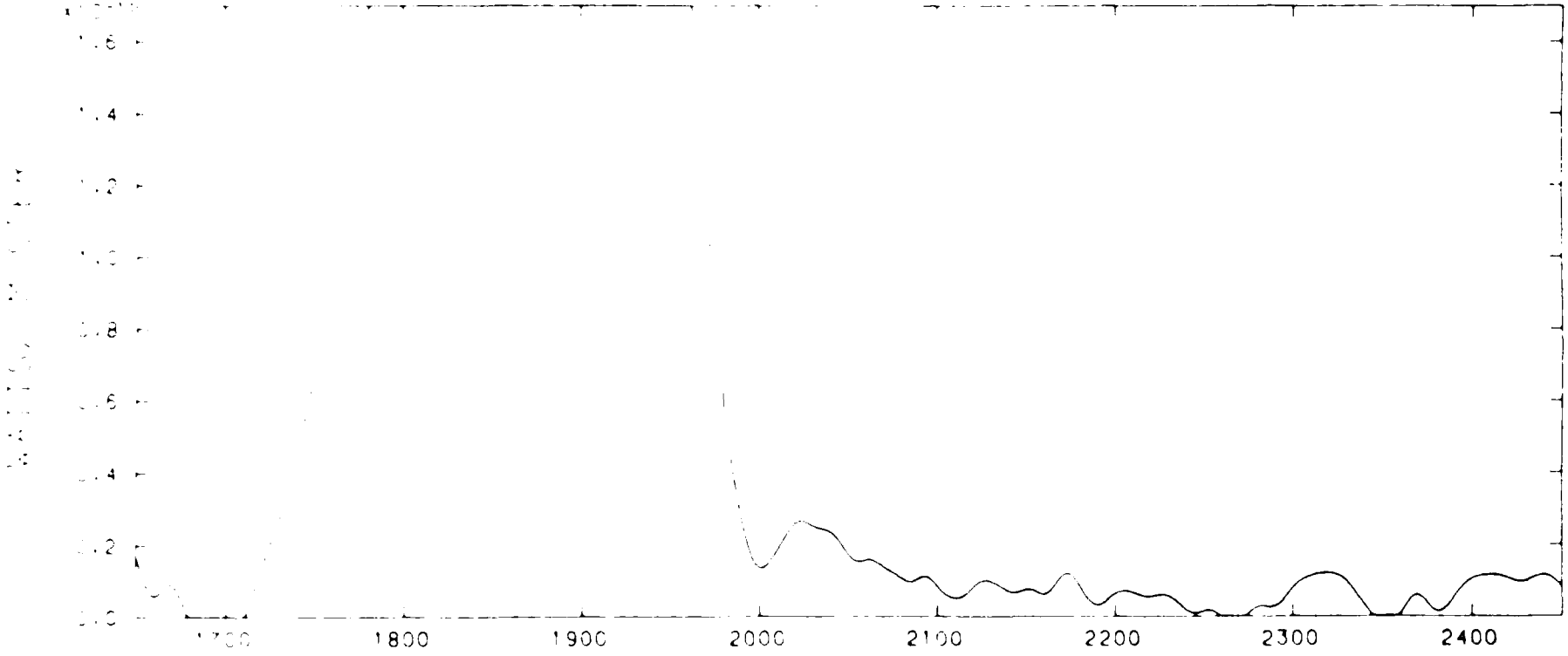
FILE 80, TIME 9: 9:53.374, ALT 136.8-136.7 KM

30-NOV-83 09:31

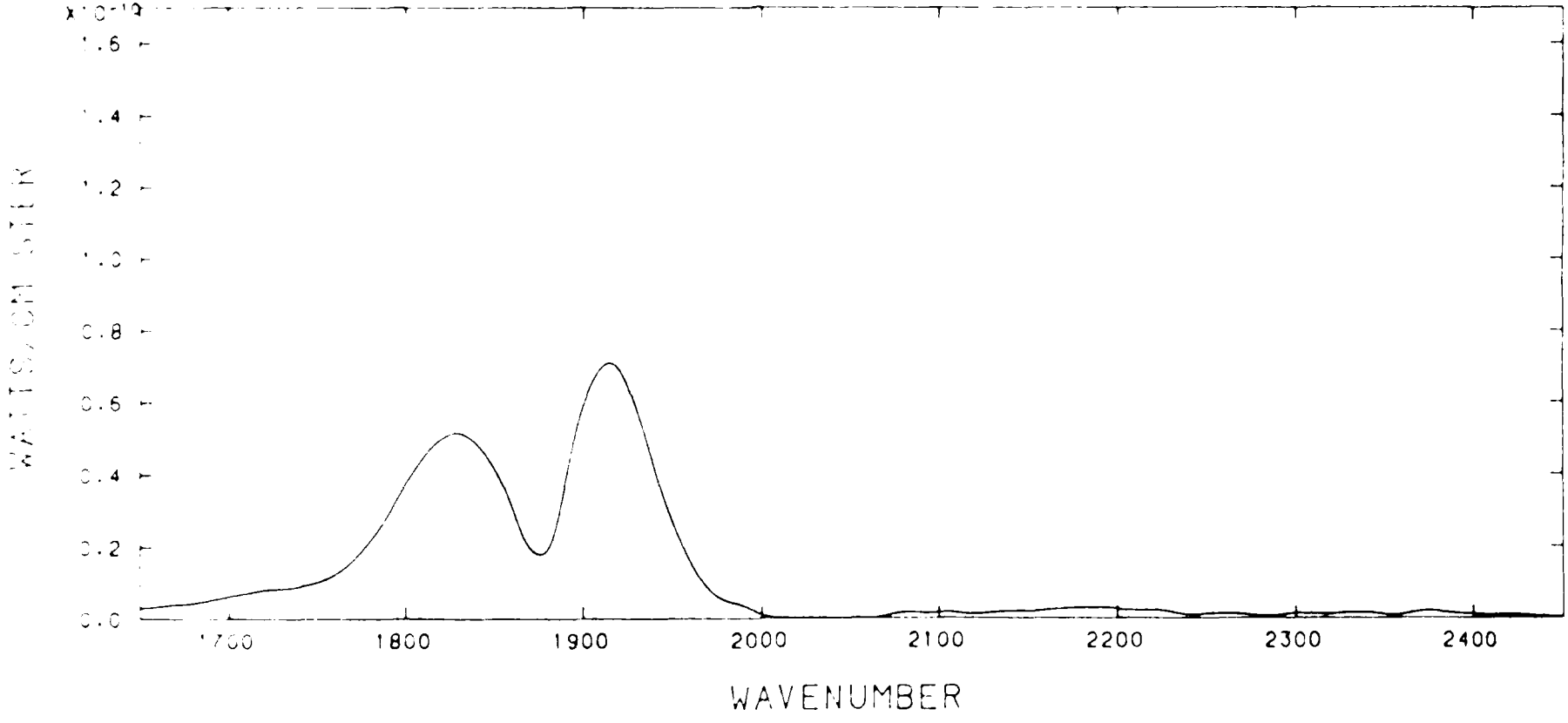


FILE 8', TIME 9: 9:53.872, ALT 136.7-136.6 KM

30-NOV-83 09:3[illegible]

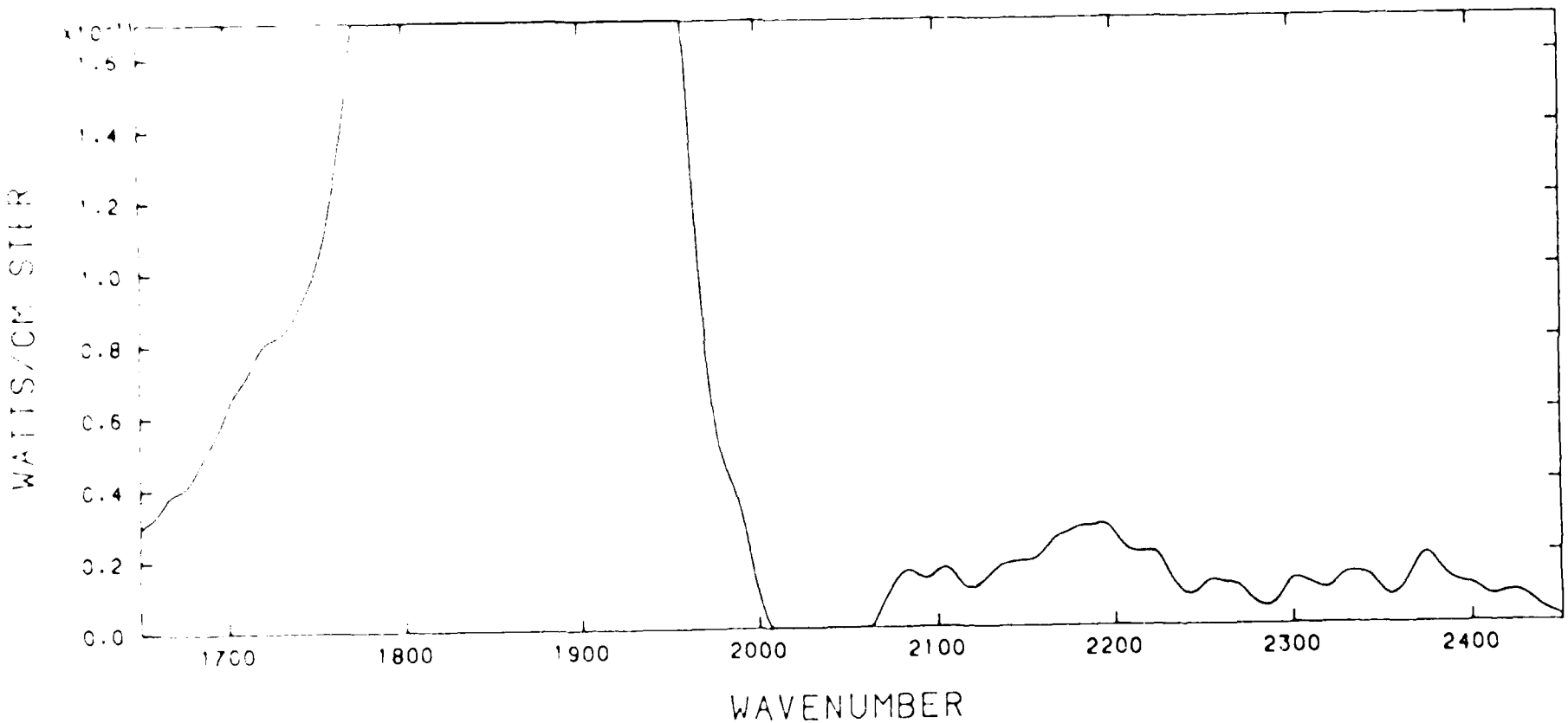


FILE 81, TIME 9: 9:53.872, ALT 136.7-136.6 KM



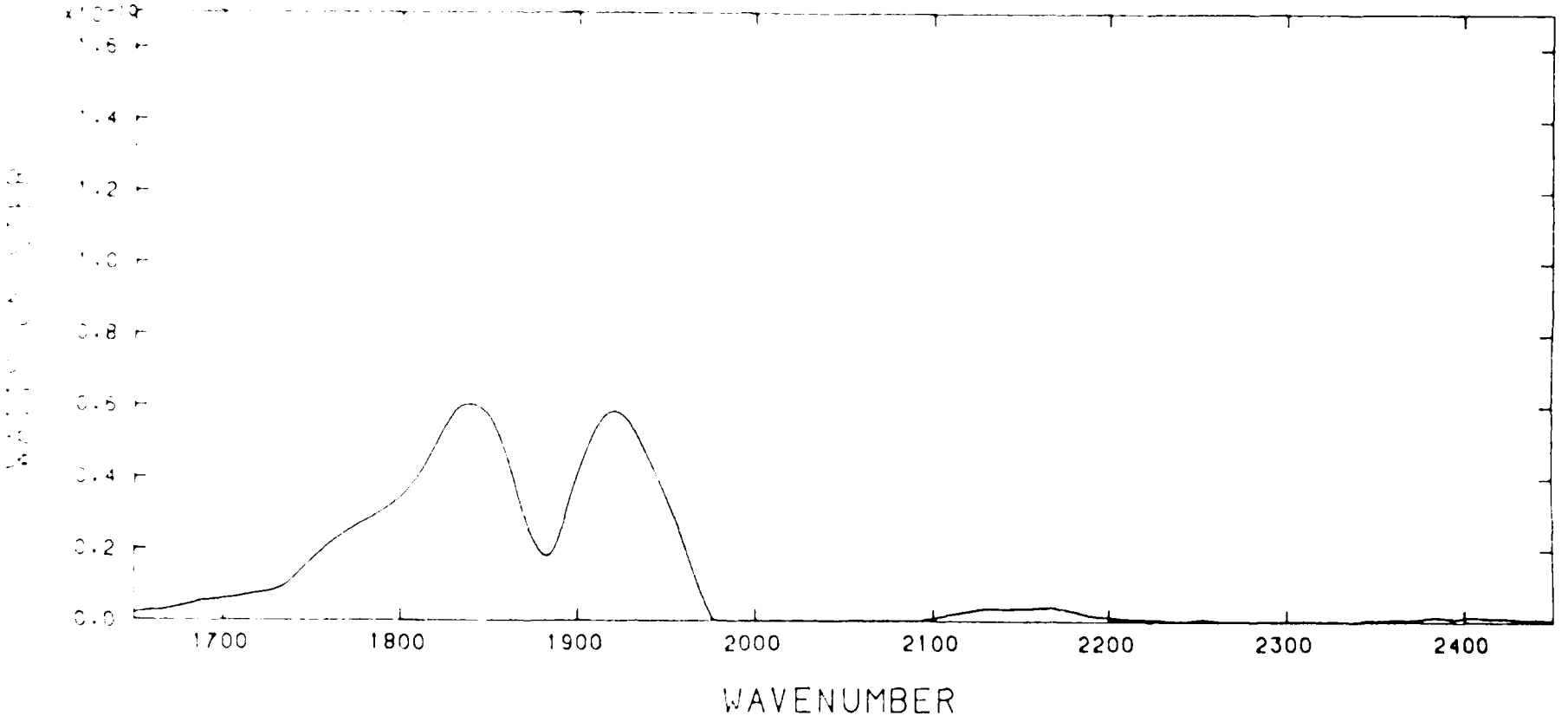
FILE 82, TIME 9: 9:56.630, ALT 136.0-135.9 KM

30-NOV-83 09:32



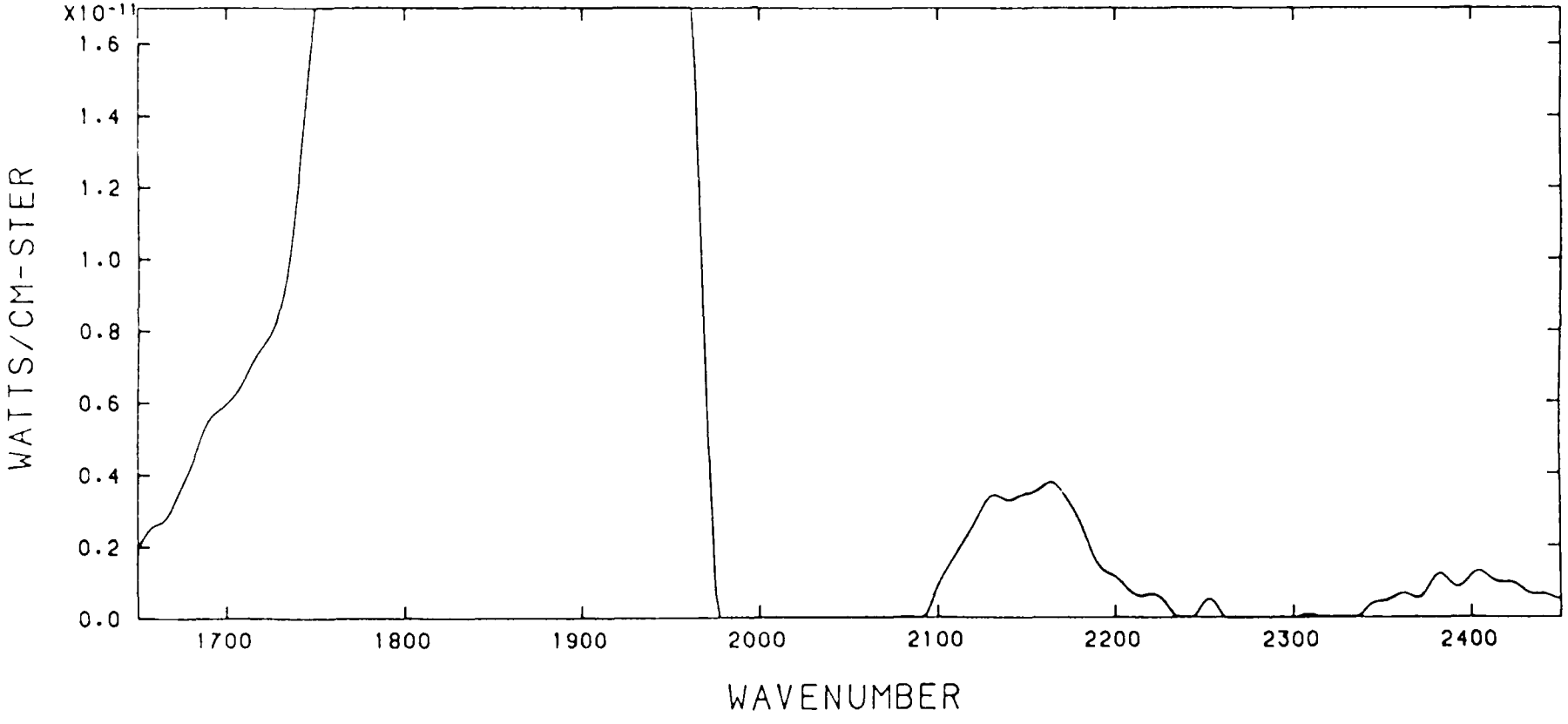
FILE 82, TIME 9: 9:56.630, ALT 136.0-135.9 KM

30-NOV-83 09:32



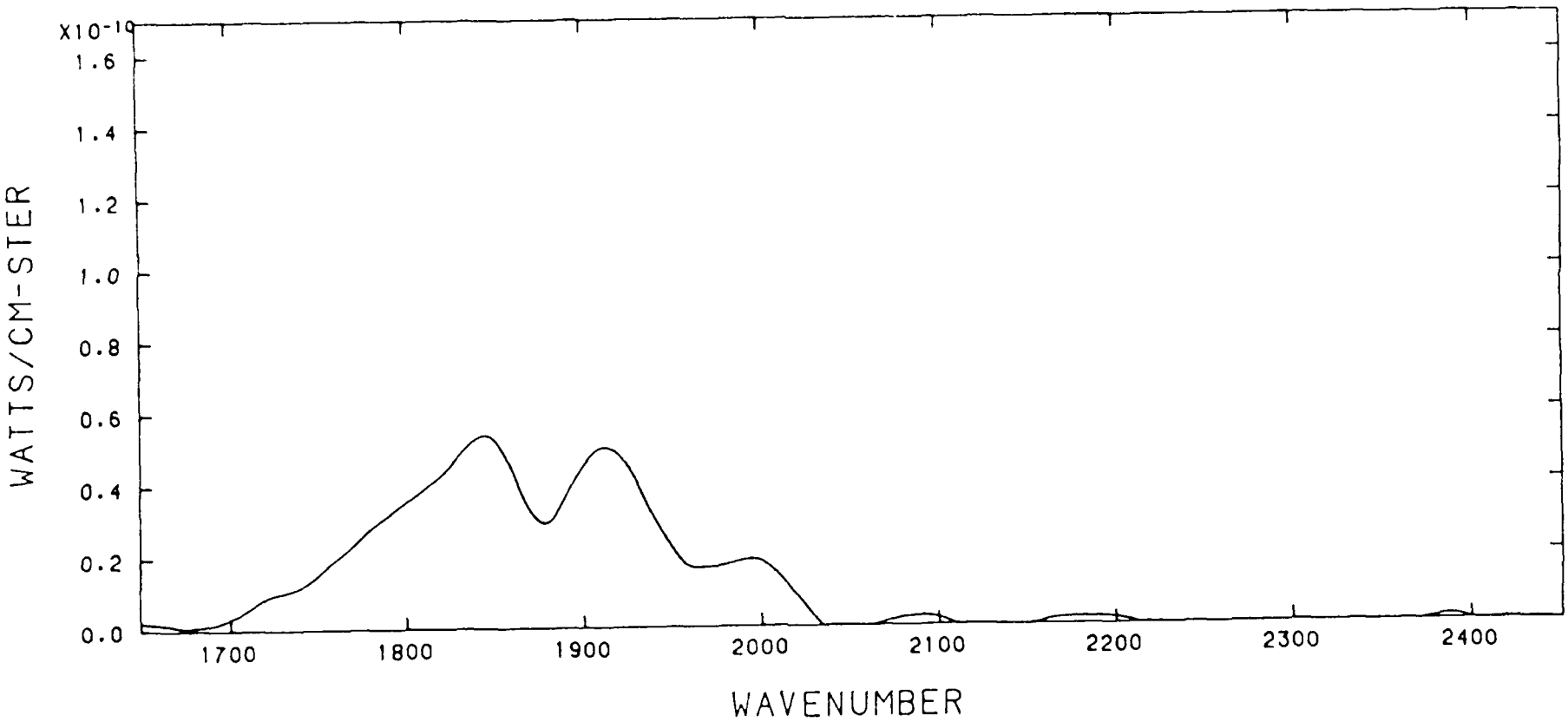
FILE 83, TIME 9: 9:57.126, ALT 135.9-135.8 KM

30-NOV-83 09:32



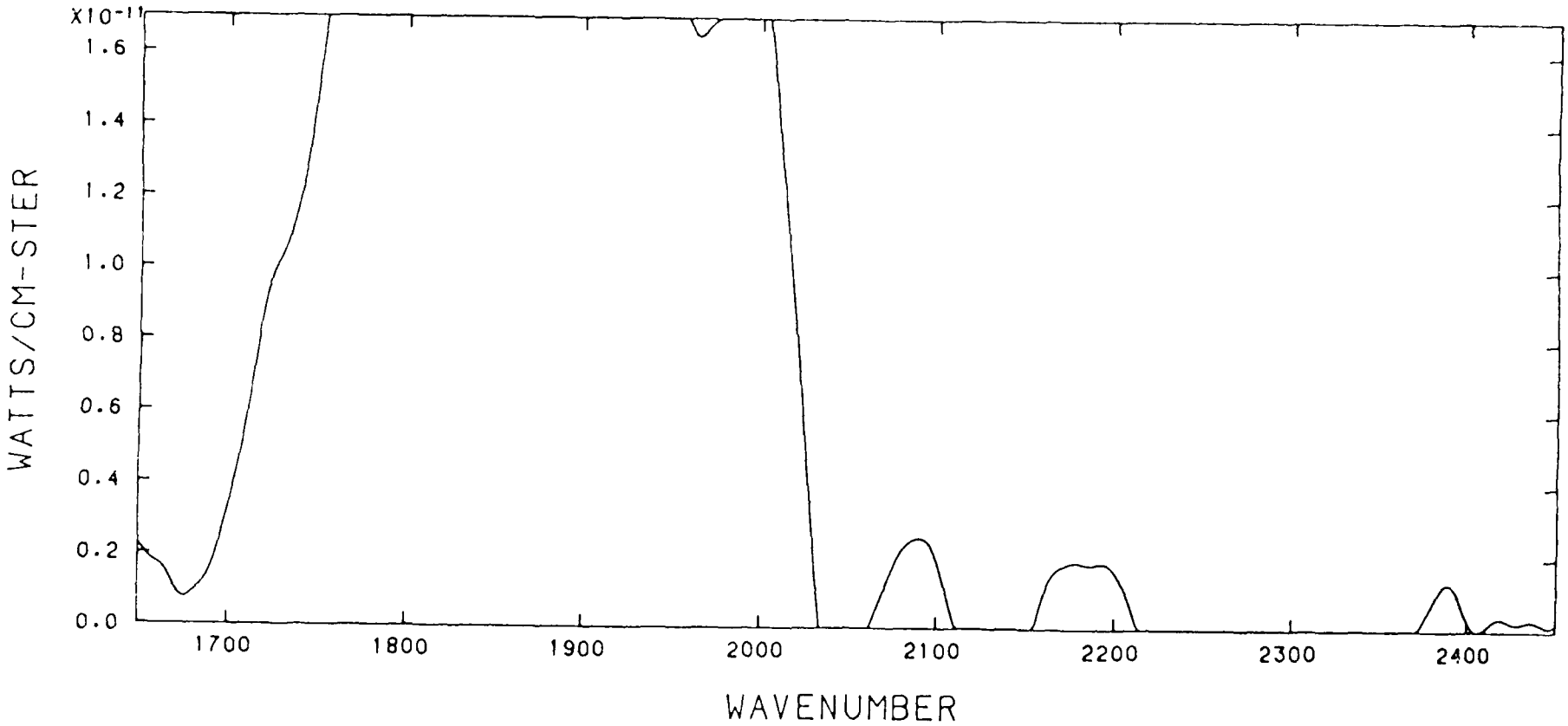
FILE 83, TIME 9: 9:57.126, ALT 135.9-135.8 KM

30-NOV-83 09:32



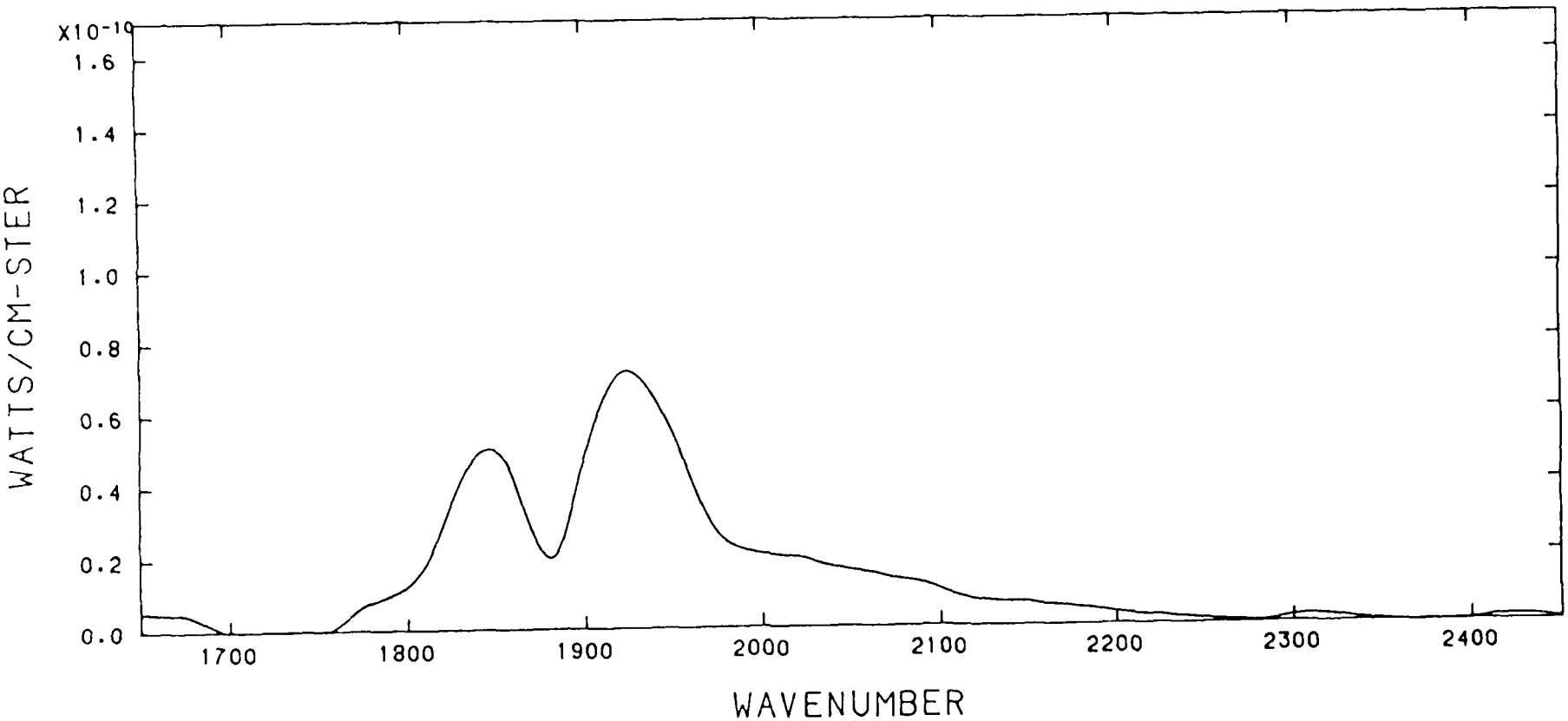
FILE 84, TIME 9: 9:59.884, ALT 135.1-135.0 KM

30-NOV-83 09:32



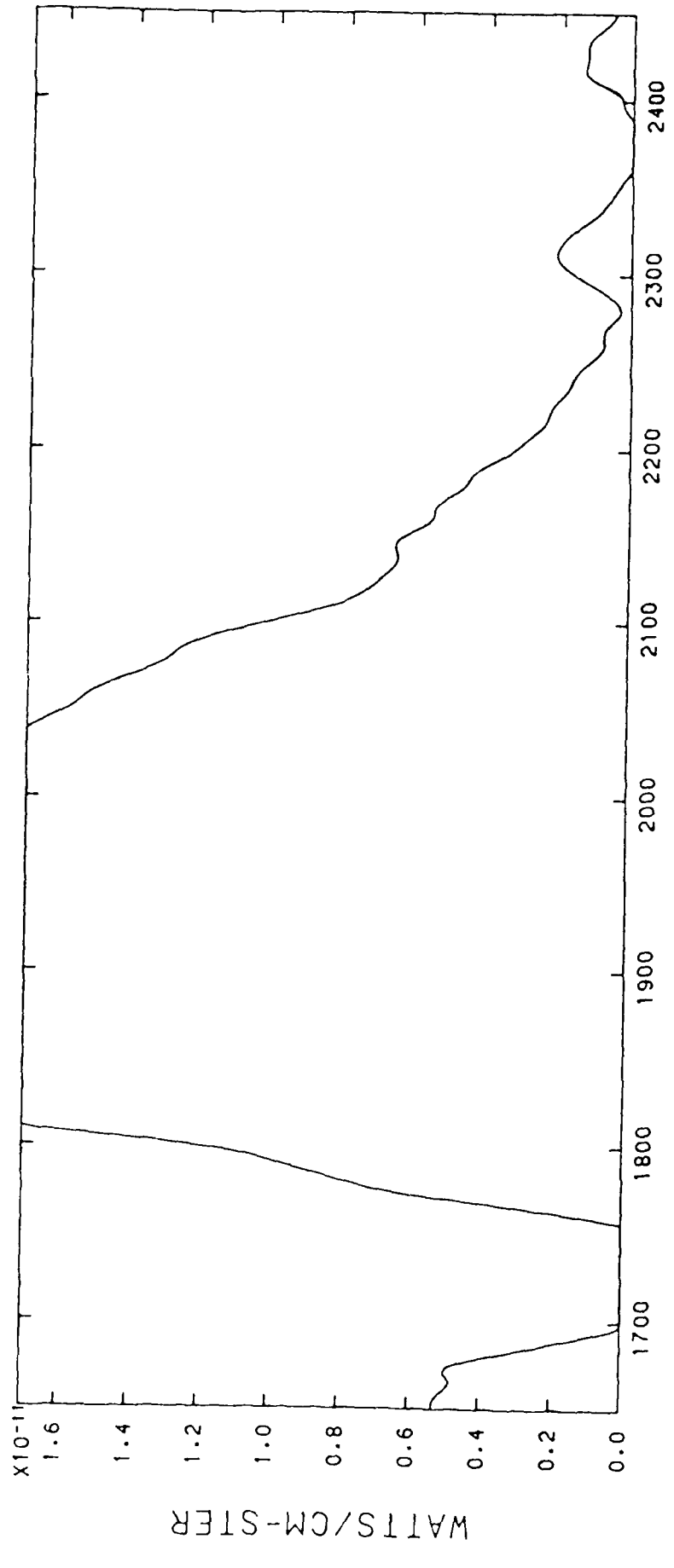
FILE 84, TIME 9: 9:59.884, ALT 135.1-135.0 KM

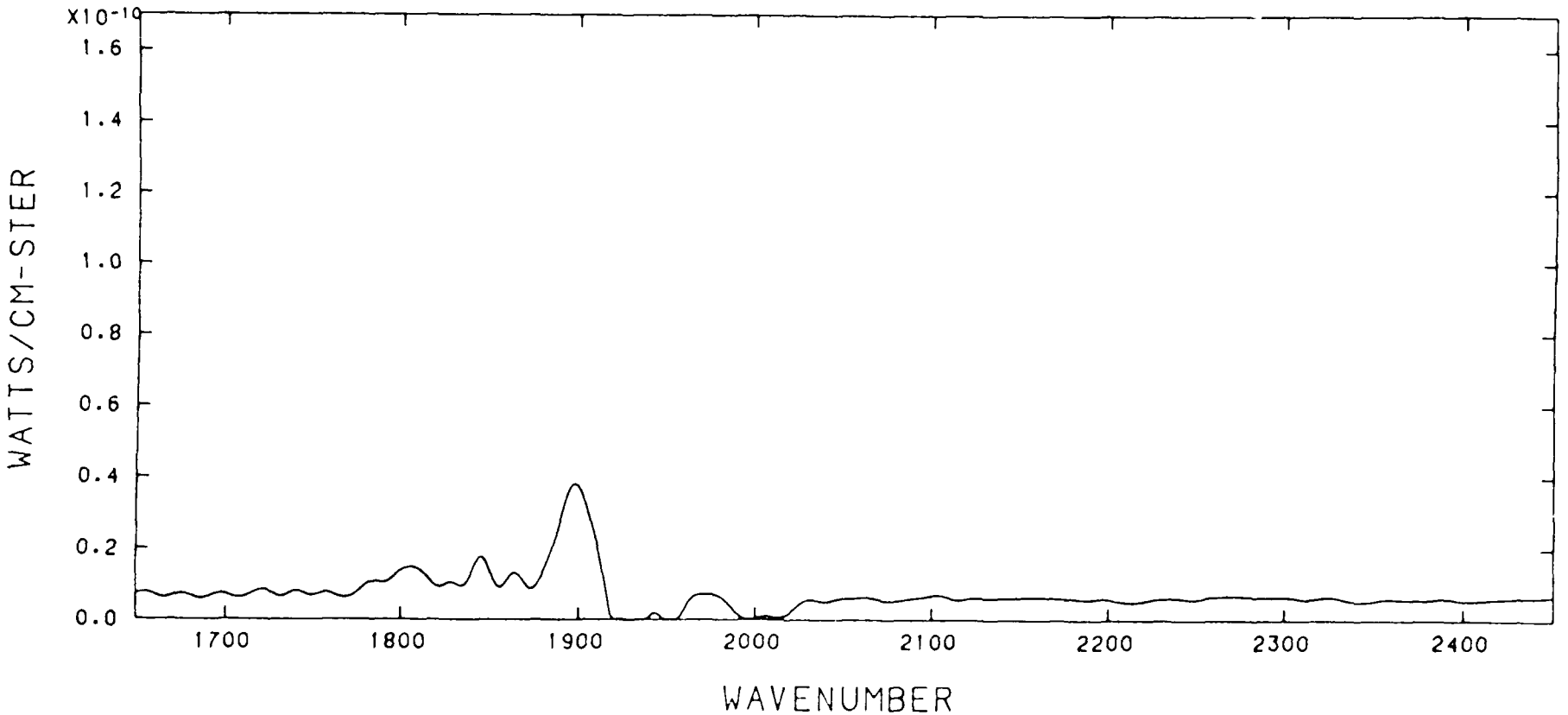
30-NOV-83 09:32



FILE 85, TIME 9:10: 0.380, ALT 135.0-134.9 KM

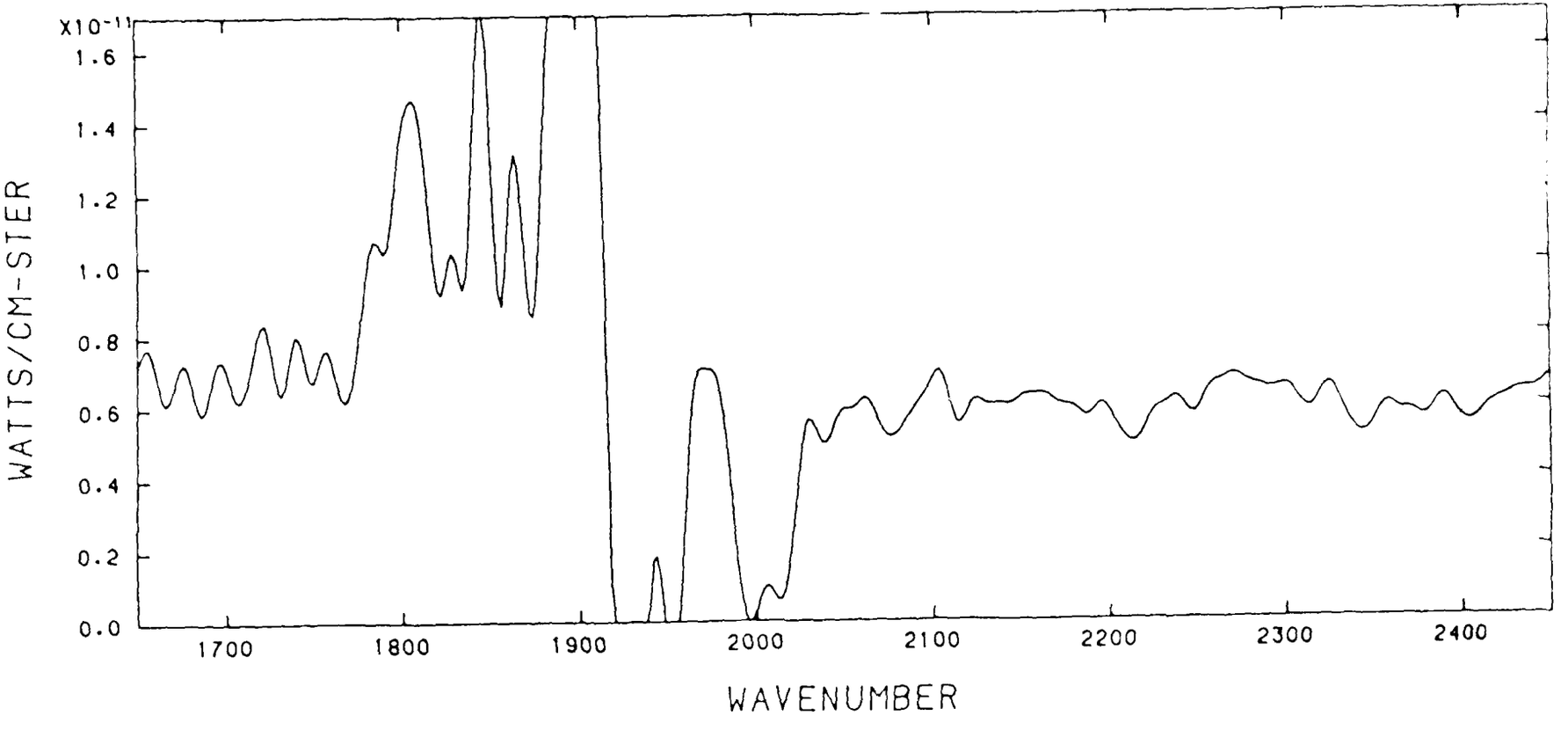
30-NOV-83 09:32


WATTS/CM-STER
X10⁻¹¹
1.6
1.4
1.2
1.0
0.8
0.6
0.4
0.2
0.0
1700
1800
1900
2000
2100
2200
2300
2400
WAVENUMBER
FILE 85, TIME 9:10: 0.380, ALT 135.0-134.9 KM
30-NOV-83 09:32



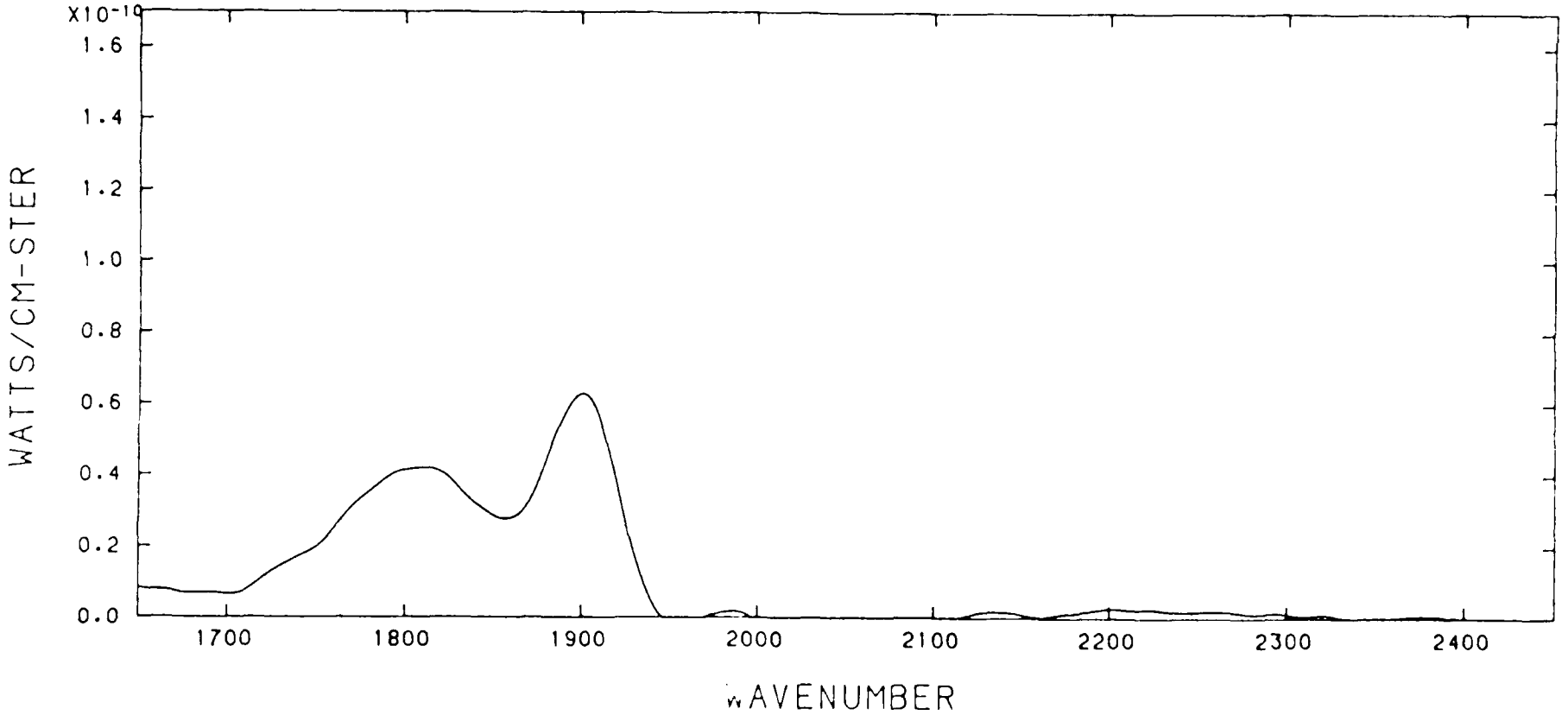
FILE 86, TIME 9:10: 2.332, ALT 134.4-134.3 KM

30-NOV-83 09:32



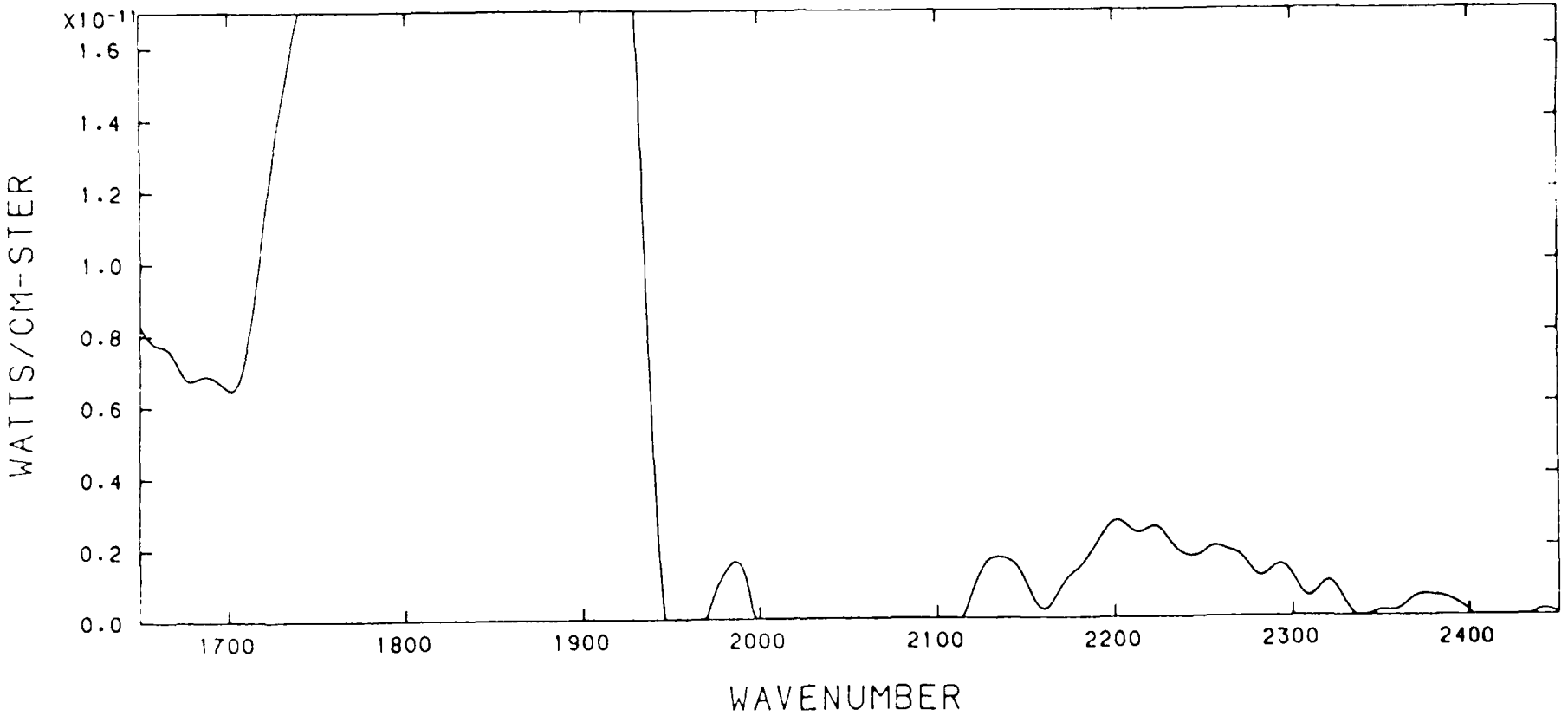
FILE 86, TIME 9:10: 2.332, ALT 134.4-134.3 KM

30-NOV-83 09:32



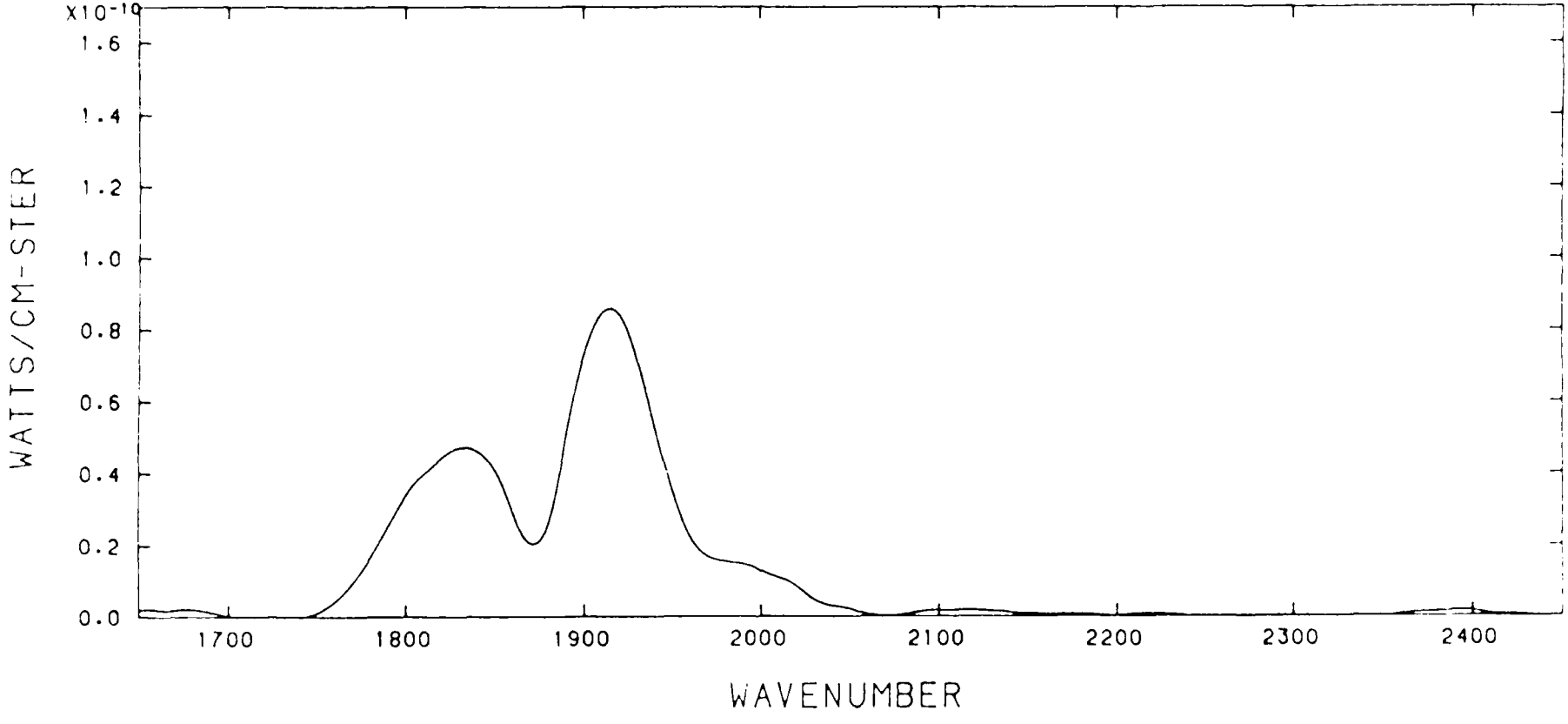
FILE 87, TIME 9:10: 3.636, ALT 134.0-133.9 KM

30-NOV-83 09:32



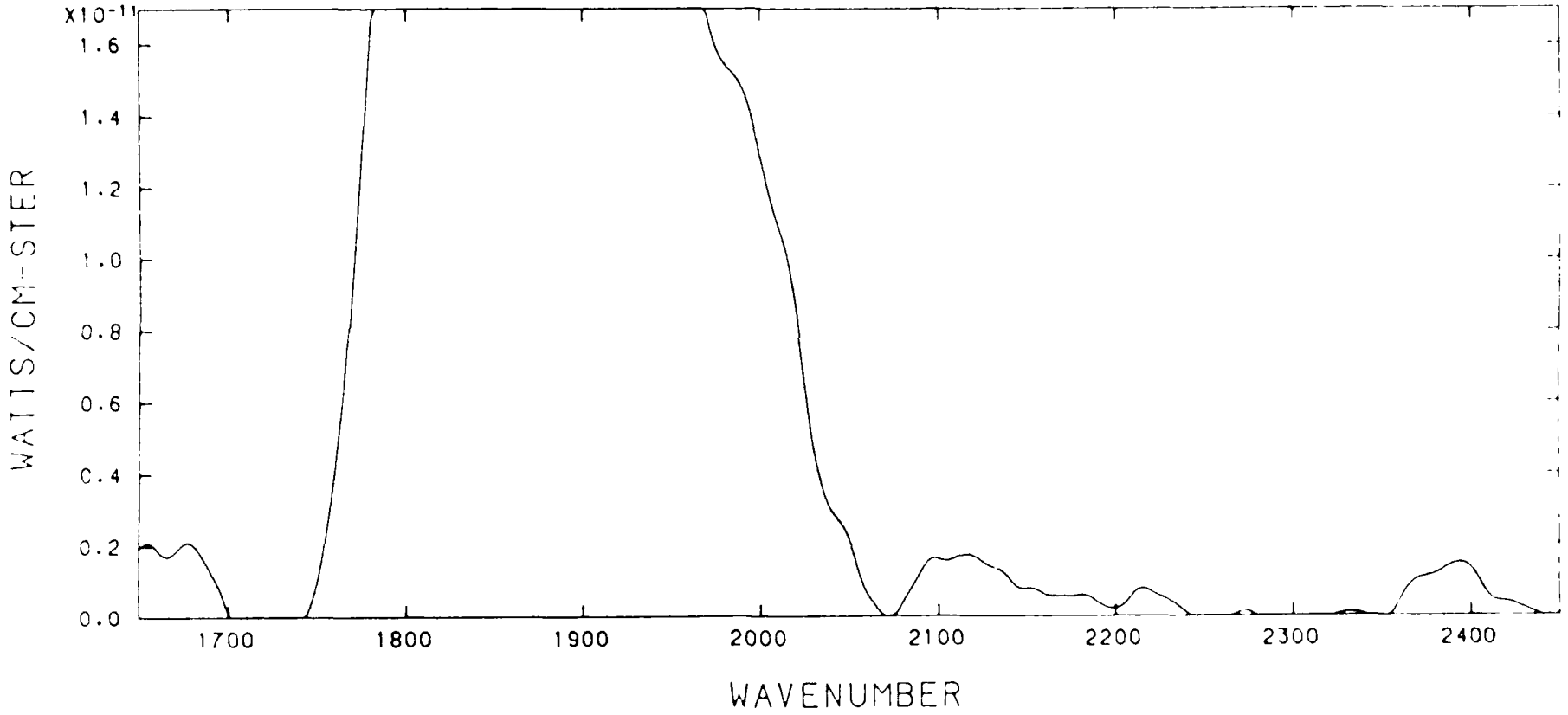
FILE 87, TIME 9:10: 3.636, ALT 134.0-133.9 KM

30-NOV-83 09:32



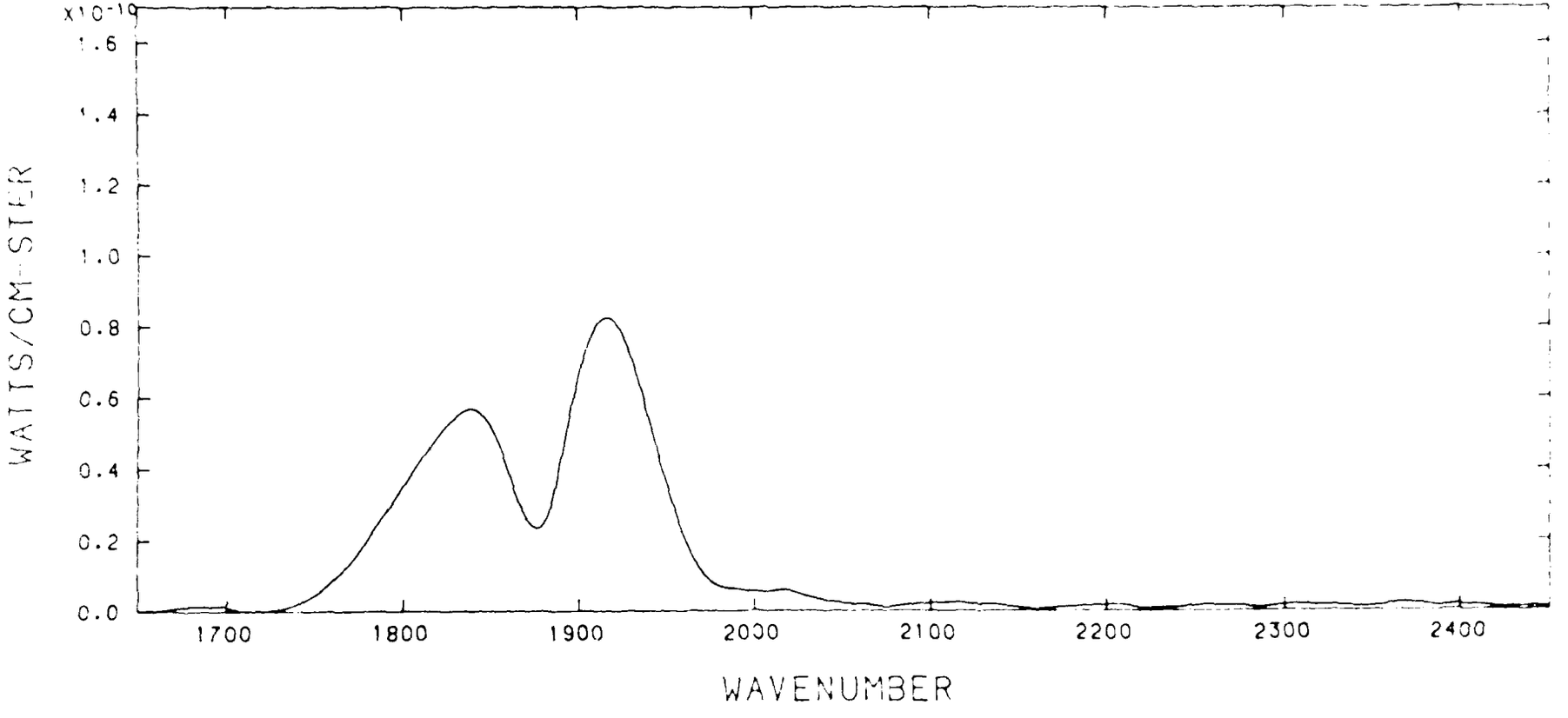
FILE 88, TIME 9:10: 6.390, ALT 133.1-133.0 KM

30-NOV-83 09:32



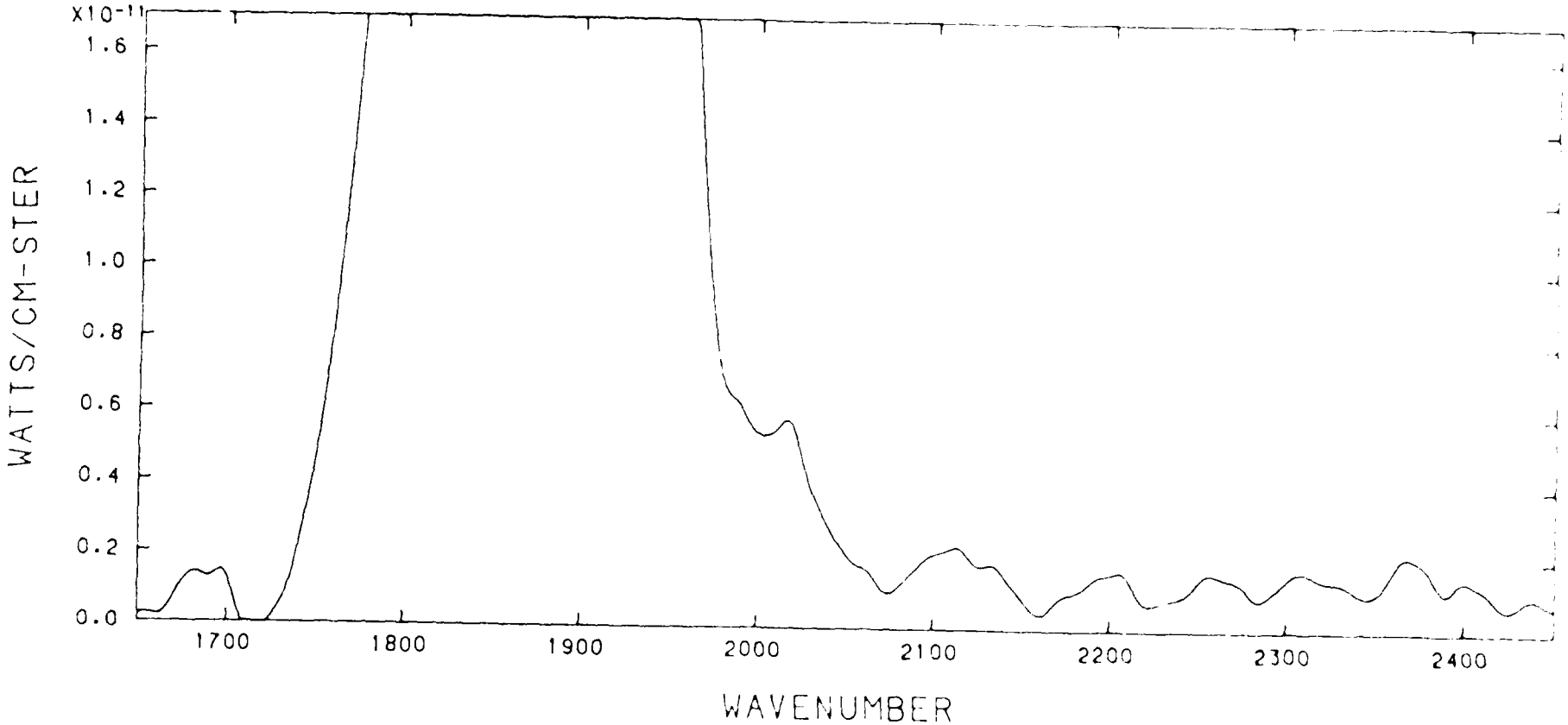
FILE 88, TIME 9:10: 6.390, ALT 133.1-133.0 KM

30-NOV-83 09:32



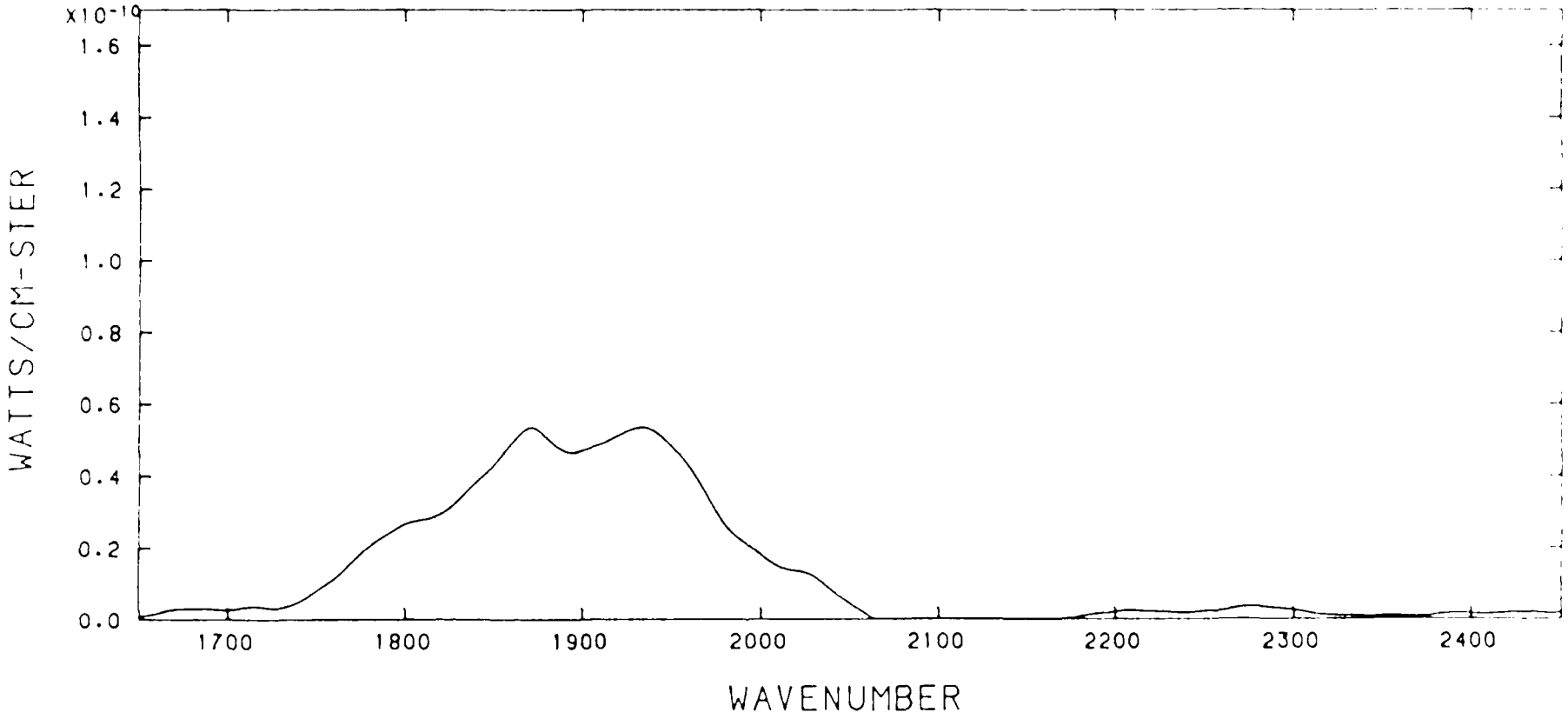
FILE 89, TIME 9:10: 6.888, ALT 133.0-132.8 KM

30-NOV-83 09:32



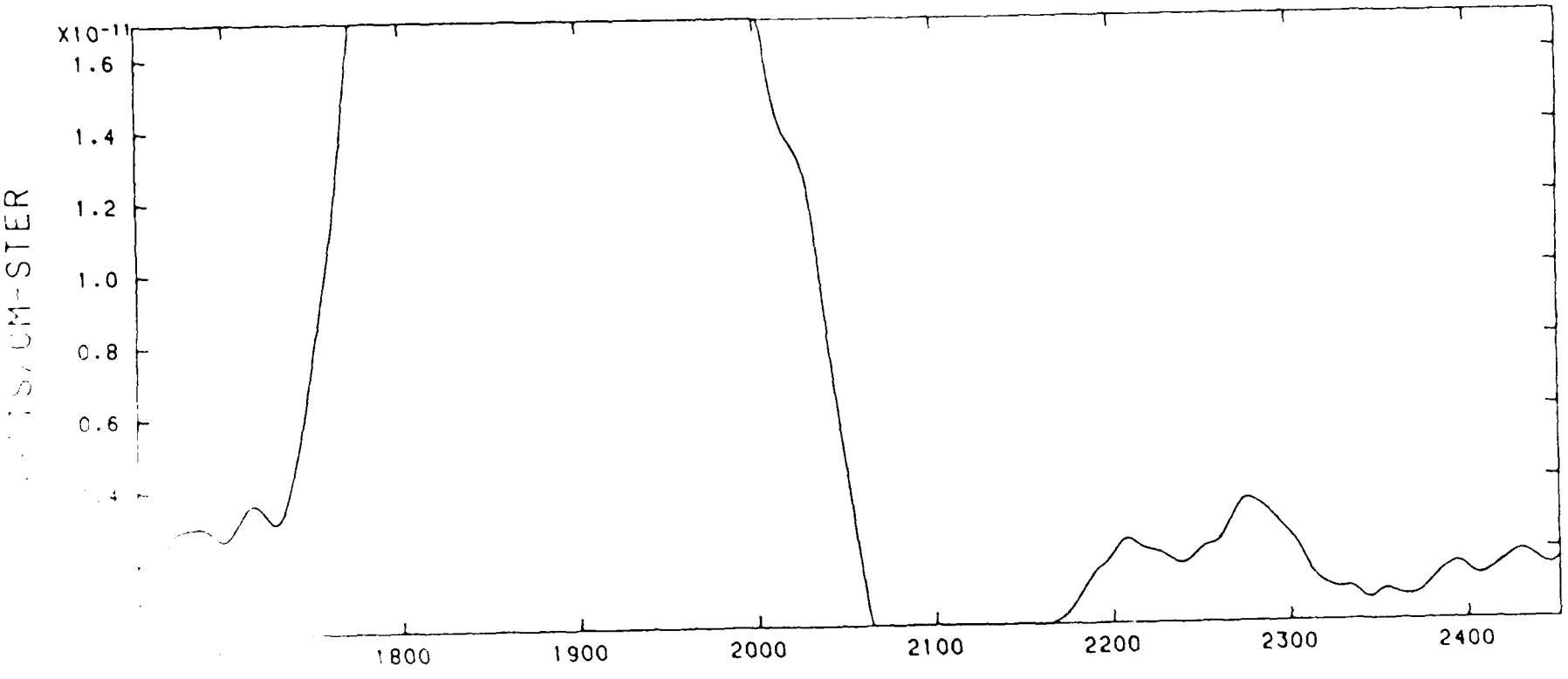
FILE 89, TIME 9:10: 6.888, ALT 133.0-132.8 KM

30-NOV-83 09:32



FILE 90, TIME 9:10: 9.644, ALT 132.0-131.8 KM

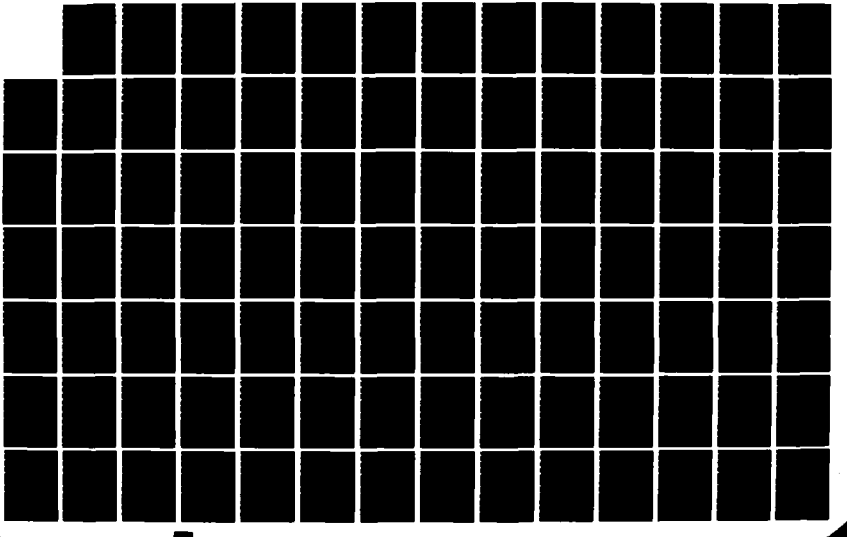
30-NOV-83 09:32

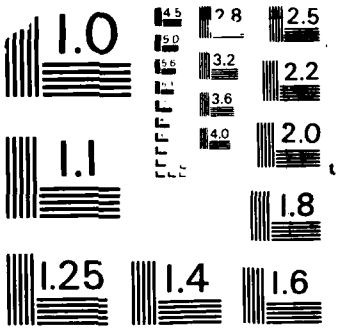


9:10: 9.644, ALT 132.0-131.8 KM

AD-A181 164 CATALOG OF LOW RESOLUTION INFRARED SPECTRA: FIELD-WIDENED INTERFEROMETER (U) UTAH STATE UNIV LOGAN SPACE DYNAMICS LABS R H HAYCOCK ET AL 26 JUN 85 SDL/85-046 AFGL-TR-85-0162 F19628-83-C-0056 F/G 20/6 3/4

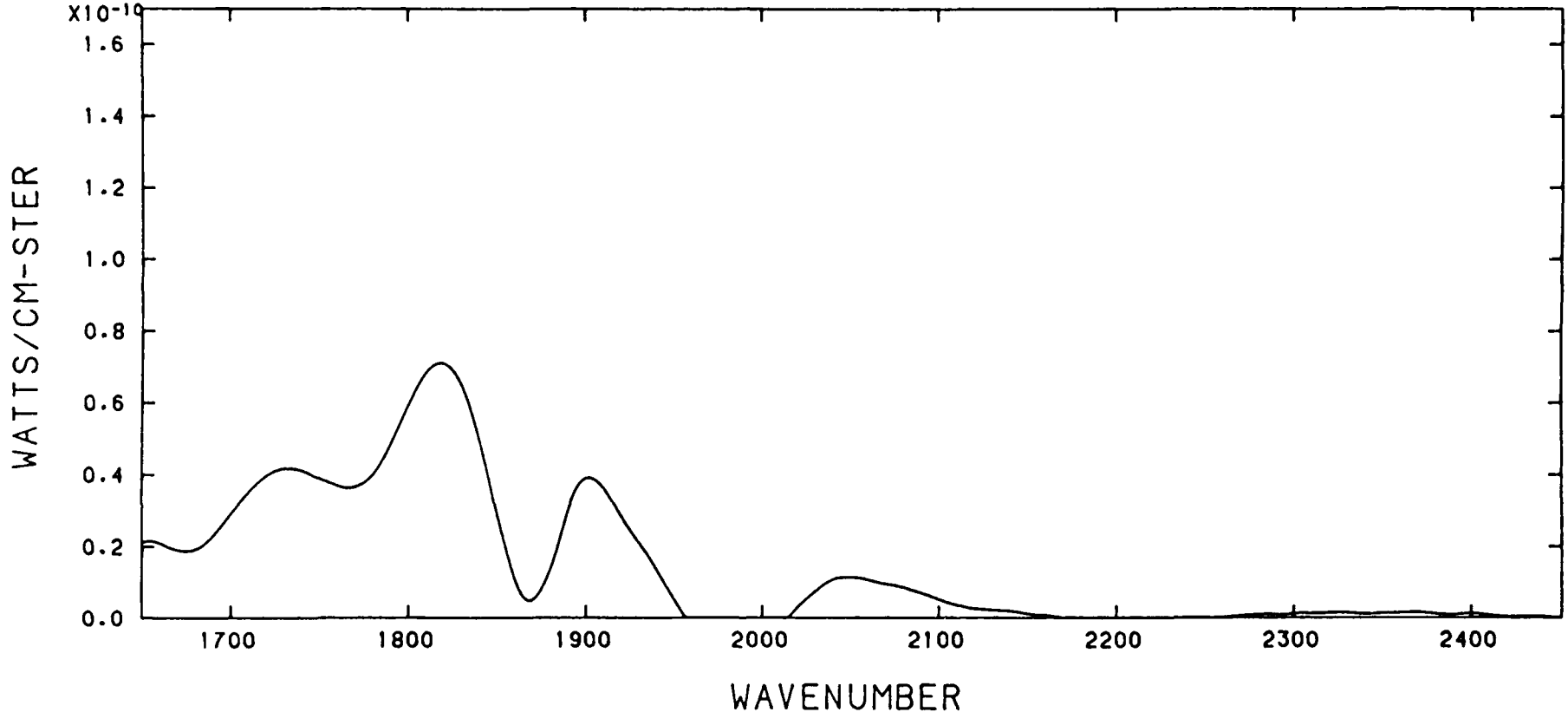
UNCLASSIFIED NL





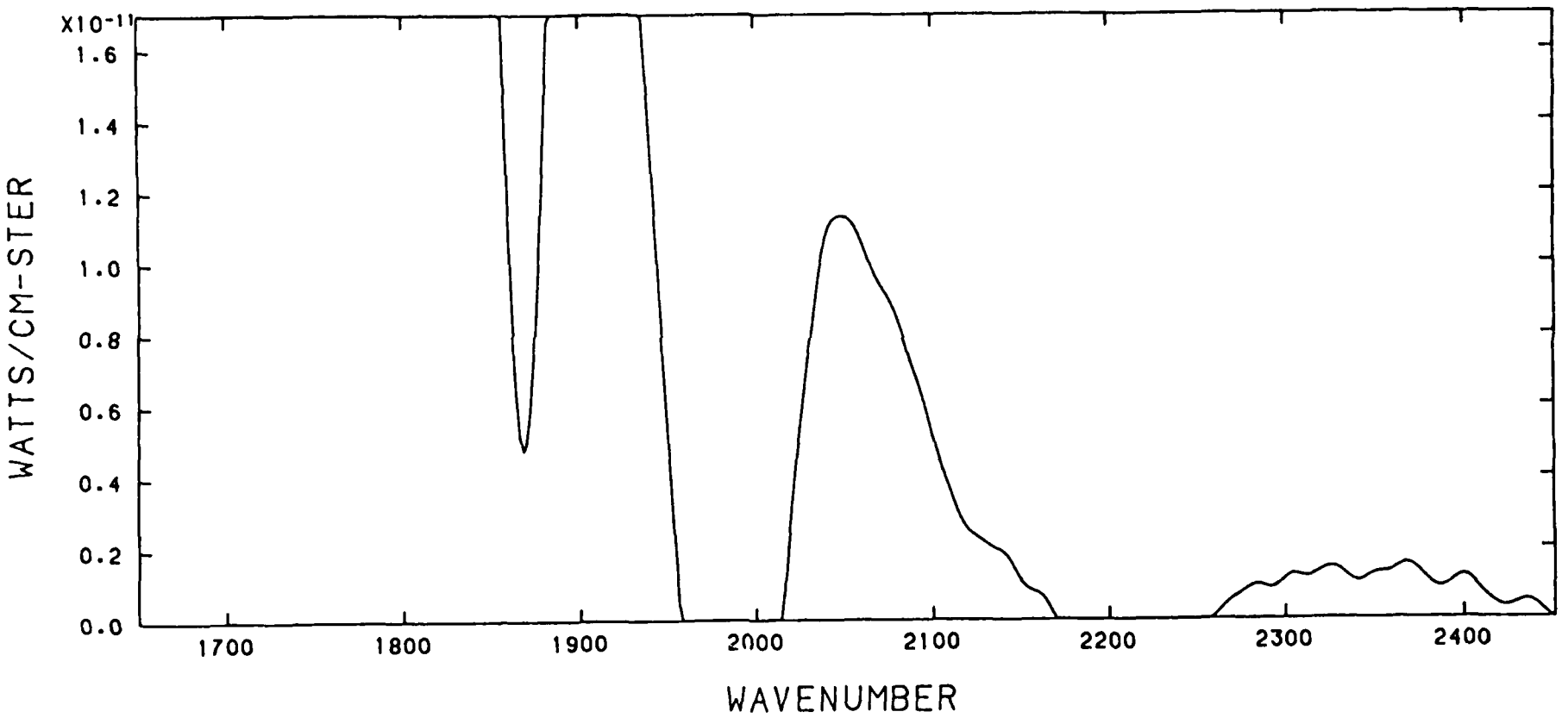
MICROCOPY RESOLUTION TEST CHART

NATIONAL BUREAU OF STANDARDS-1963



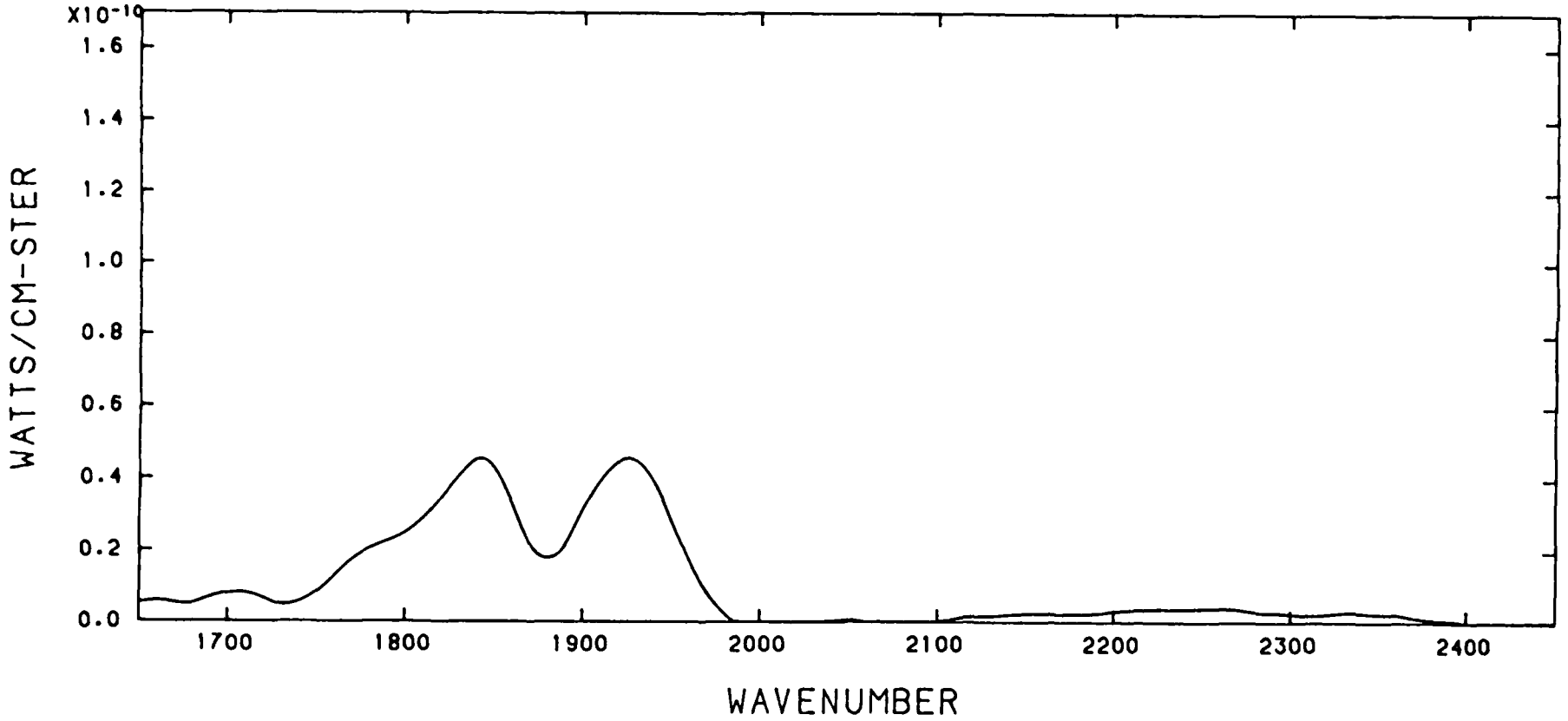
FILE 91, TIME 9:10:10.140, ALT 131.8-131.7 KM

30-NOV-83 09:32



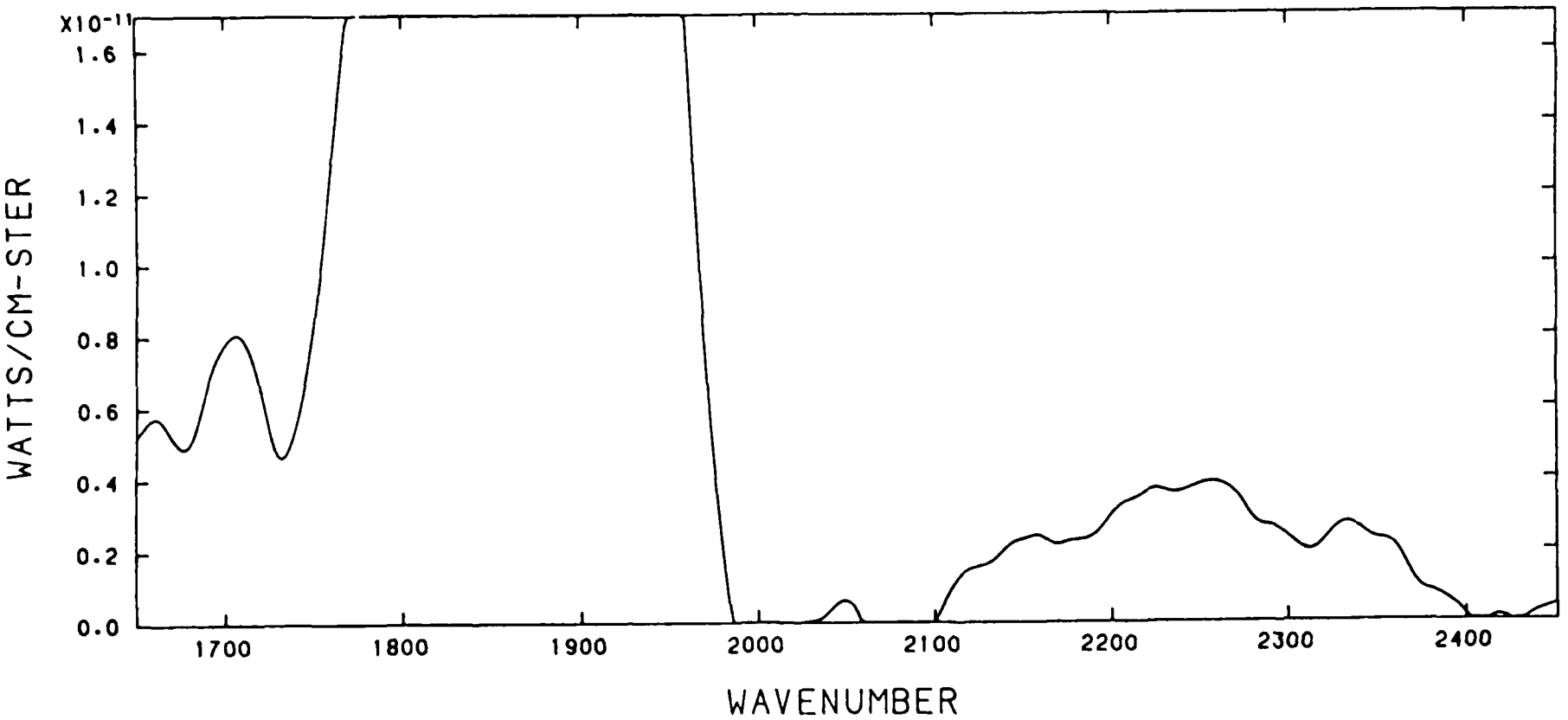
FILE 91, TIME 9:10:10.140, ALT 131.8-131.7 KM

30-NOV-83 09:32



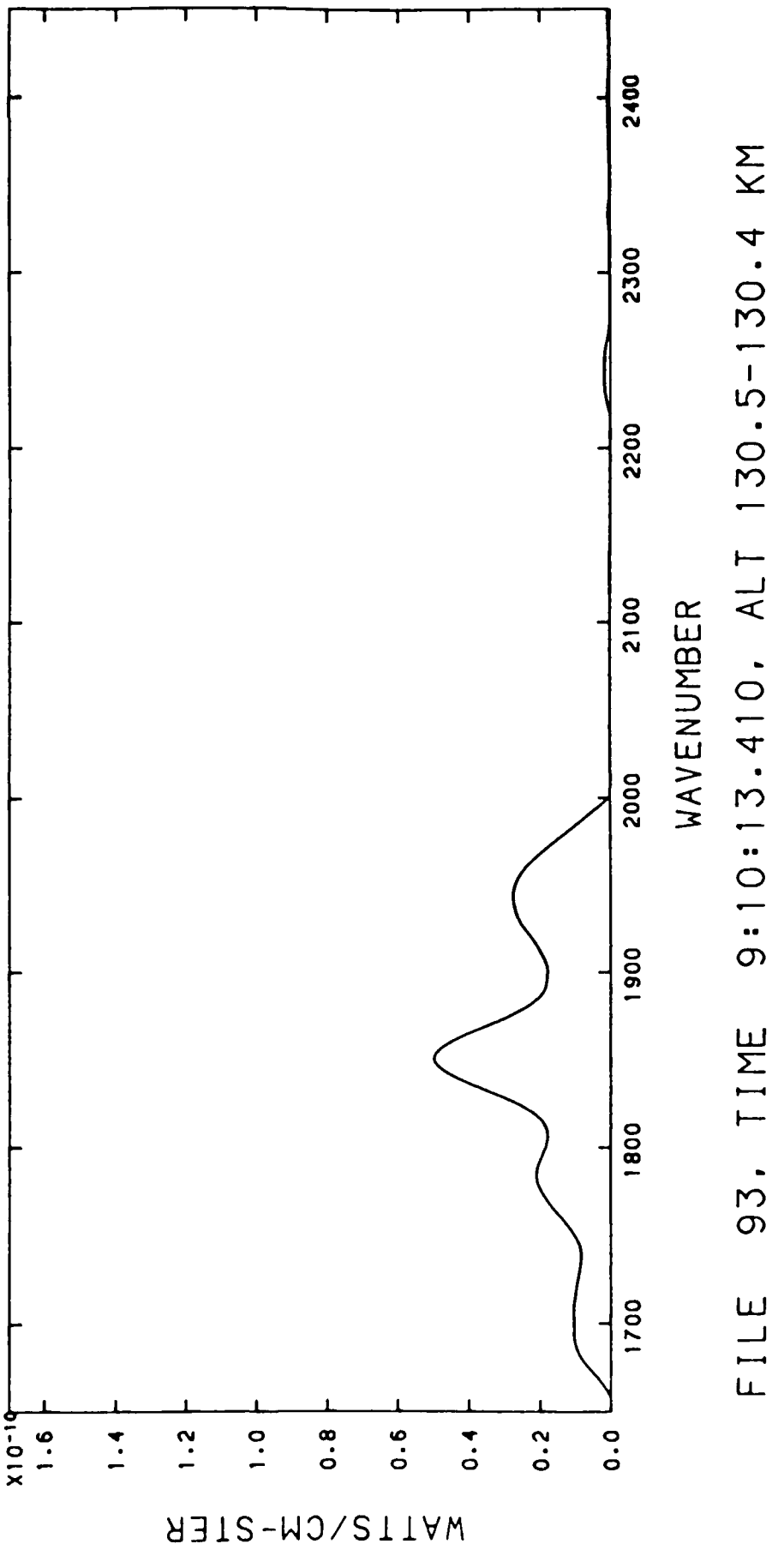
FILE 92, TIME 9:10:12.910, ALT 130.7-130.6 KM

30-NOV-83 09:32



FILE 92, TIME 9:10:12.910, ALT 130.7-130.6 KM

30-NOV-83 09:32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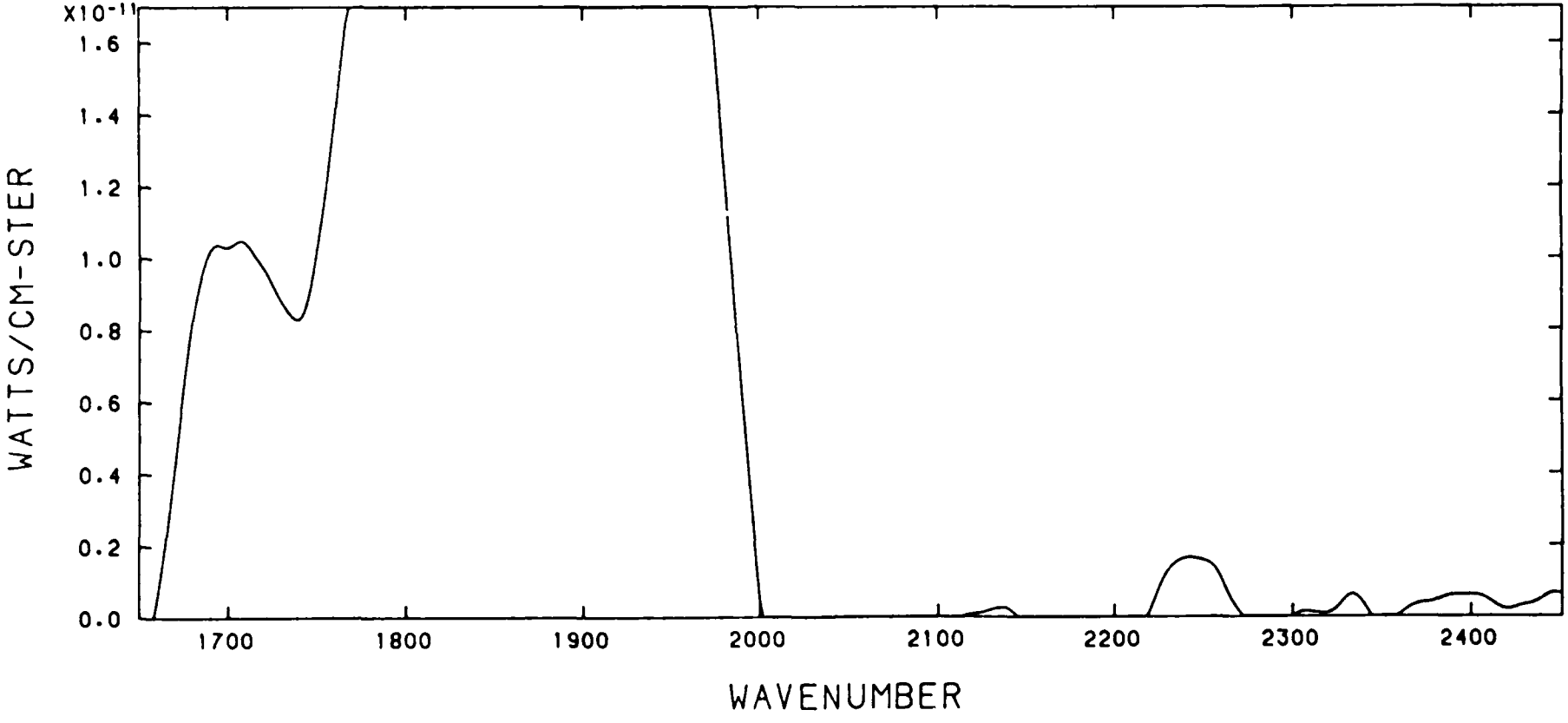
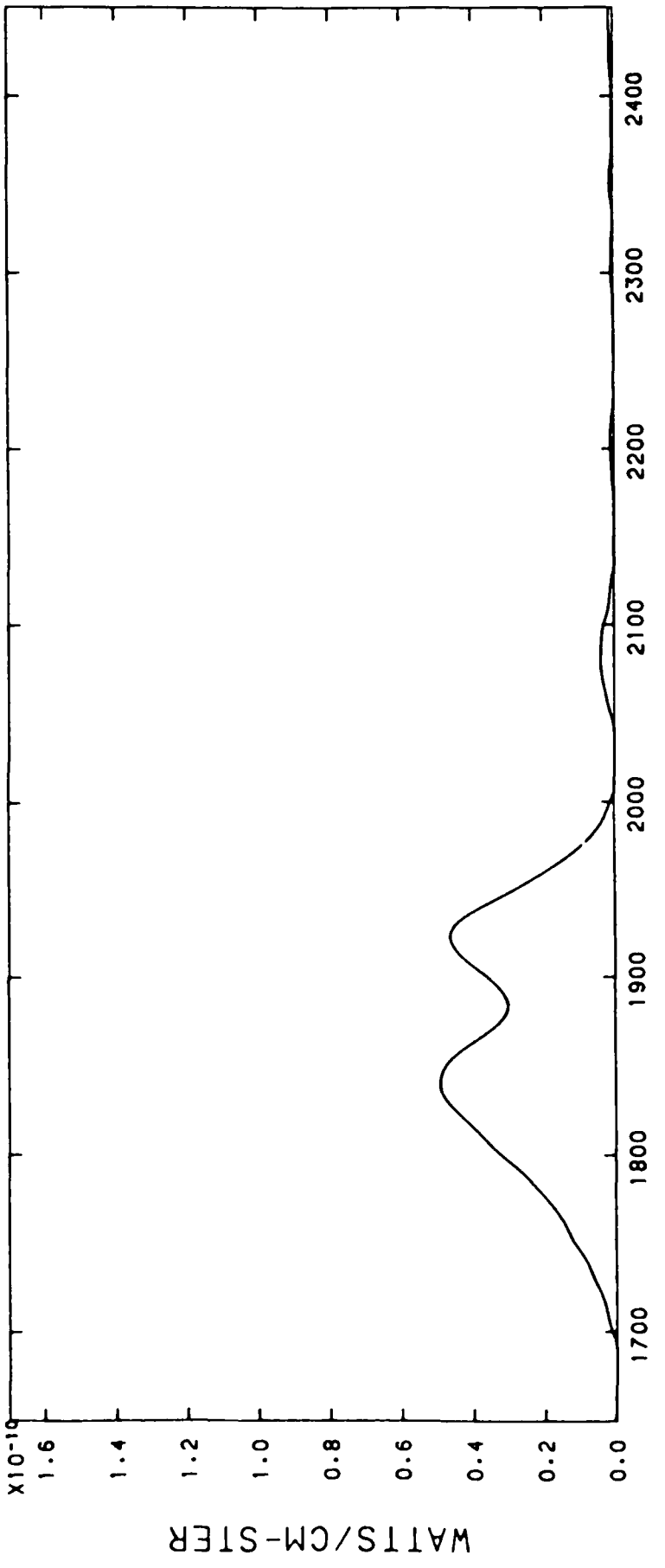
FILE 93, TIME 9:10:13.410, ALT 130.5-130.4 KM
30-NOV-83 08:32



FILE 93, TIME 9:10:13.410, ALT 130.5-130.4 KM

30-NOV-83 09:32


FILE 94, TIME 9:10:16.188, ALT 129.3-129.2 KM
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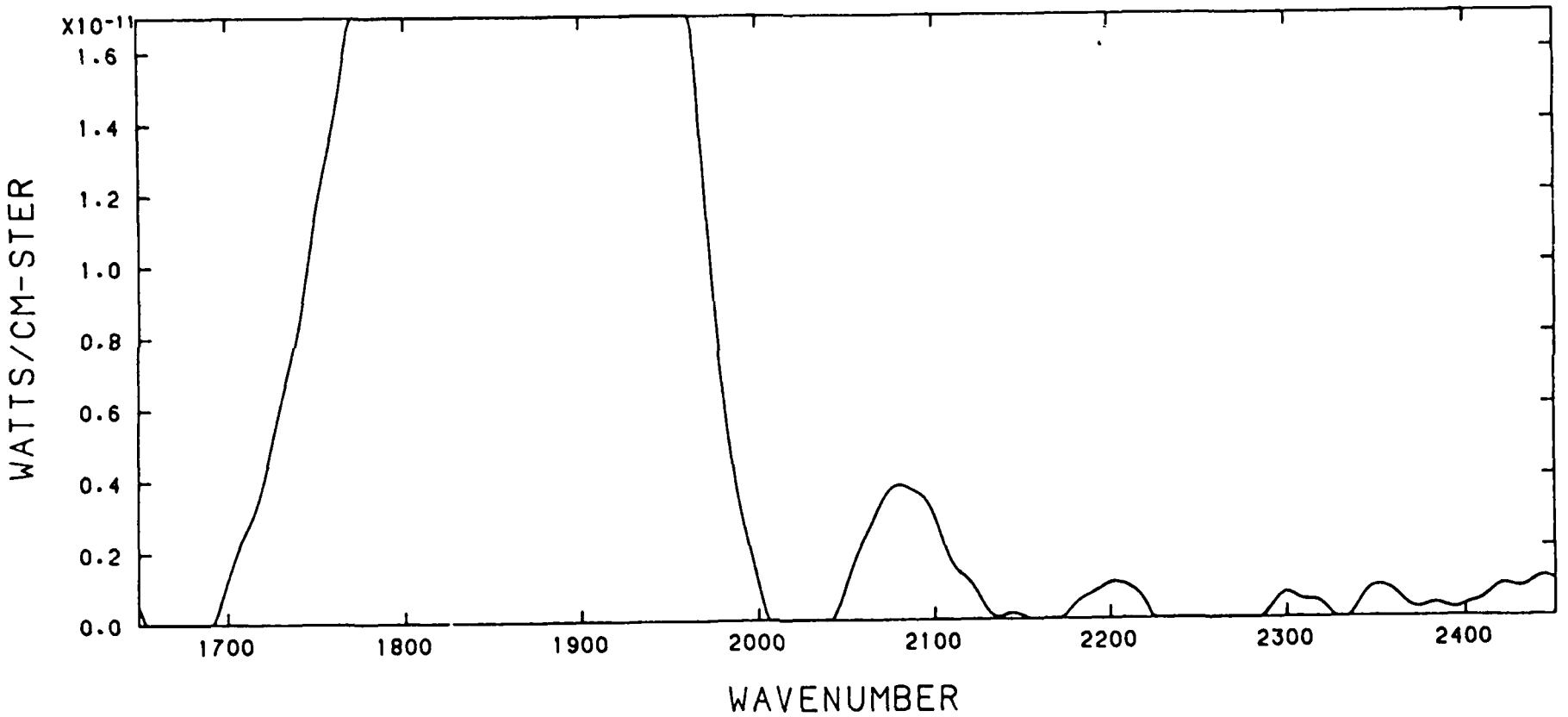
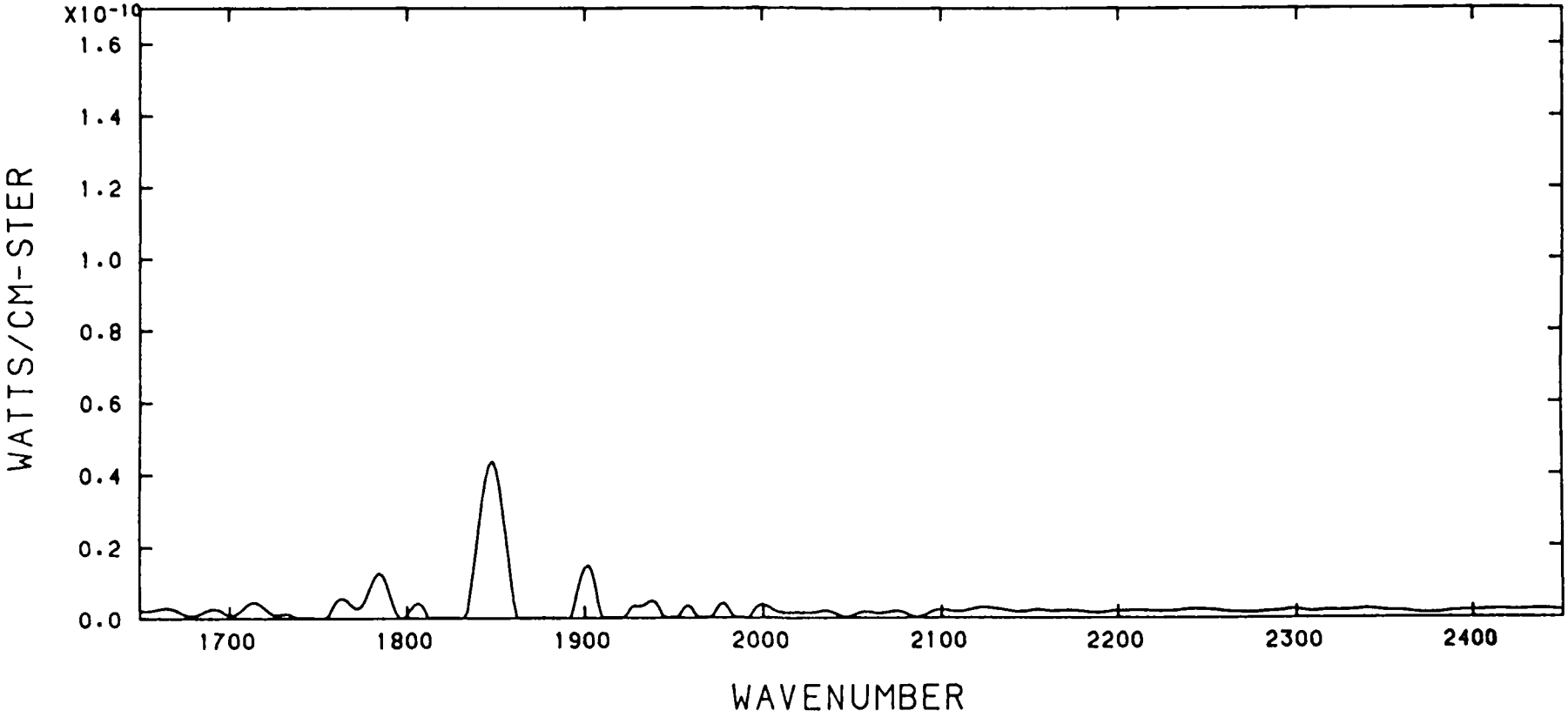
30-NOV-83 09:32



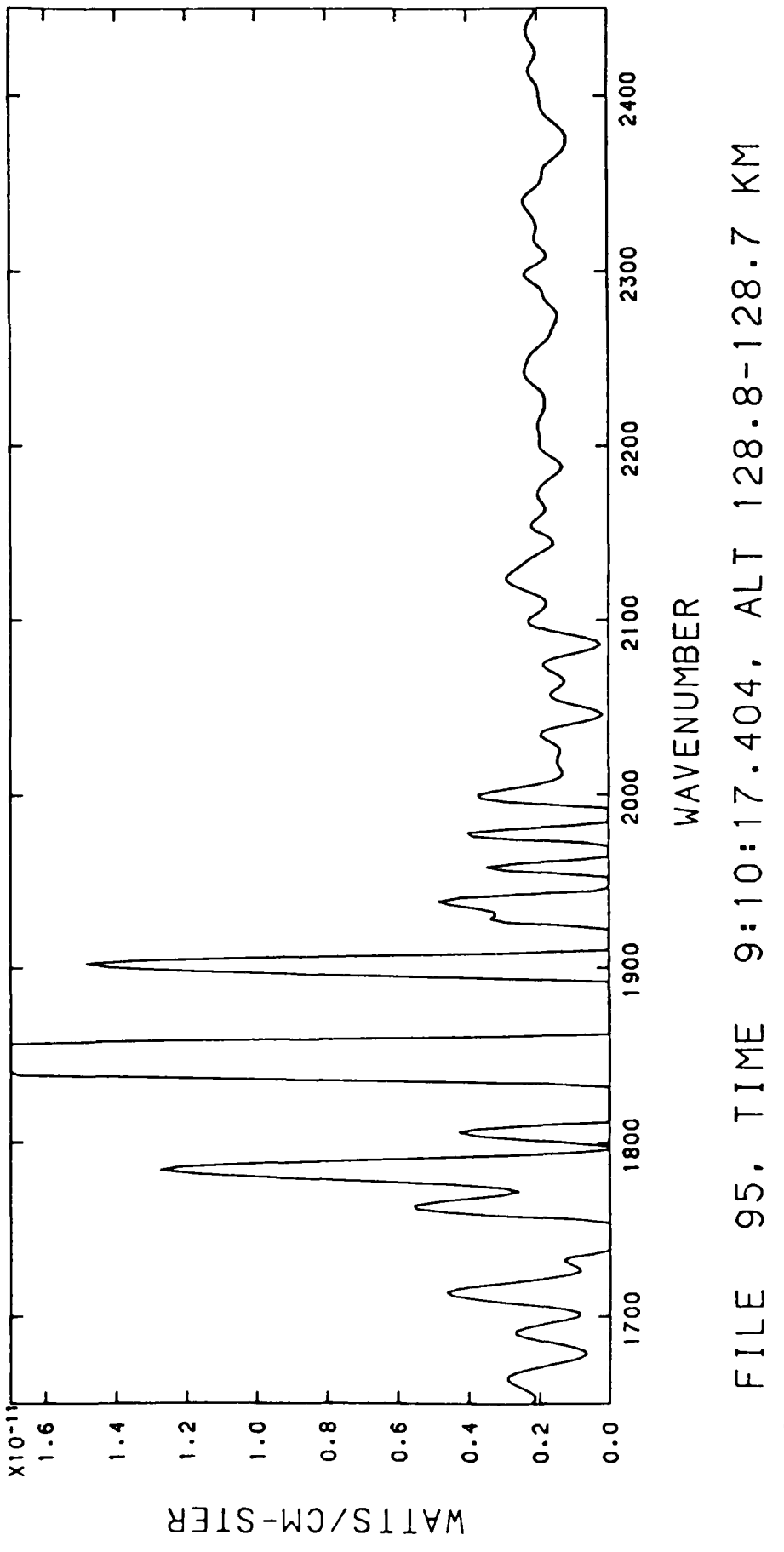
FILE 94, TIME 9:10:16.188, ALT 129.3-129.2 KM

30-NOV-83 09:32



FILE 95, TIME 9:10:17.404, ALT 128.8-128.7 KM

30-NOV-83 09:32


FILE 95, TIME 9:10:17.404, ALT 128.8-128.7 KM
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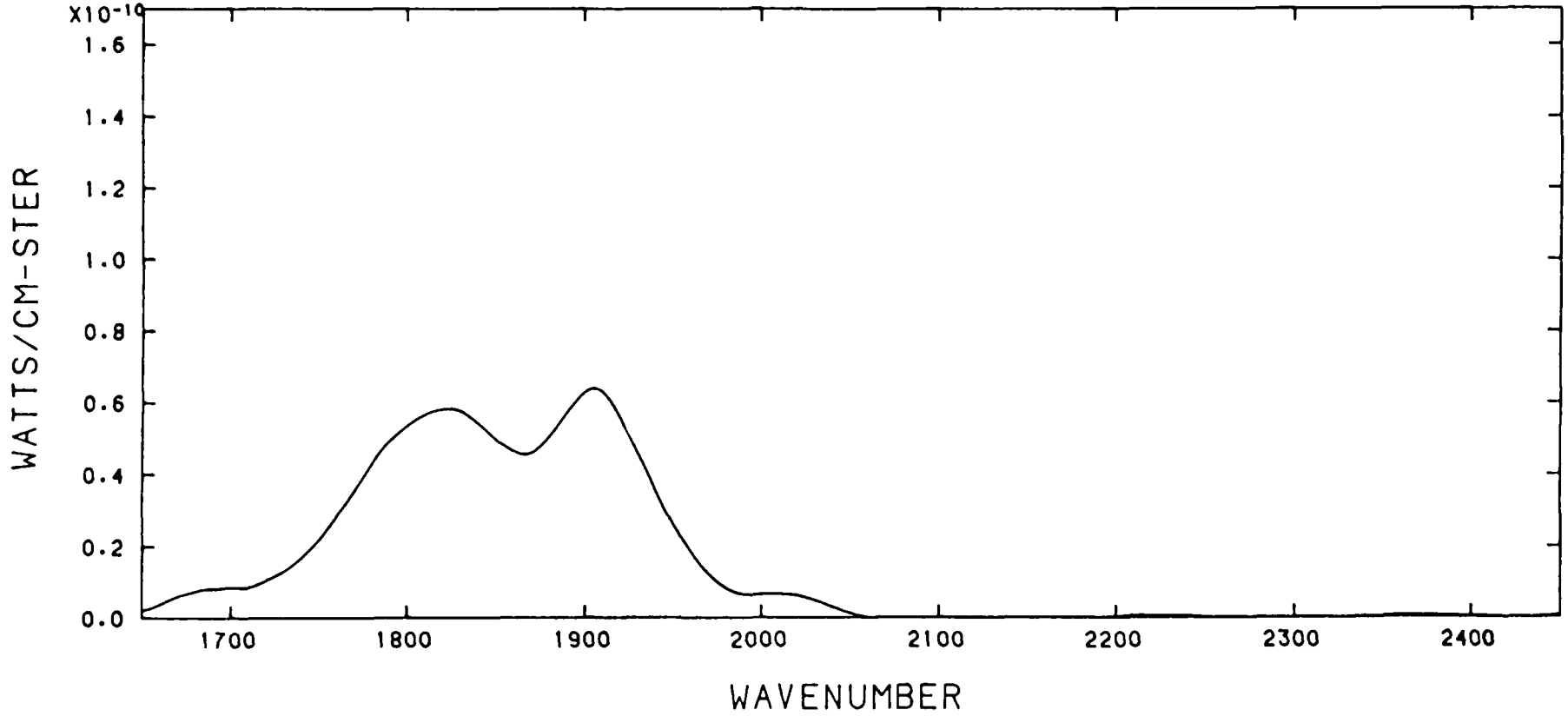
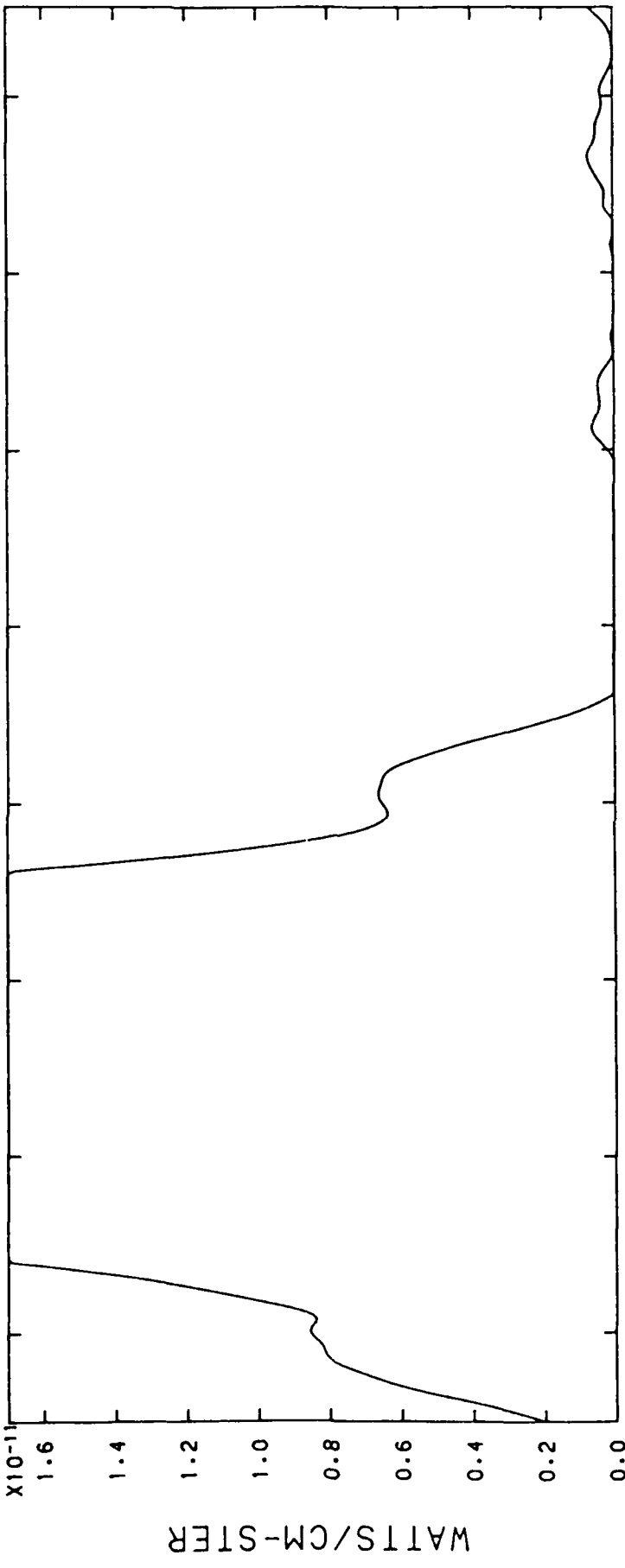
30-NOV-83 09:32



FILE 96, TIME 9:10:19.466, ALT 127.9-127.7 KM

30-NOV-83 09:32


WATTS/CM-STER
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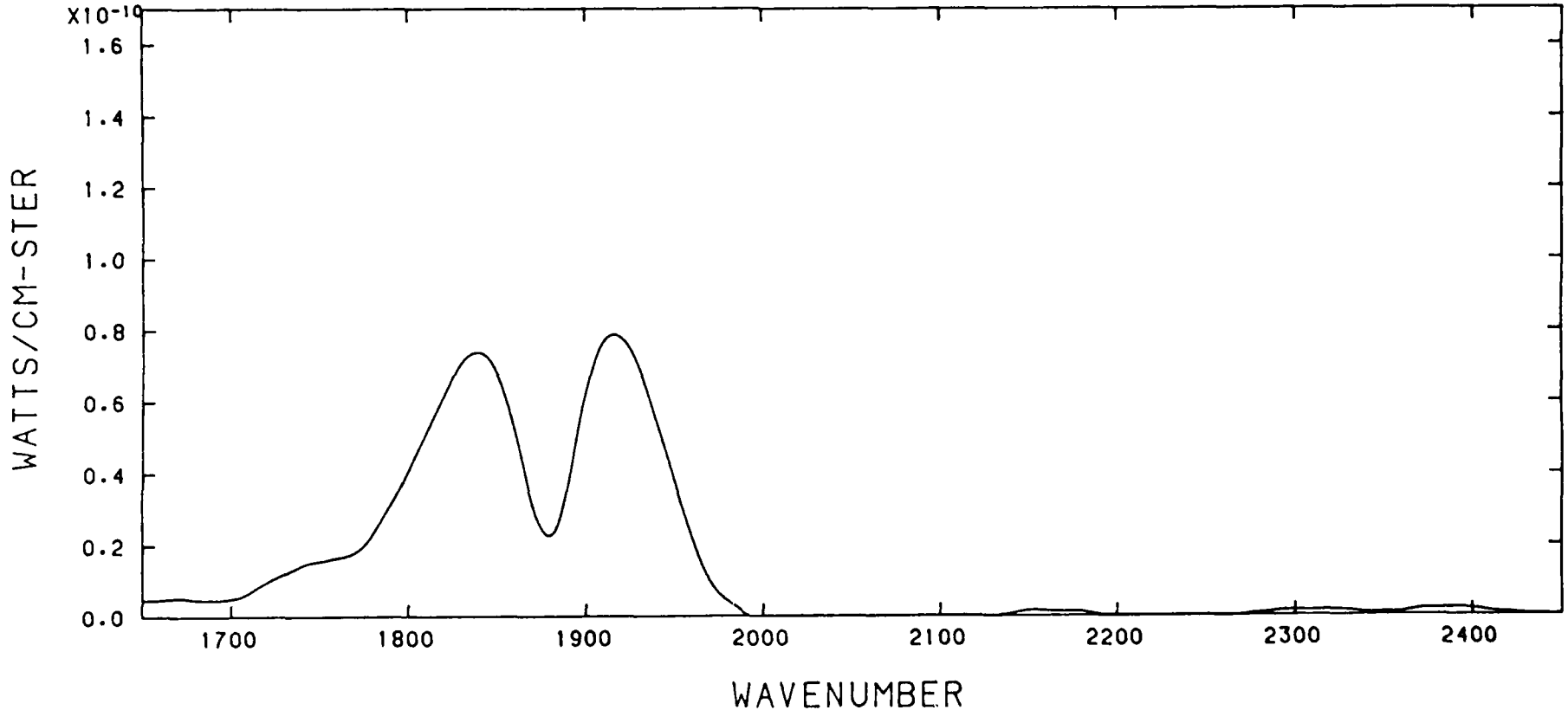
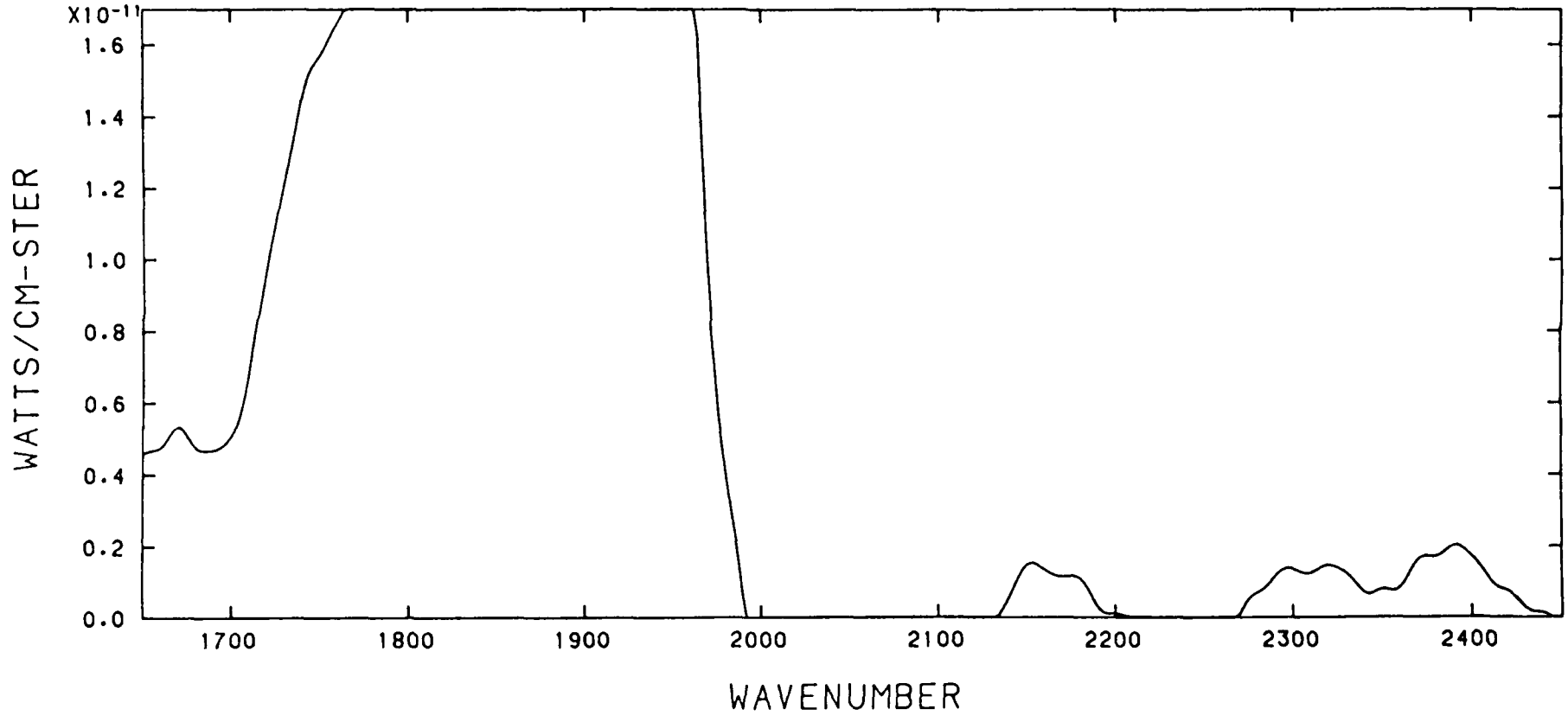
FILE 96, TIME 9:10:19.466, ALT 127.9-127.7 KM
30-NOV-83 09:32



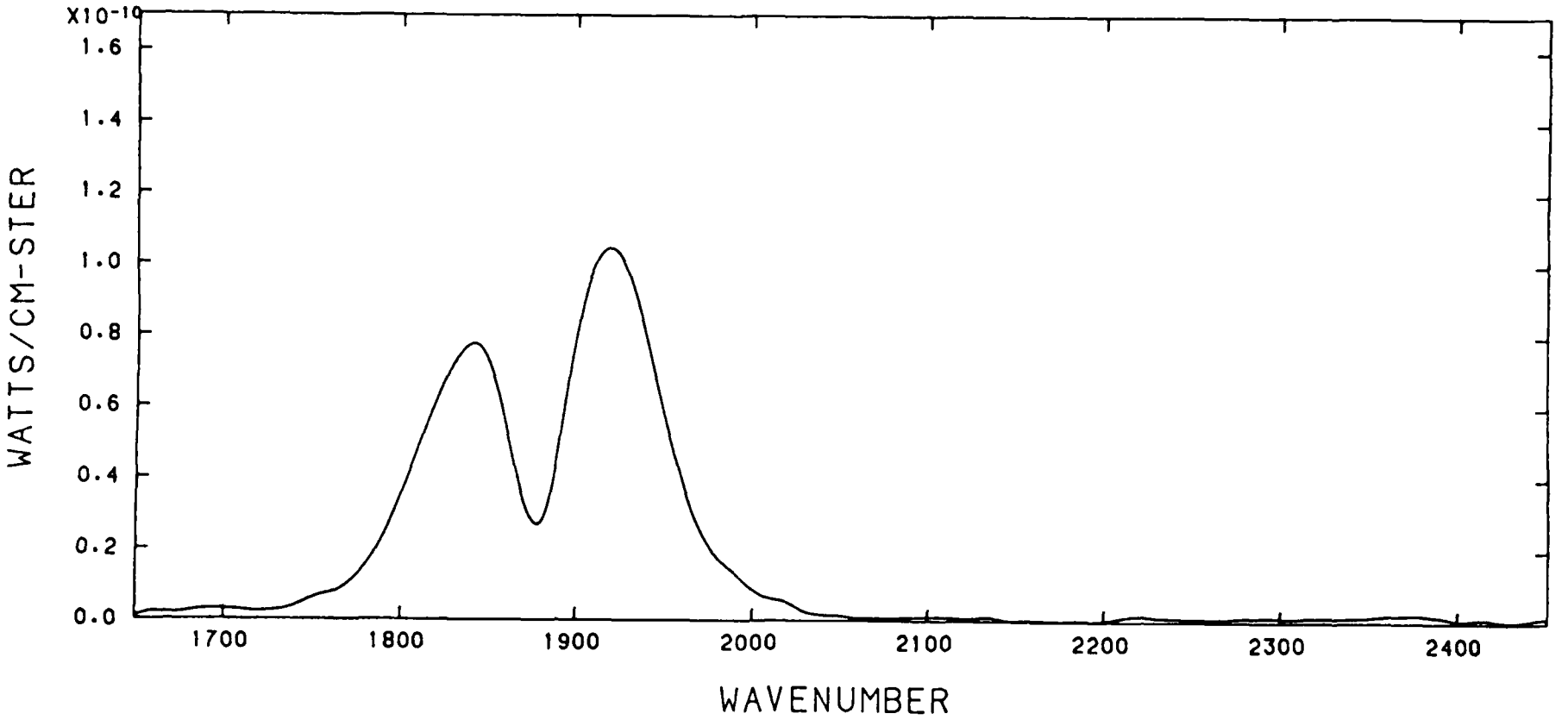
FILE 97, TIME 9:10:19.966, ALT 127.6-127.5 KM

30-NOV-83 09:32



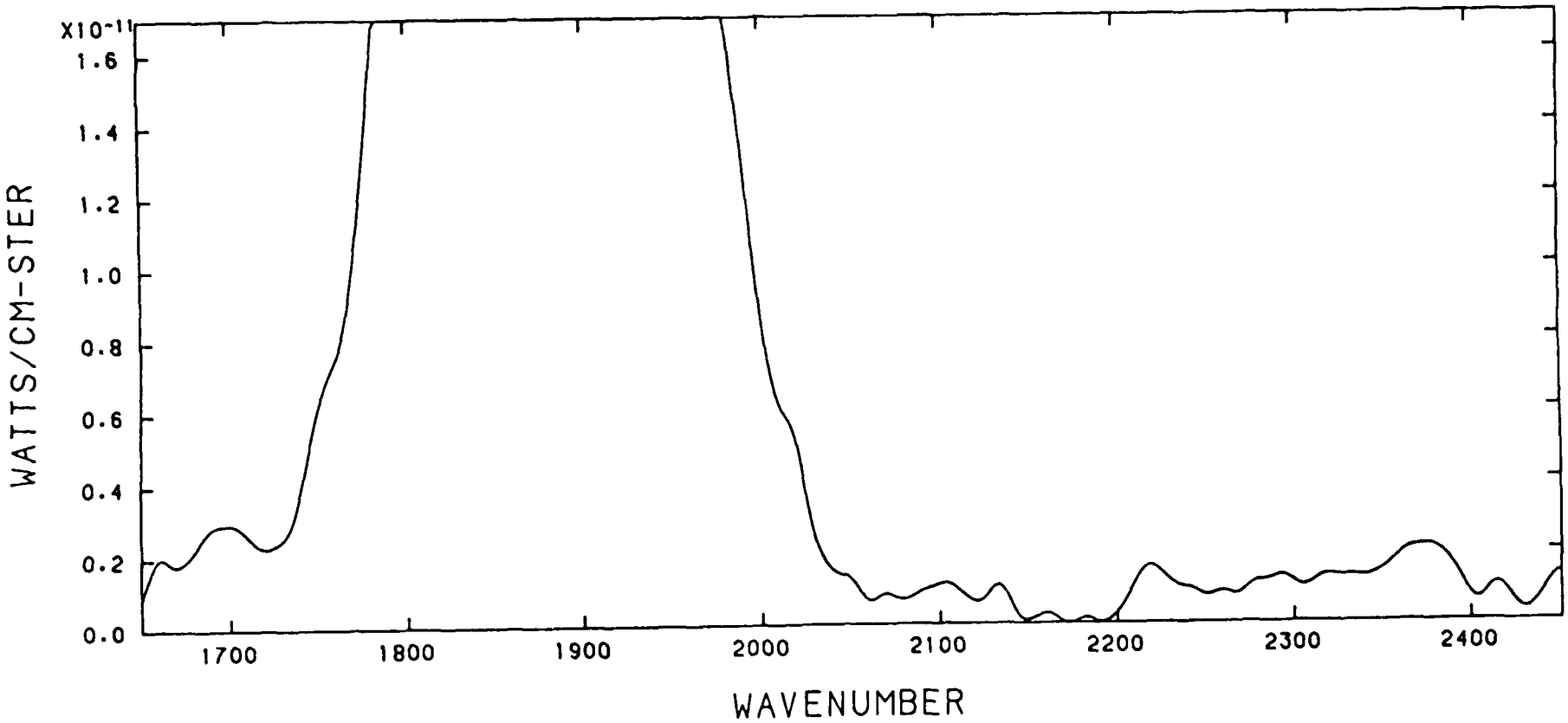
FILE 97, TIME 9:10:19.966, ALT 127.6-127.5 KM

30-NOV-83 09:32



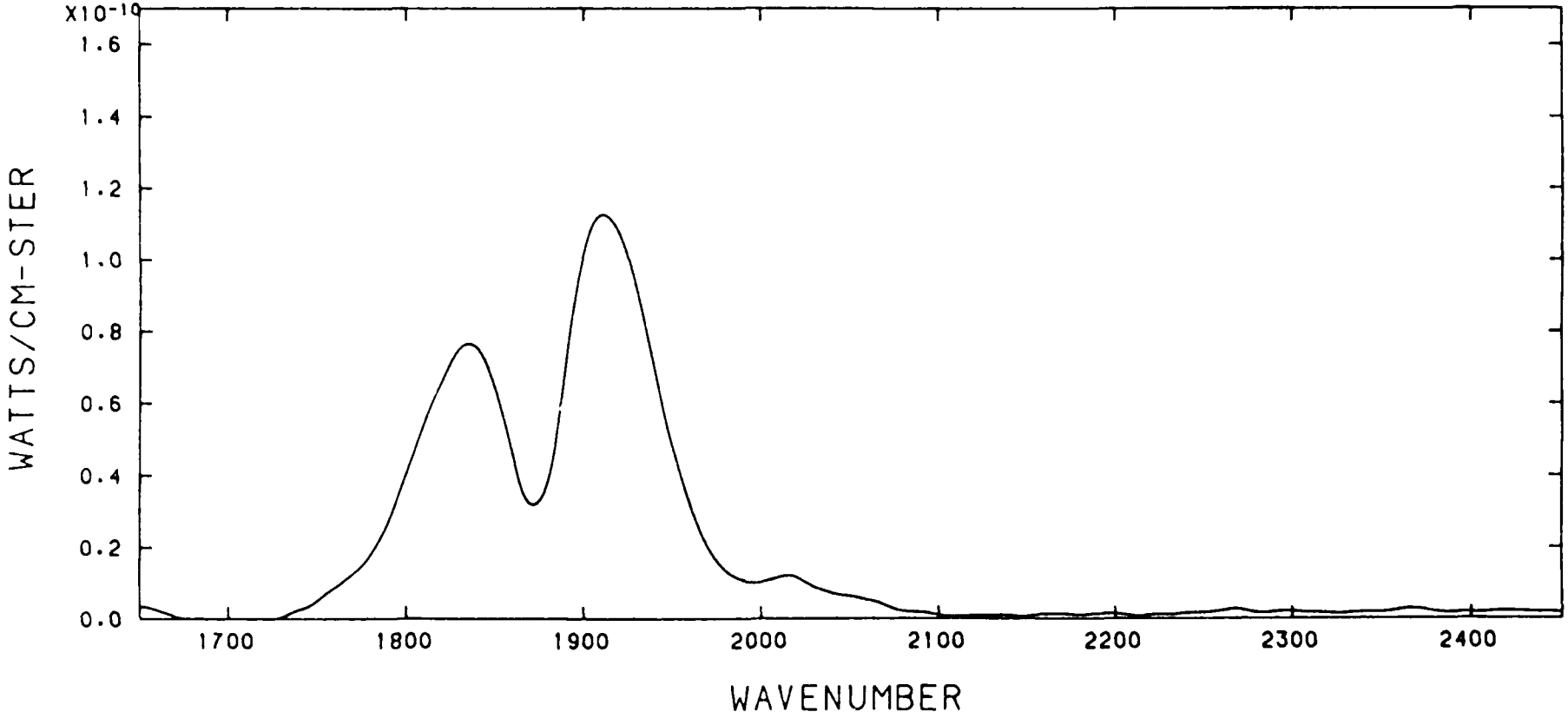
FILE 98, TIME 9:10:22.736, ALT 126.3-126.1 KM

30-NOV-83 09:33



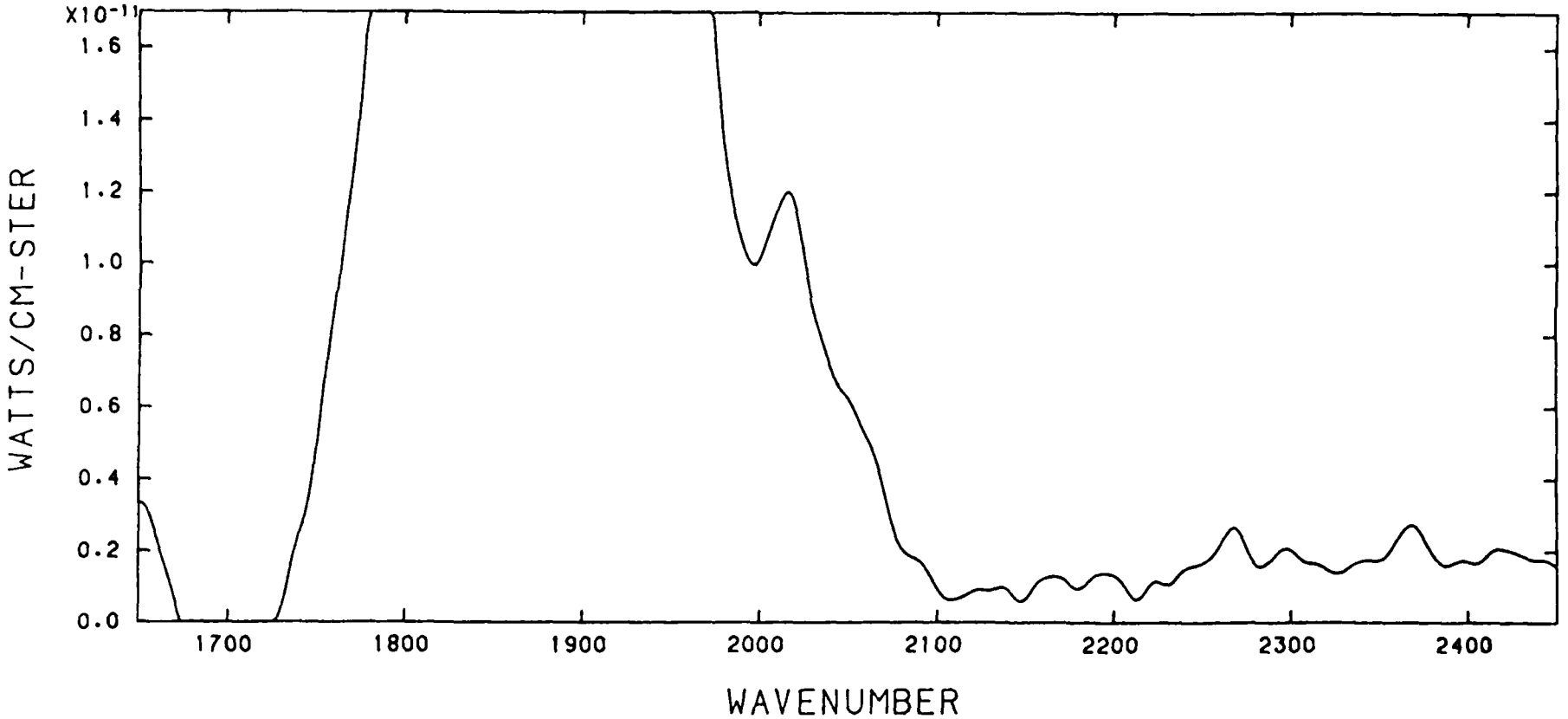
FILE 98, TIME 9:10:22.736, ALT 126.3-126.1 KM

30-NOV-83 09:33



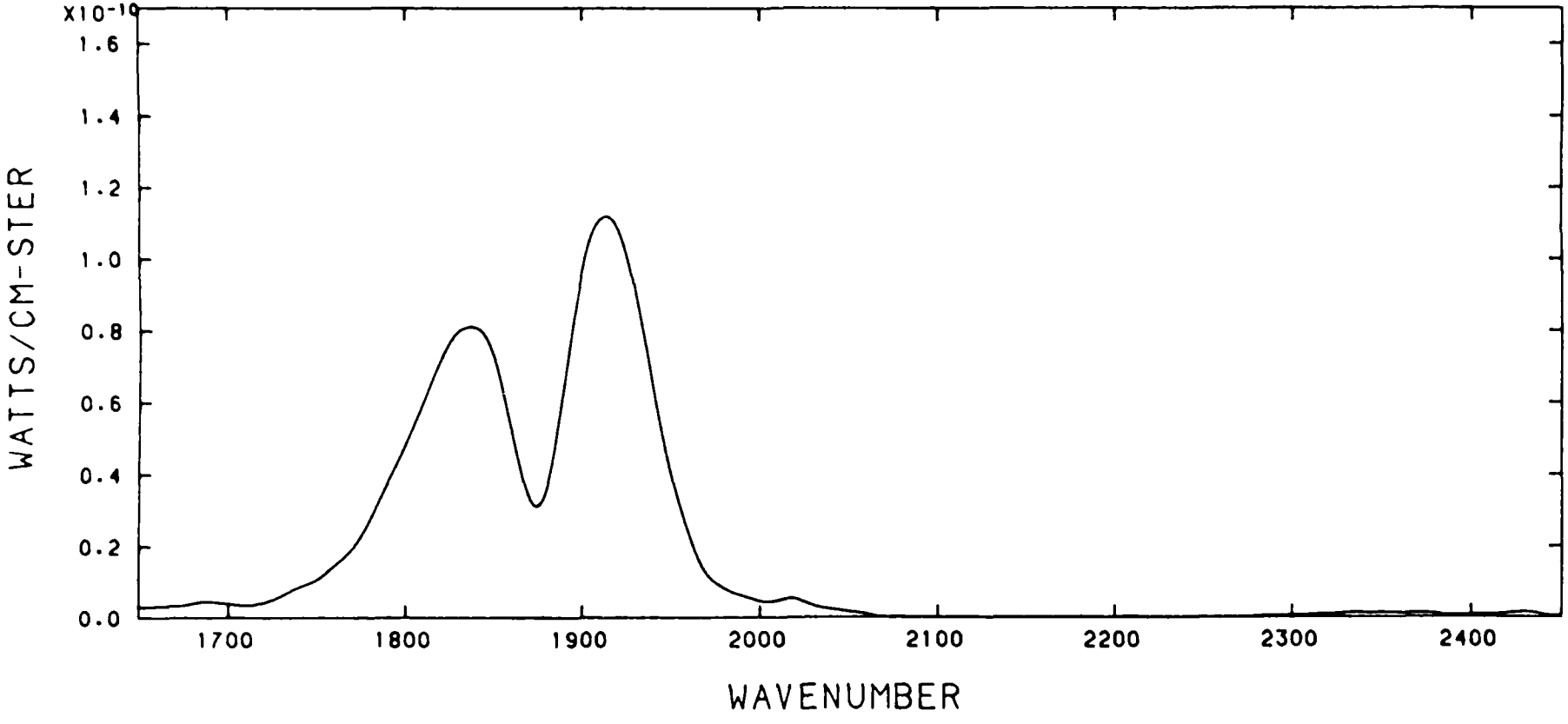
FILE 99, TIME 9:10:23.234, ALT 126.1-125.9 KM

30-NOV-83 09:33



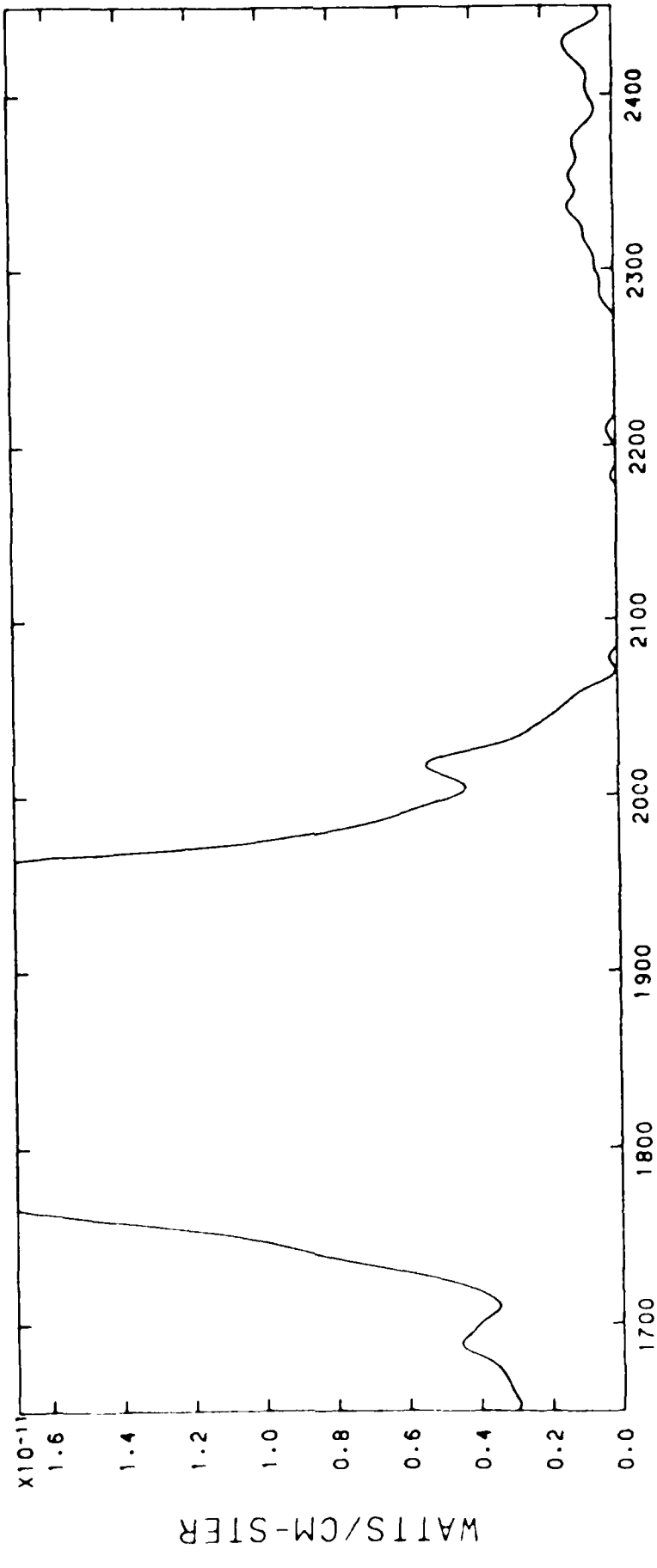
FILE 99, TIME 9:10:23.234, ALT 126.1-125.9 KM

30-NOV-83 09:33



FILE 100, TIME 9:10:25.996, ALT 124.6-124.5 KM

30-NOV-83 09:33


WATTS/CM-STER
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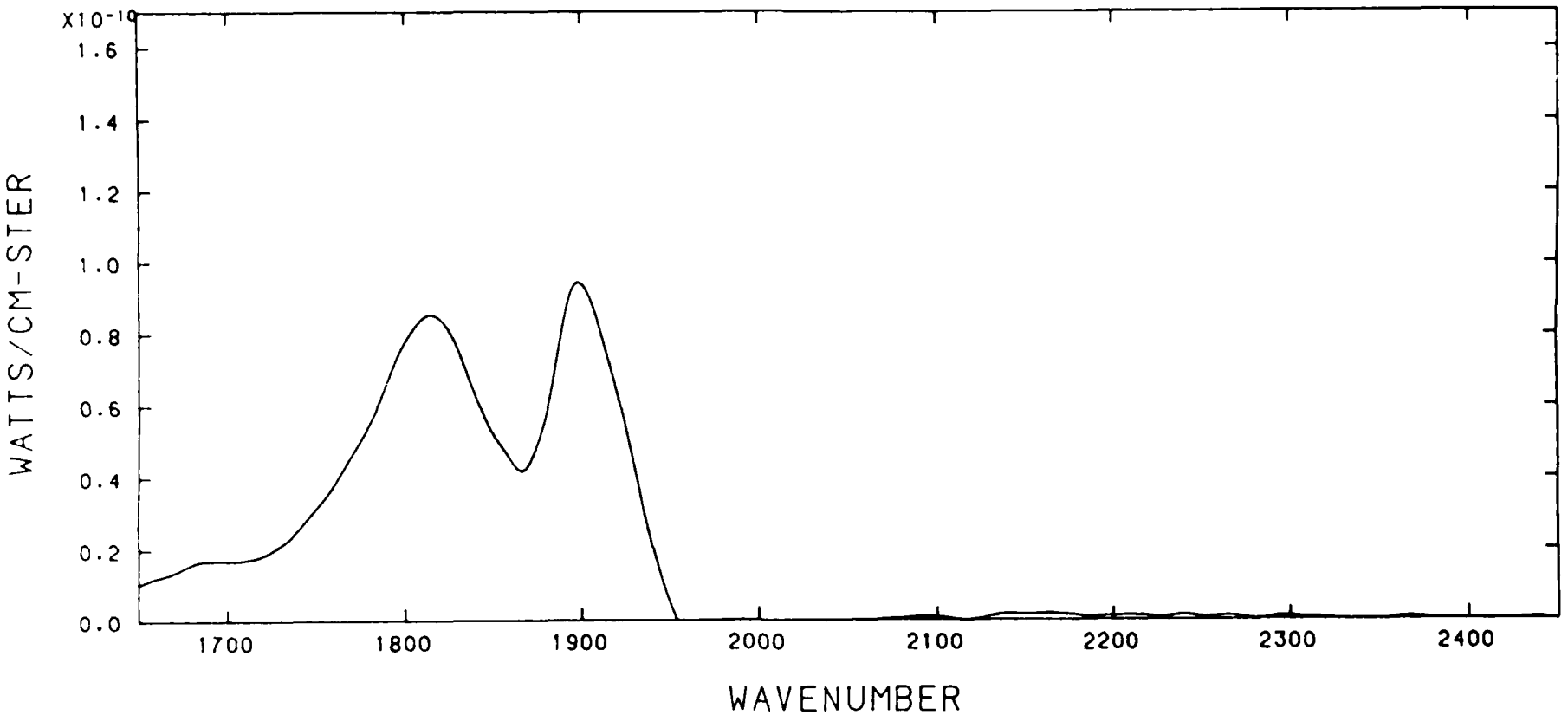
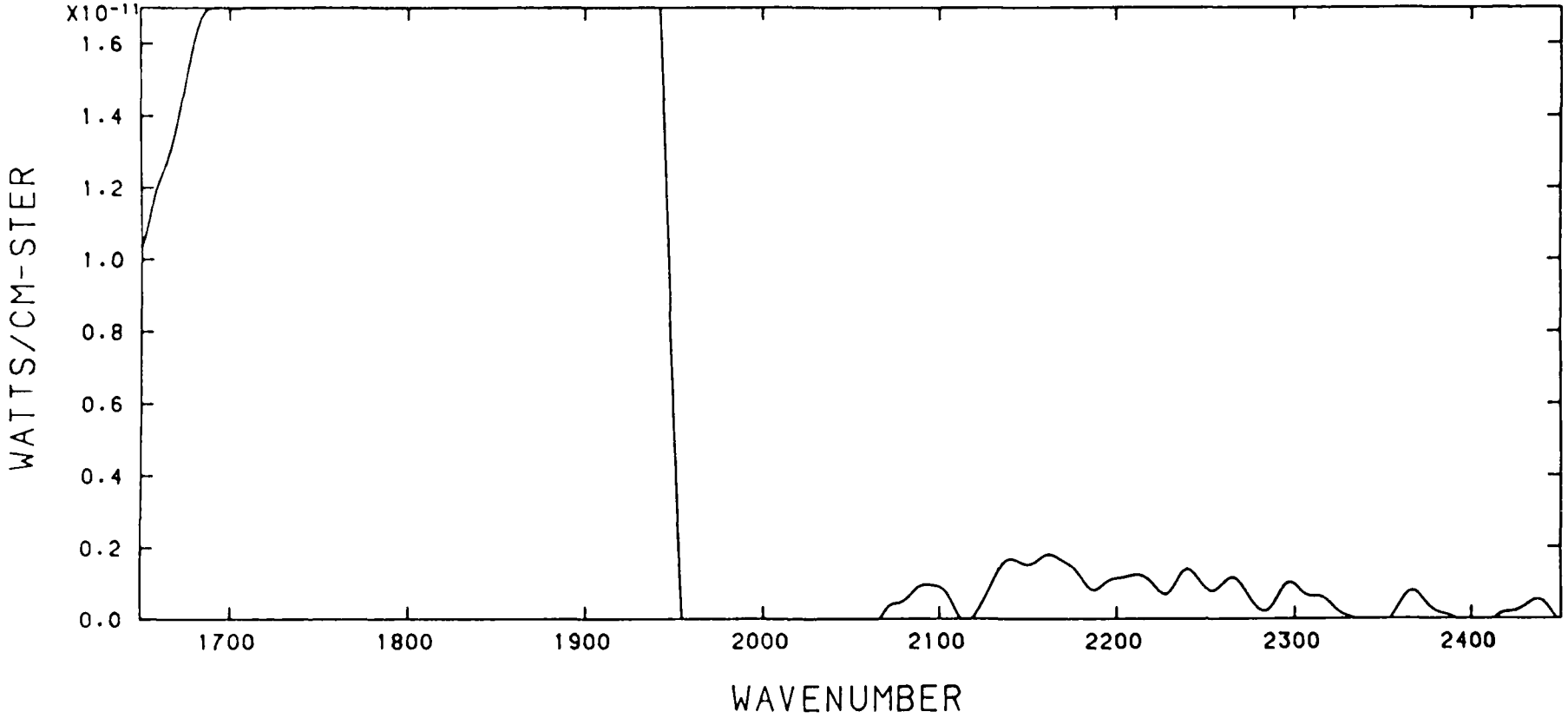
FILE 100, TIME 9:10:25.996, ALT 124.6-124.5 KM
30-NOV-83 09:33



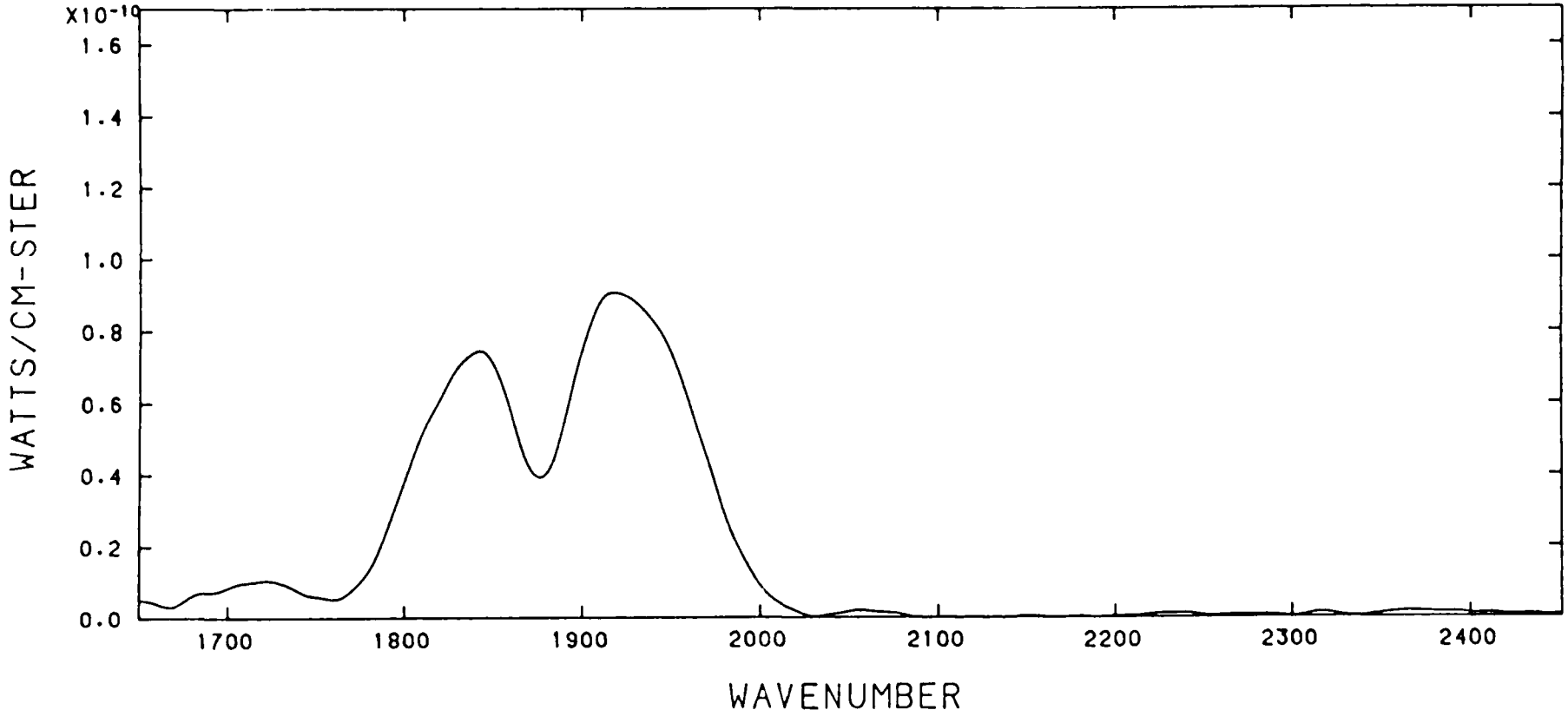
FILE 101, TIME 9:10:26.494, ALT 124.4-124.2 KM

30-NOV-83 09:34



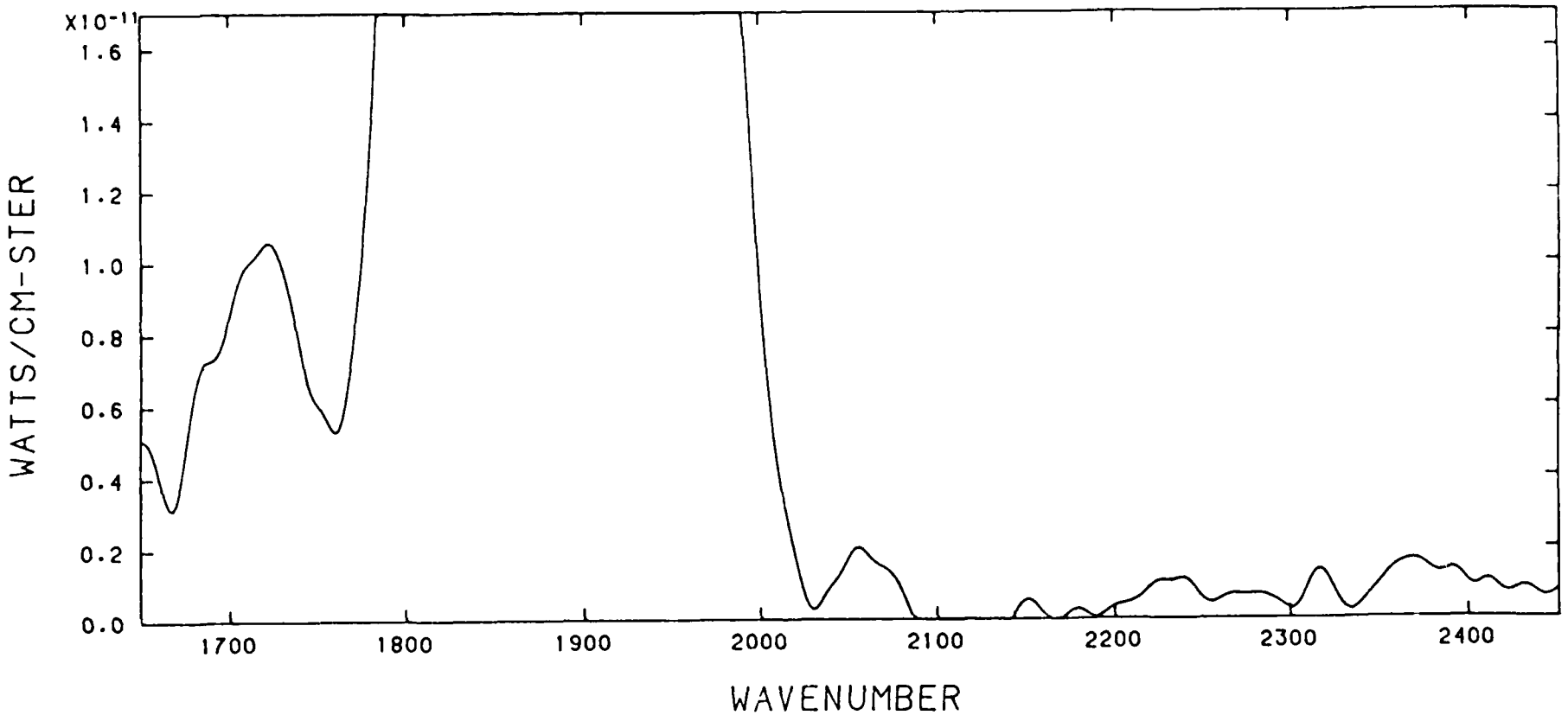
FILE 101, TIME 9:10:26.494, ALT 124.4-124.2 KM

30-NOV-83 09:34



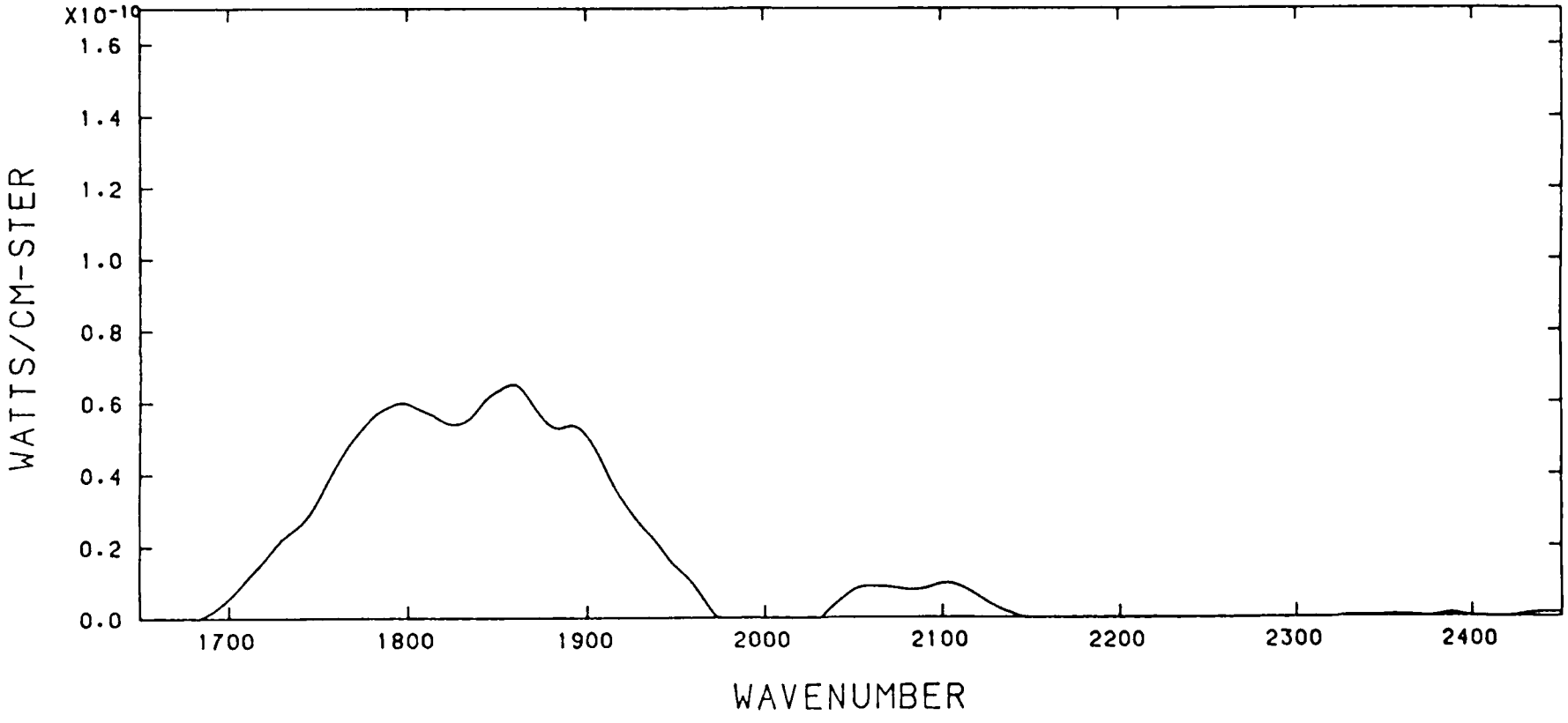
FILE 102, TIME 9:10:29.256, ALT 122.9-122.7 KM

30-NOV-83 09:34



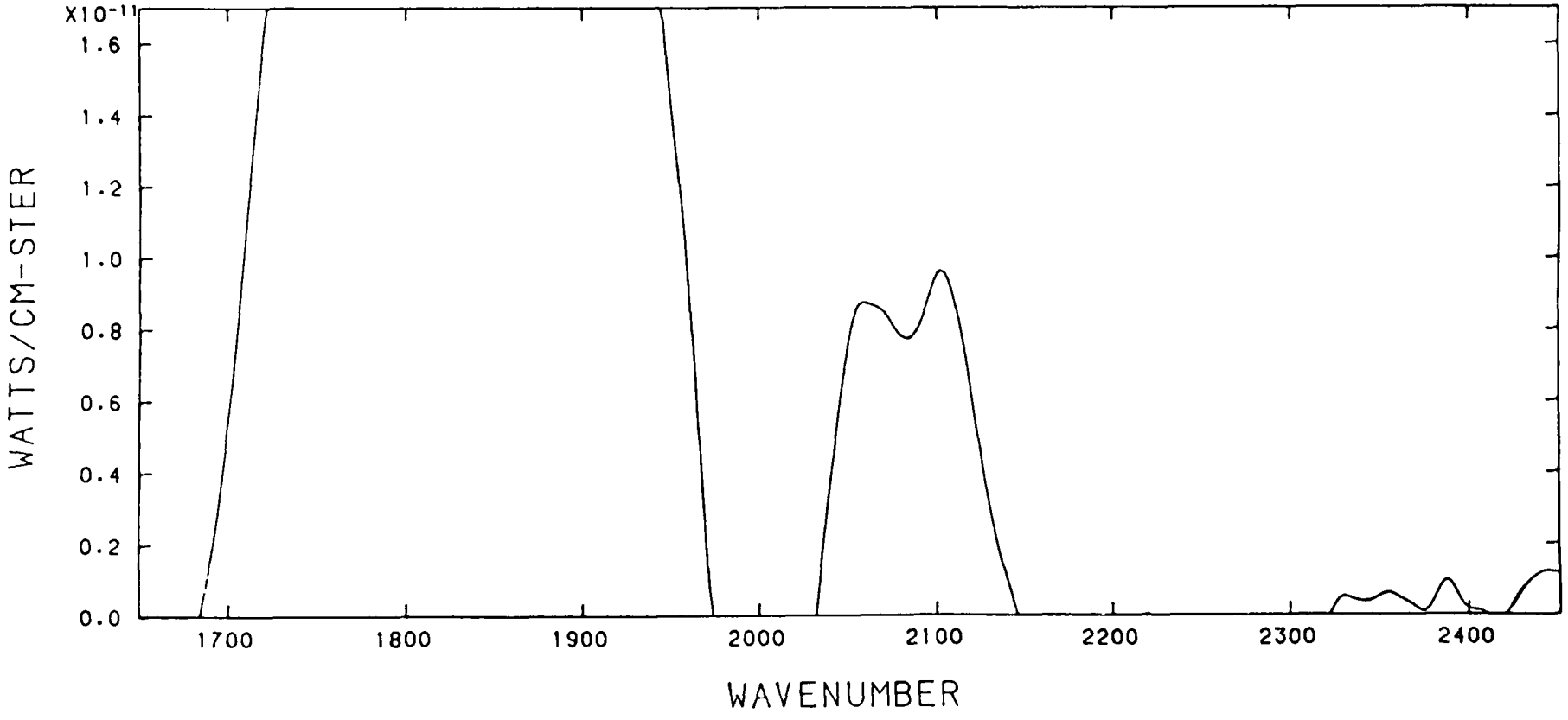
FILE 102, TIME 9:10:29.256, ALT 122.9-122.7 KM

30-NOV-83 09:34



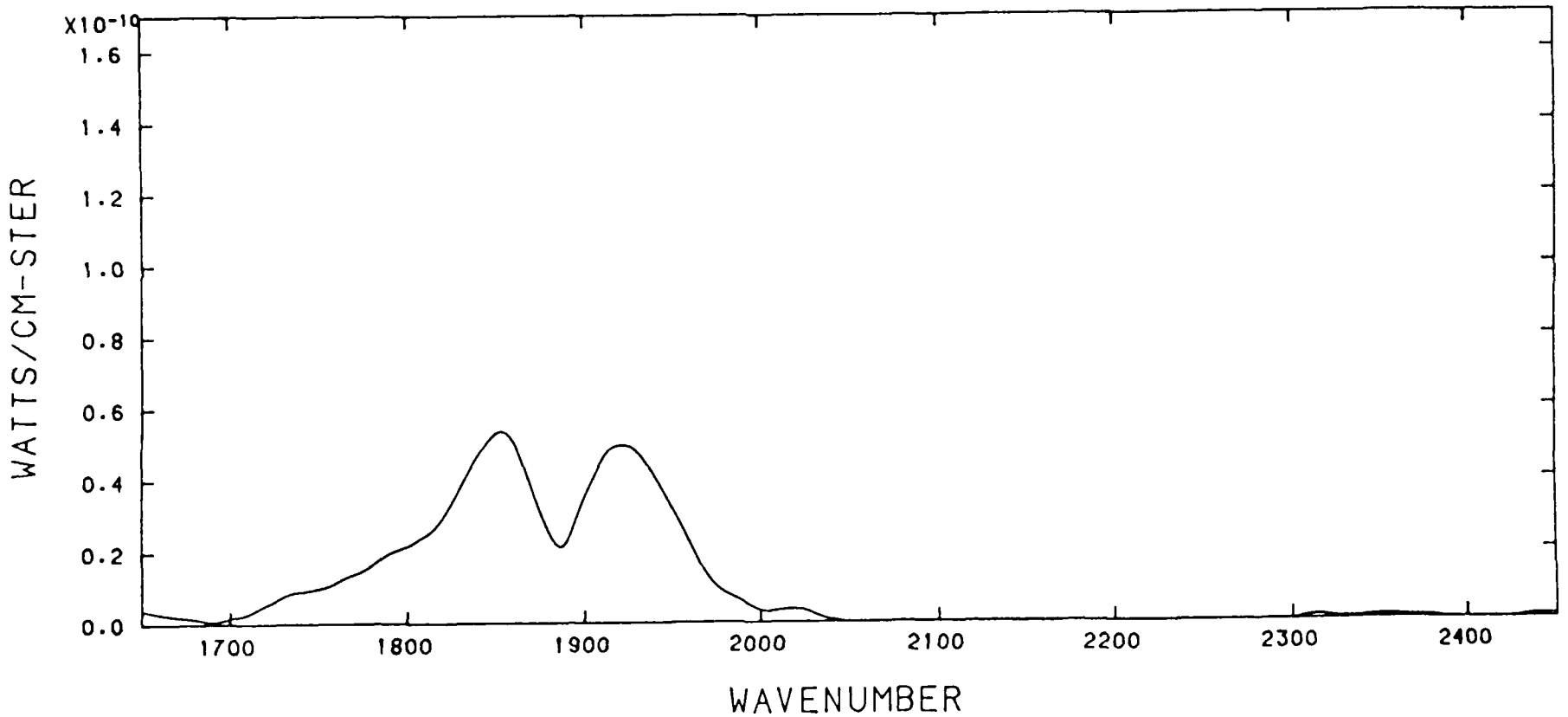
FILE 103, TIME 9:10:29.754, ALT 122.6-122.4 KM

30-NOV-83 09:34



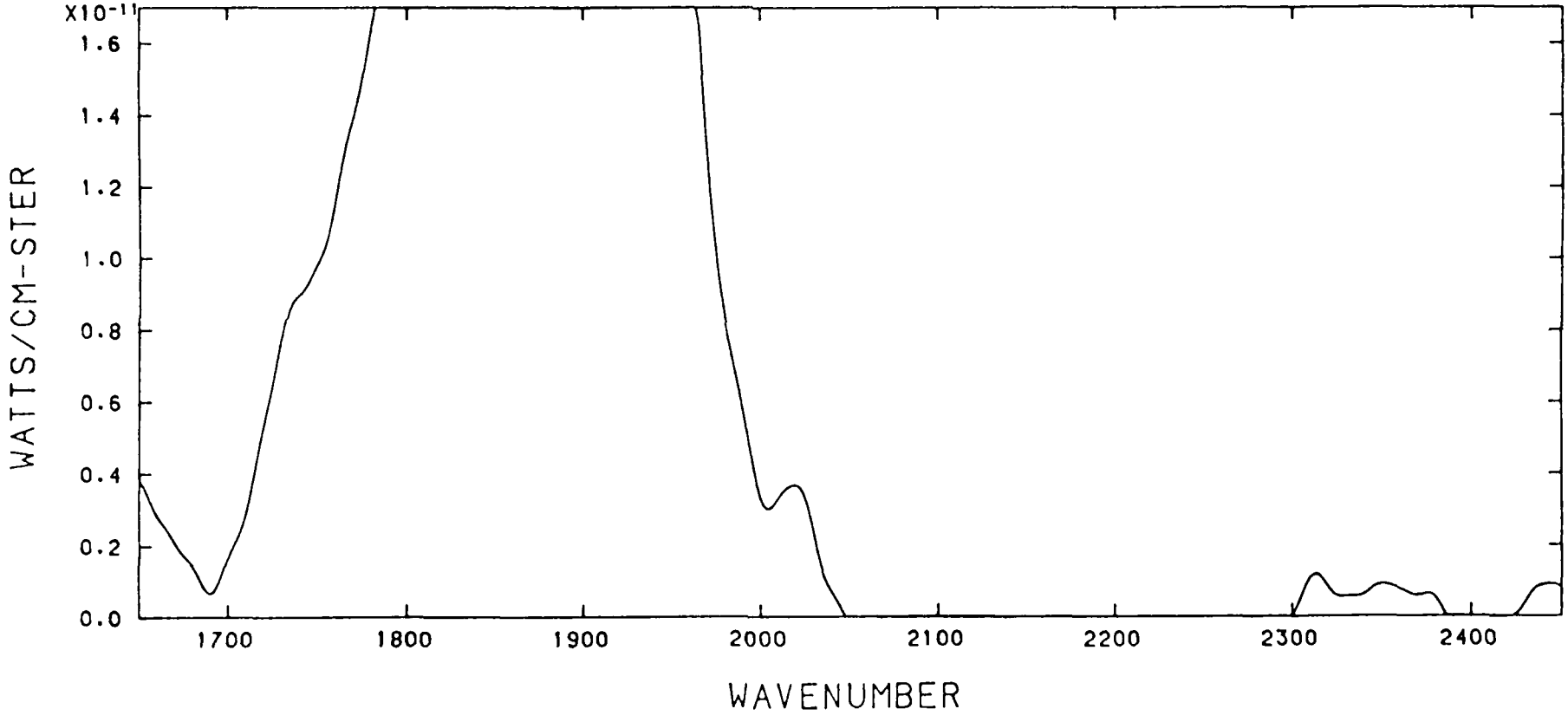
FILE 103, TIME 9:10:29.754, ALT 122.6-122.4 KM

30-NOV-83 09:34



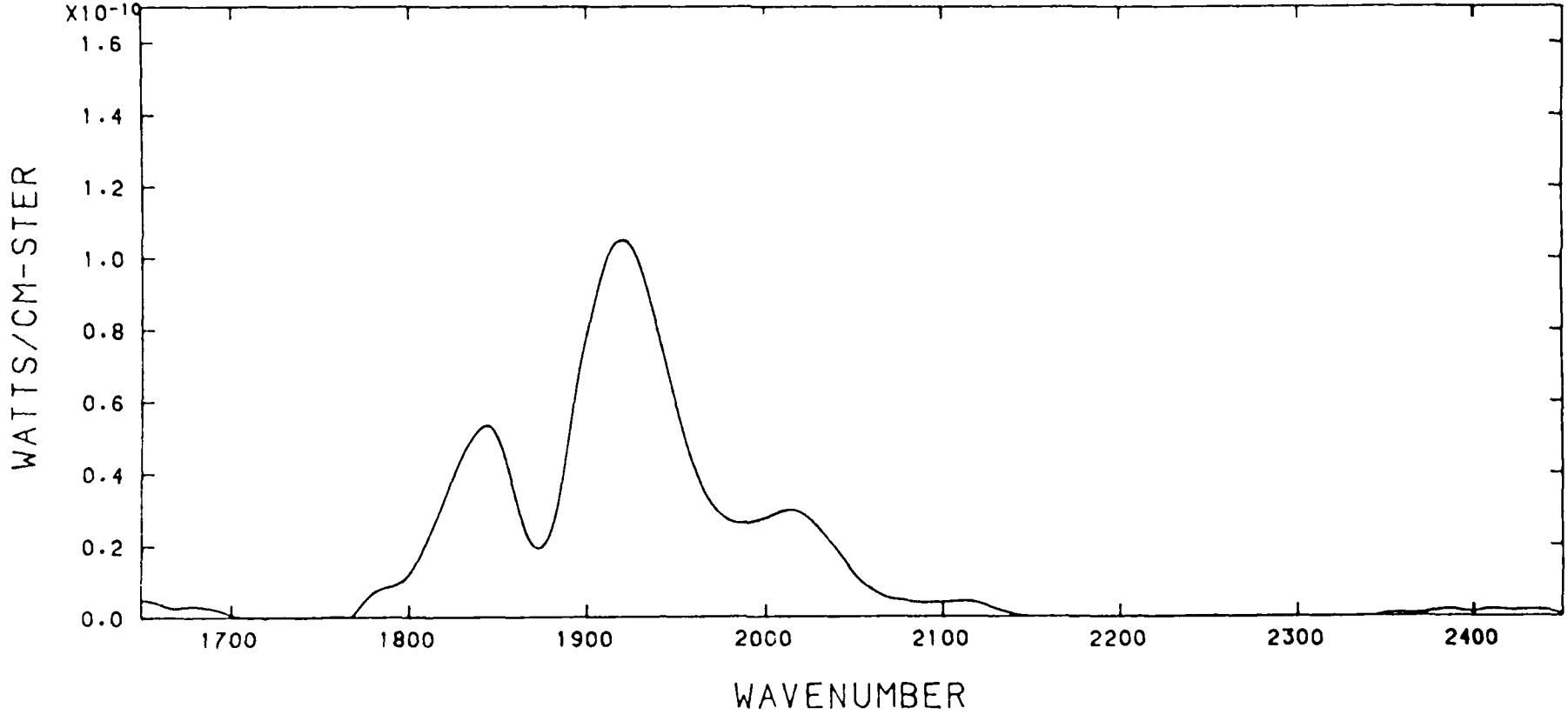
FILE 104, TIME 9:10:32.526, ALT 121.0-120.8 KM

30-NOV-83 09:34



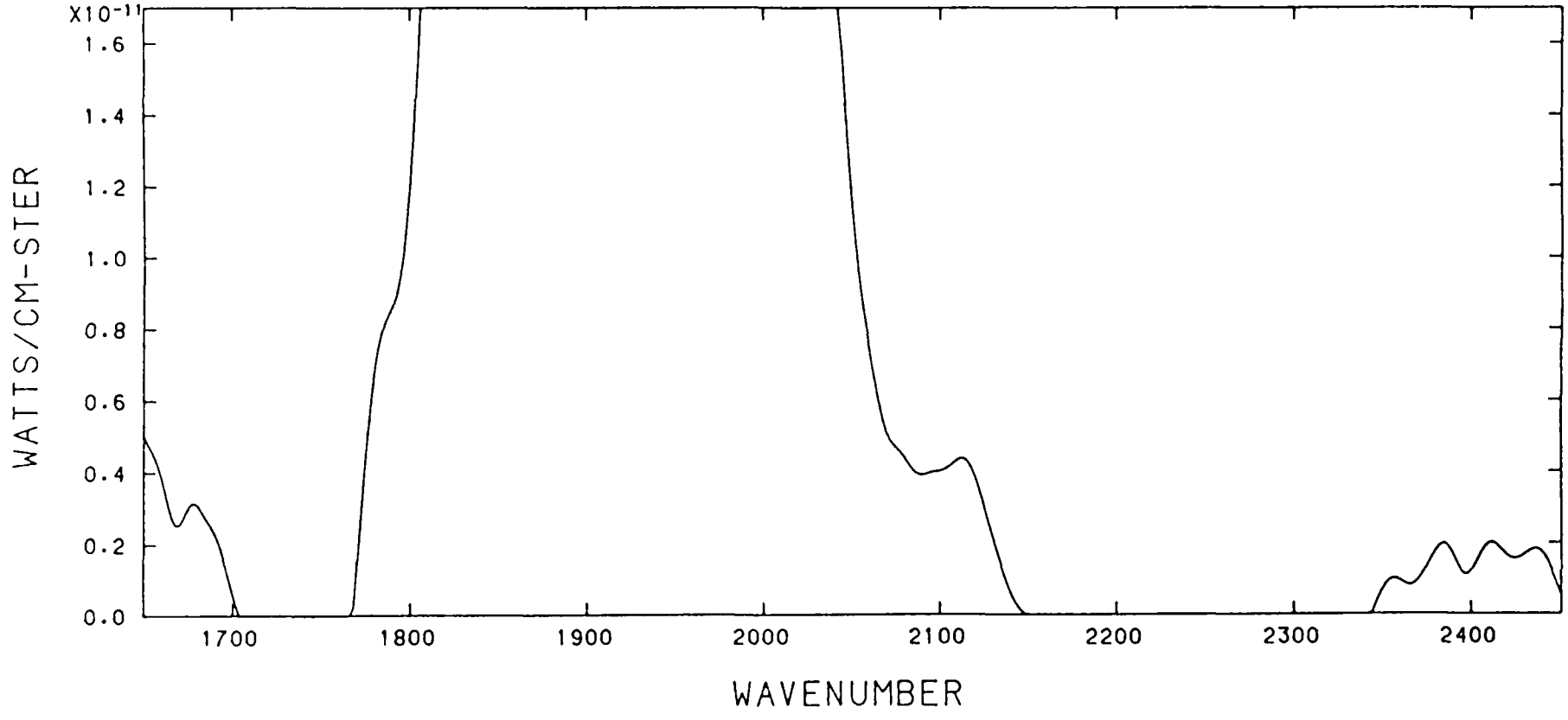
FILE 104, TIME 9:10:32.526, ALT 121.0-120.8 KM

30-NOV-83 09:34



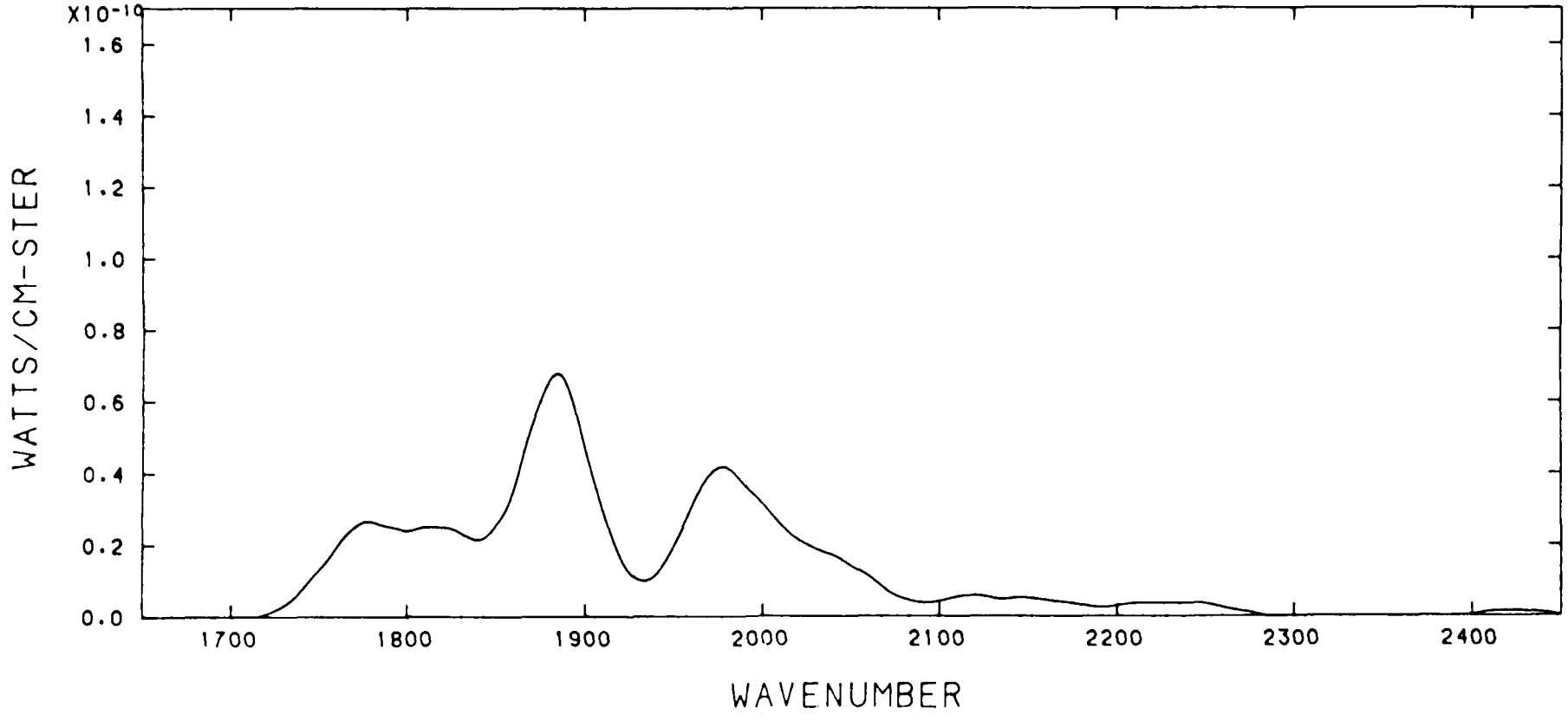
FILE 105, TIME 9:10:33. 24, ALT 120.7-120.5 KM

30-NOV-83 09:34



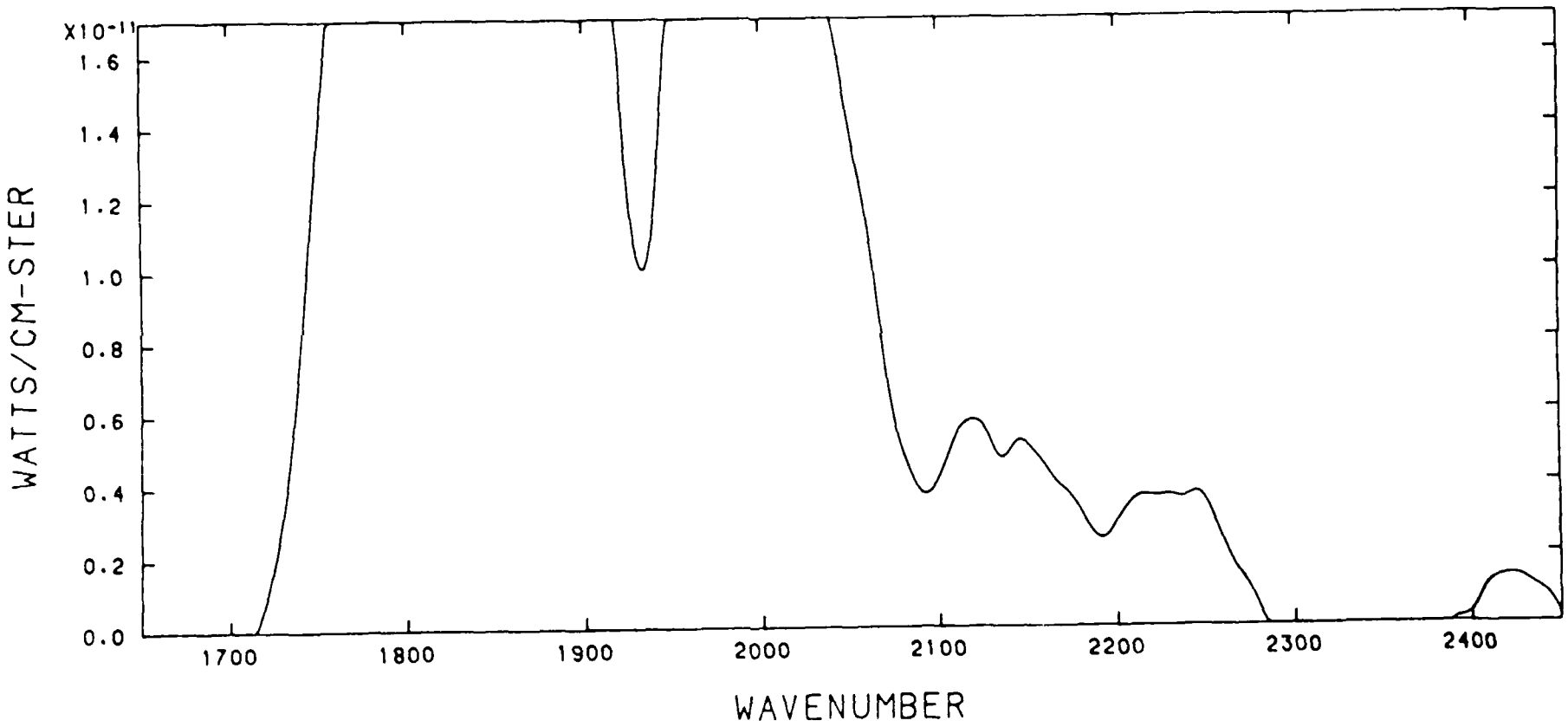
FILE 105, TIME 9:10:33. 24, ALT 120.7-120.5 KM

19-DEC-83 09:24



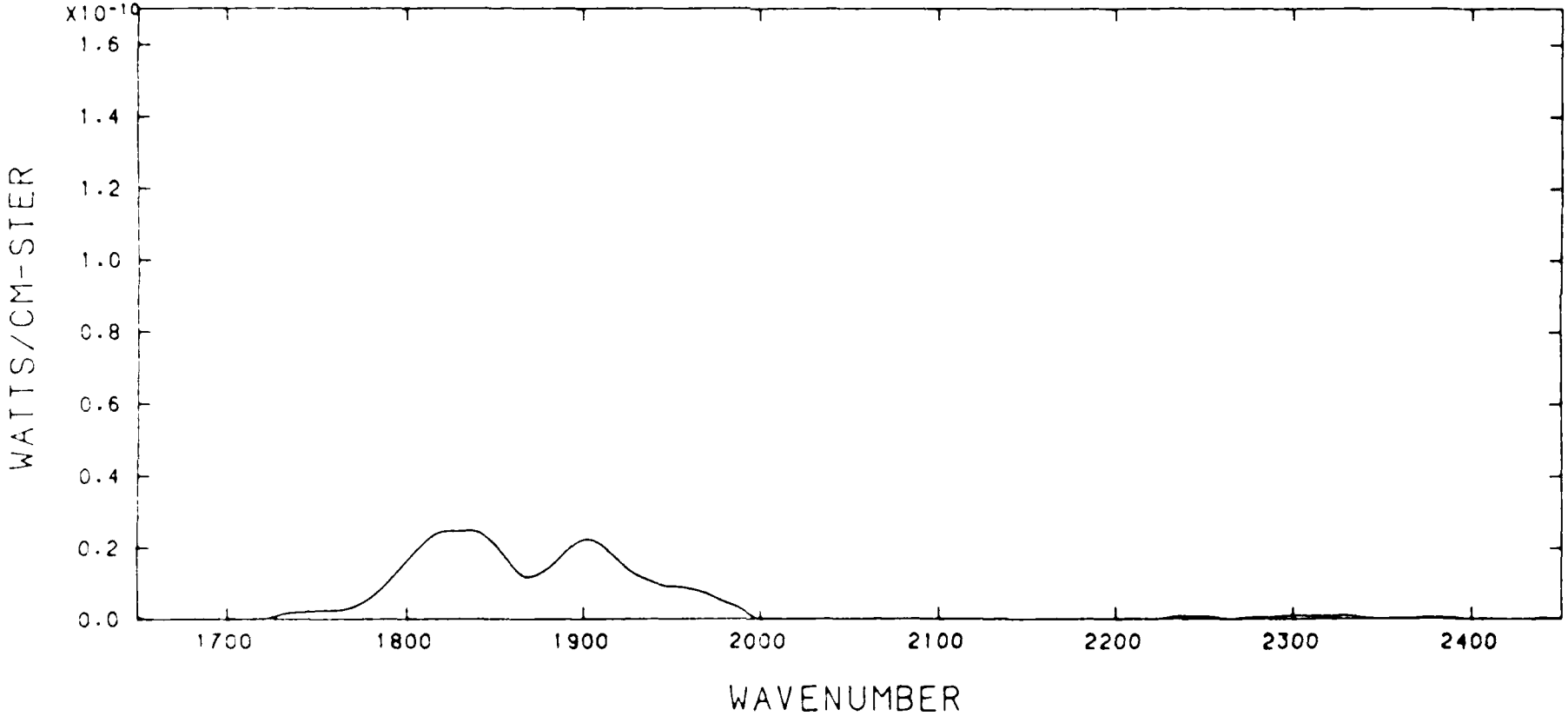
FILE 106, TIME 9:10:35.784, ALT 119.1-118.8 KM

30-NOV-83 09:34



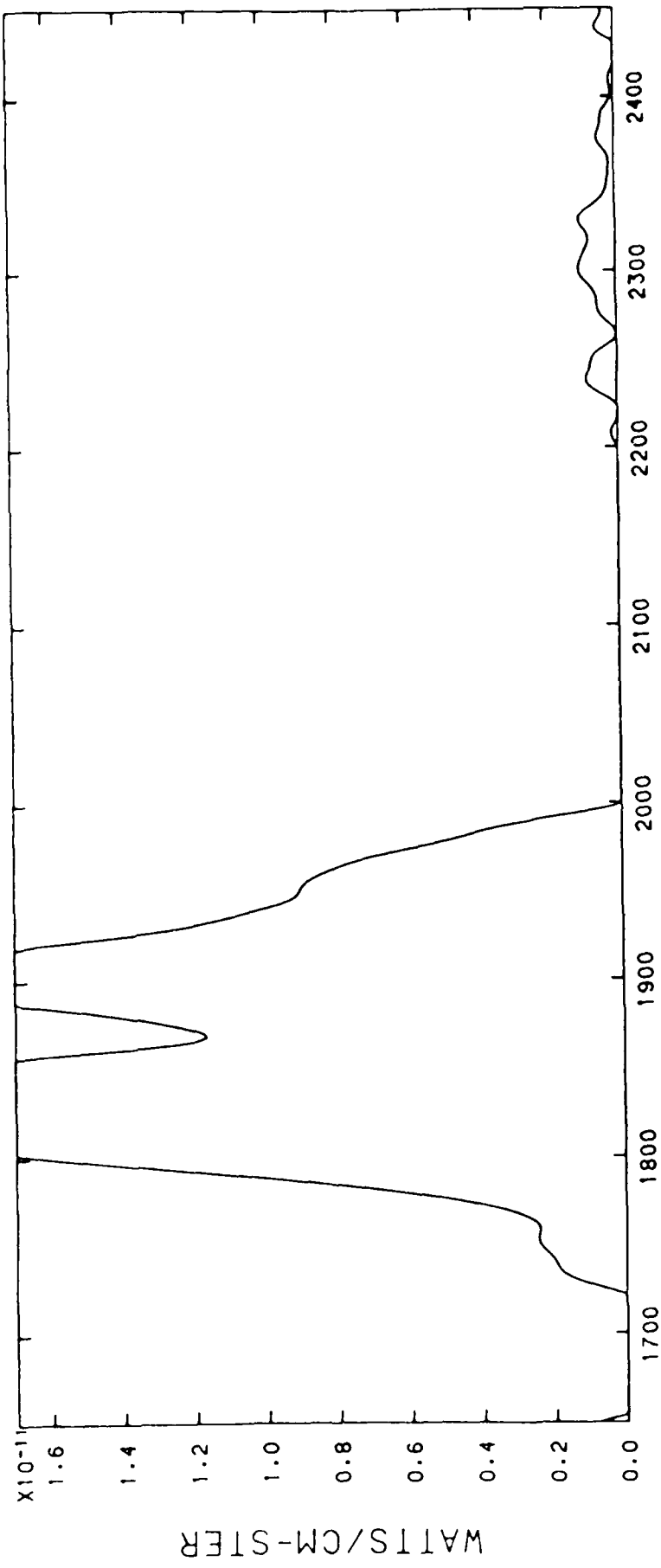
FILE 106, TIME 9:10:35.784, ALT 119.1-118.8 KM

30-NOV-83 09:34



FILE 107, TIME 9:10:36.274, ALT 118.7-118.5 KM

30-NOV-83 09:34


WATTS/CM-STER
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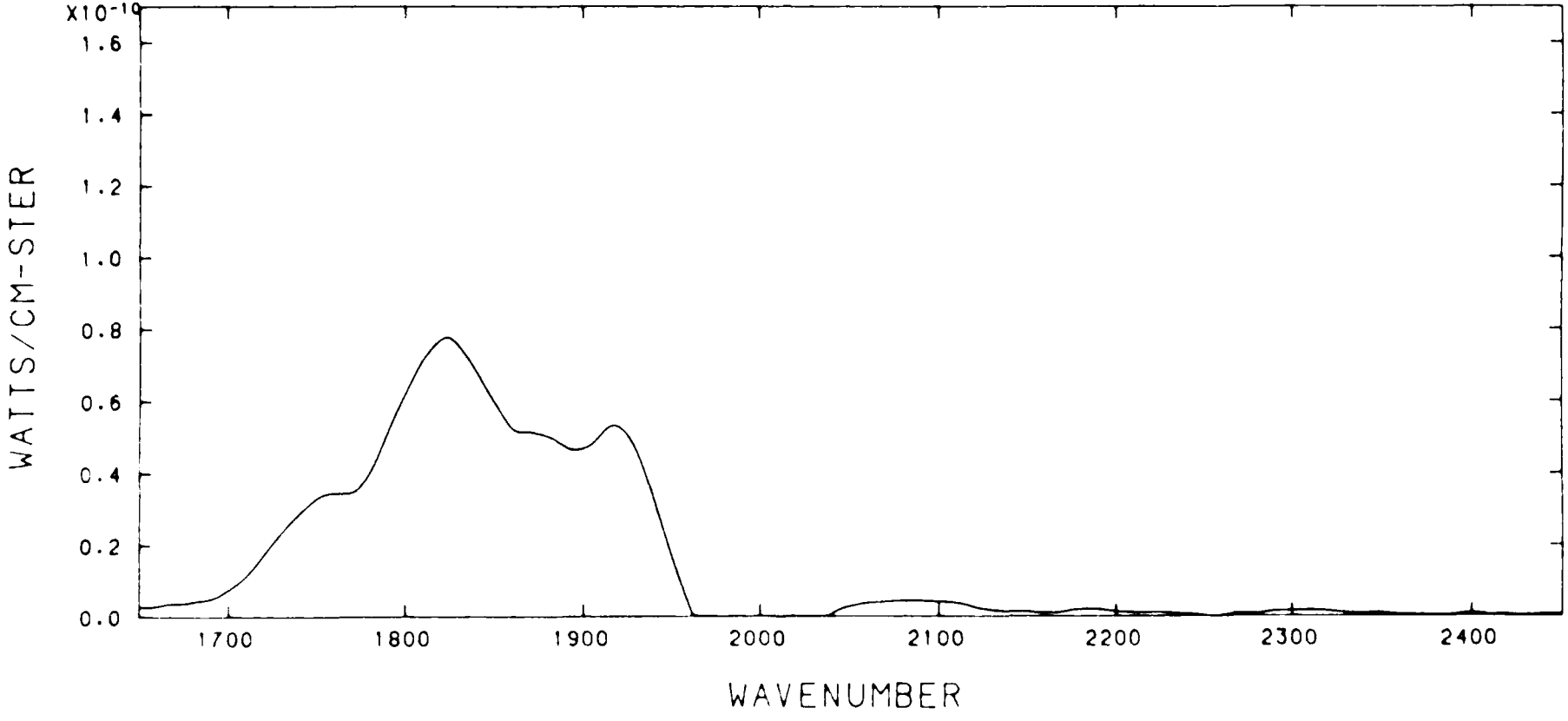
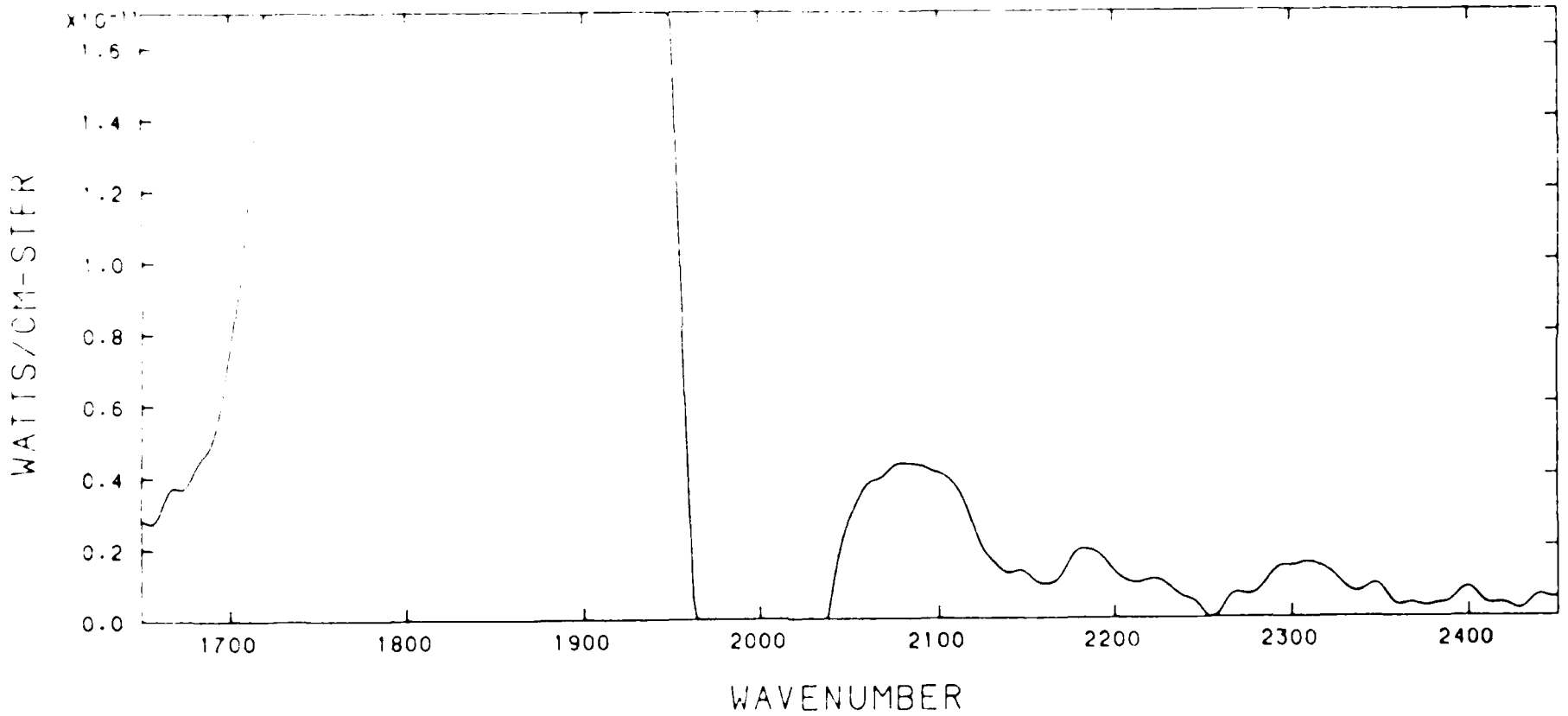
FILE 107, TIME 9:10:36.274, ALT 118.7-118.5 KM
30-NOV-83 09:34



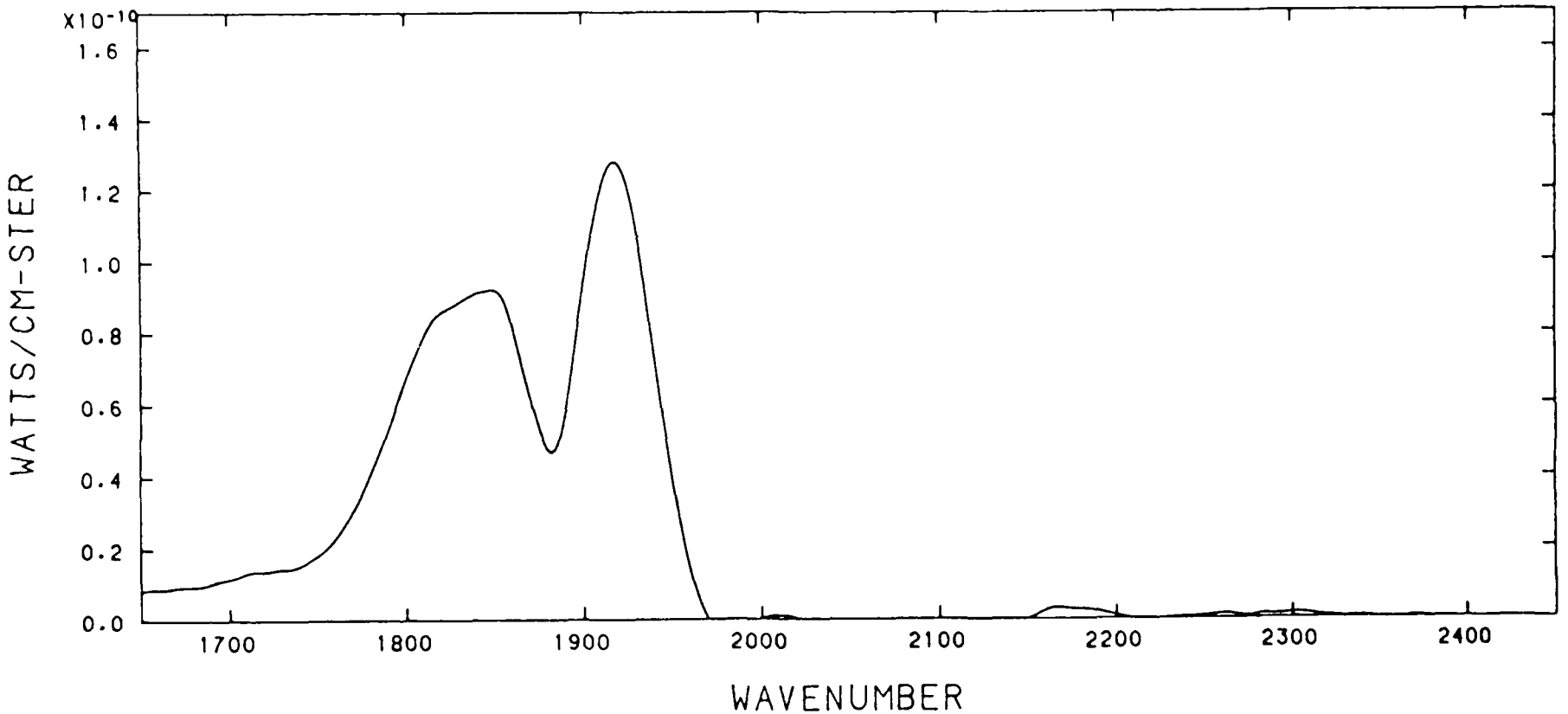
FILE 108, TIME 9:10:39.40, ALT 117.0-116.8 KM

30-NOV-83 09:34



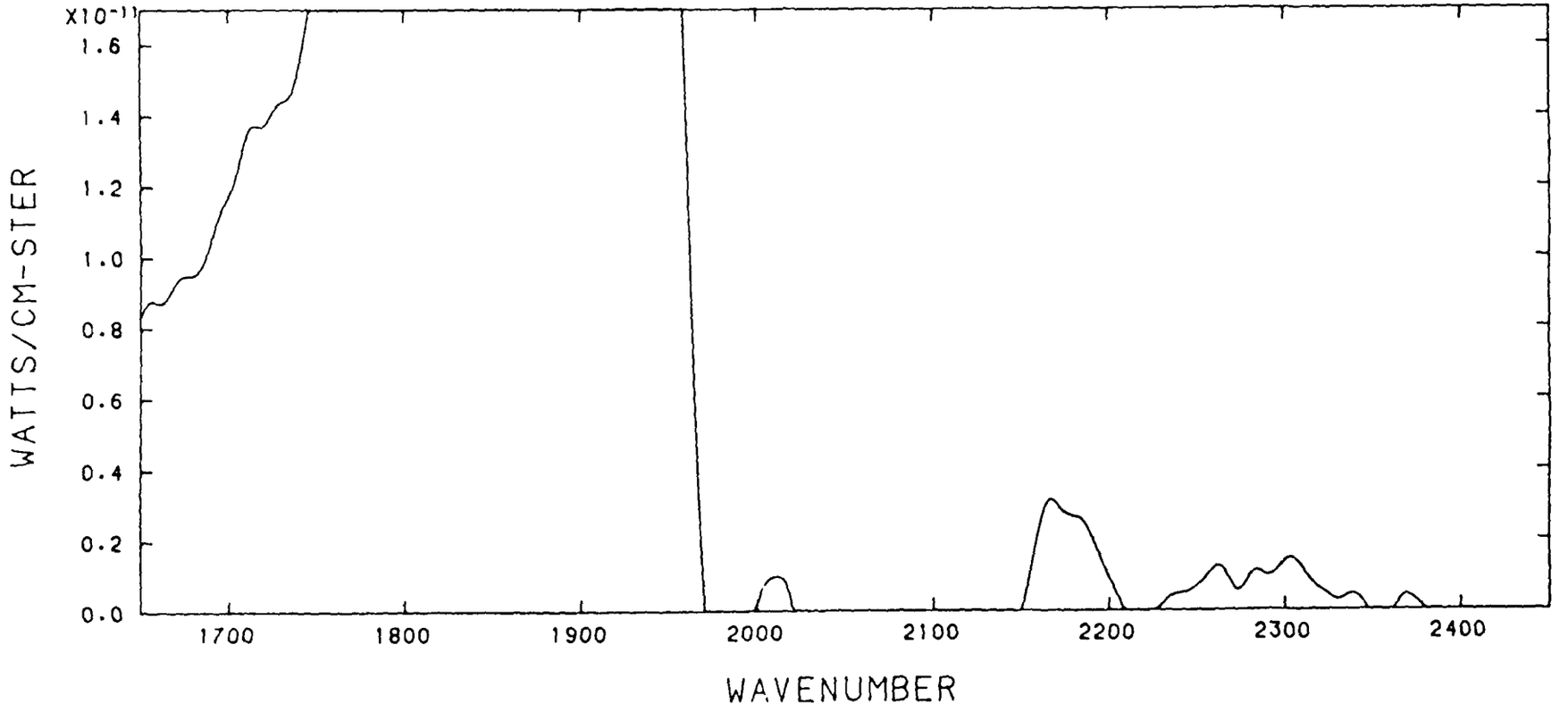
FILE 108, TIME 9:10:39.40, ALT 117.0-116.8 KM

30-NOV-83 09:34



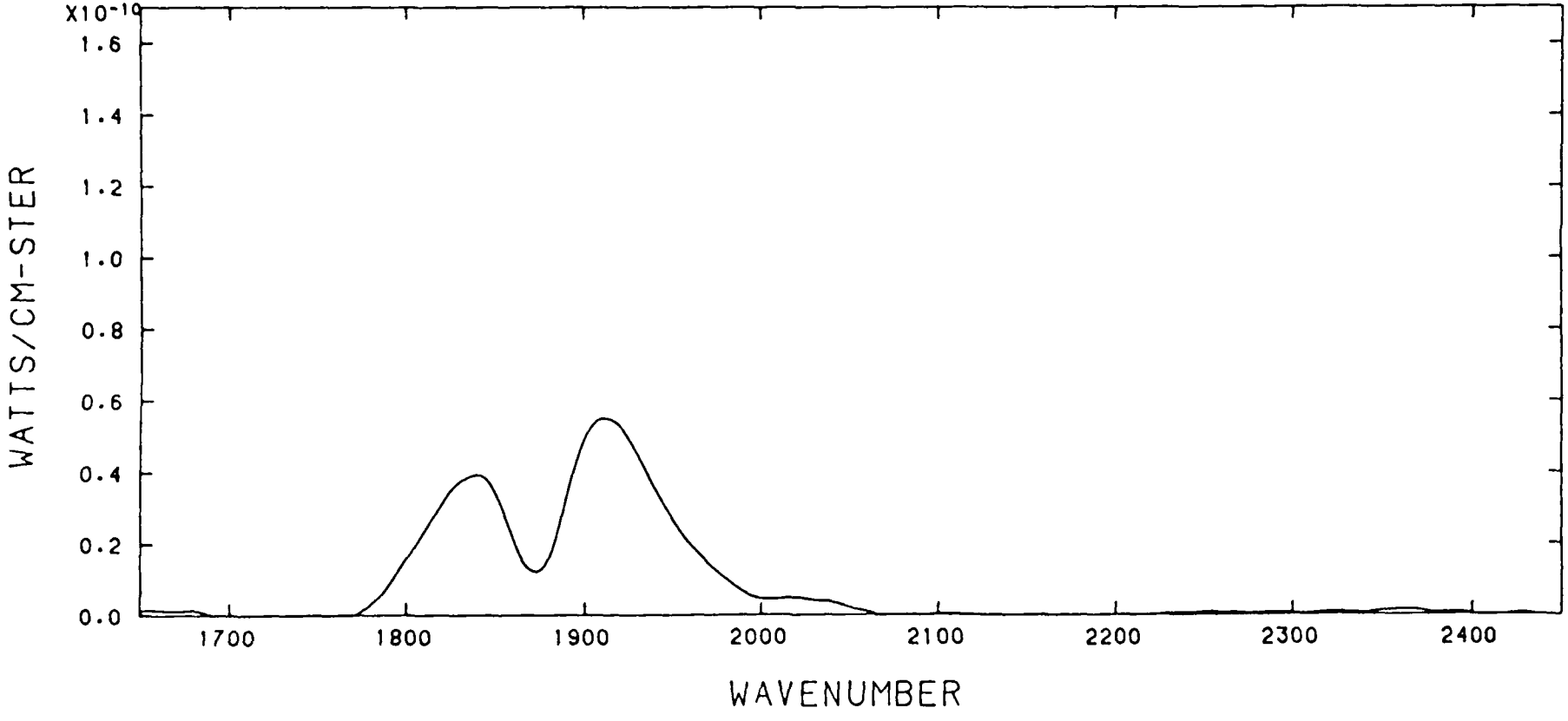
FILE 109, TIME 9:10:39.538, ALT 116.7-116.4 KM

30-NOV-83 09:34



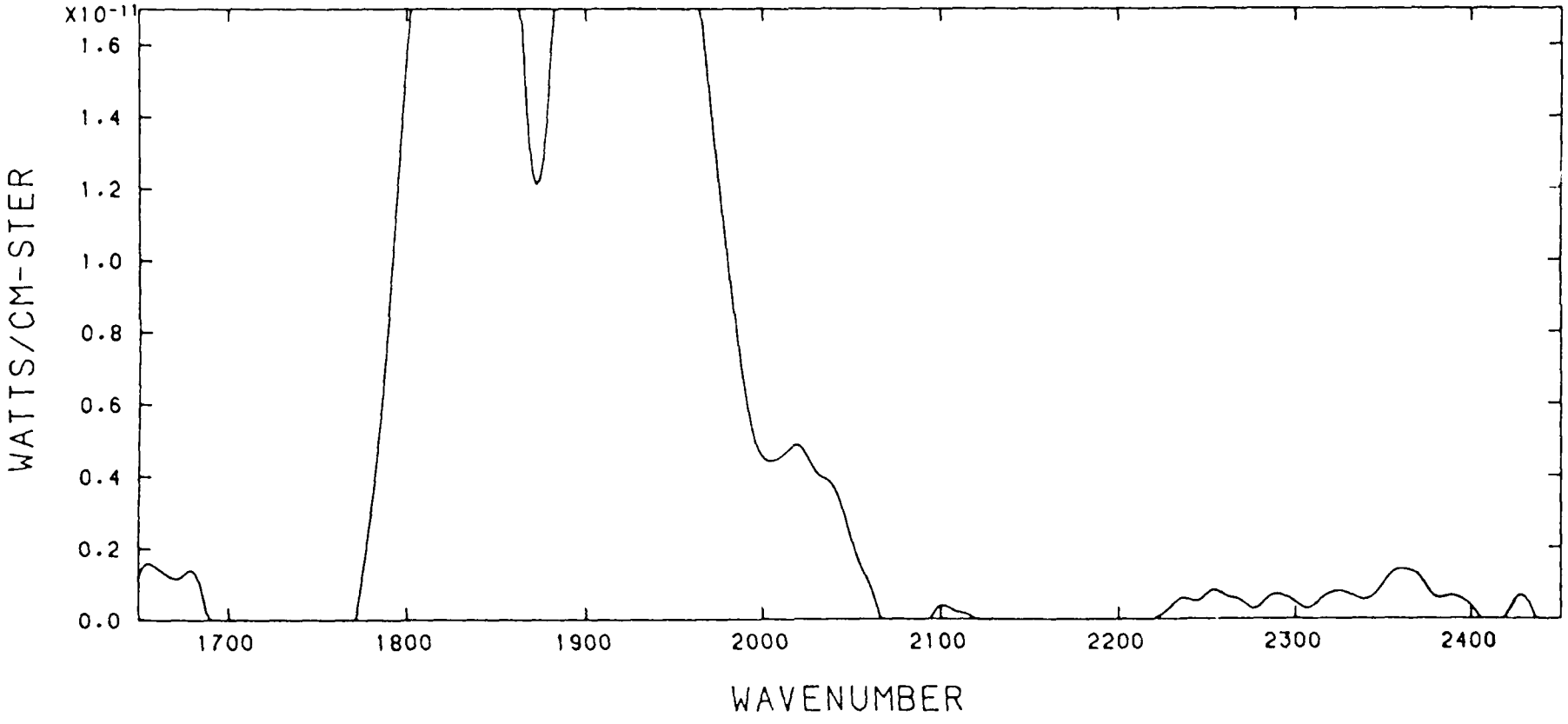
FILE 109, TIME 9:10:39.538, ALT 116.7-116.4 KM

30-NOV-83 09:34



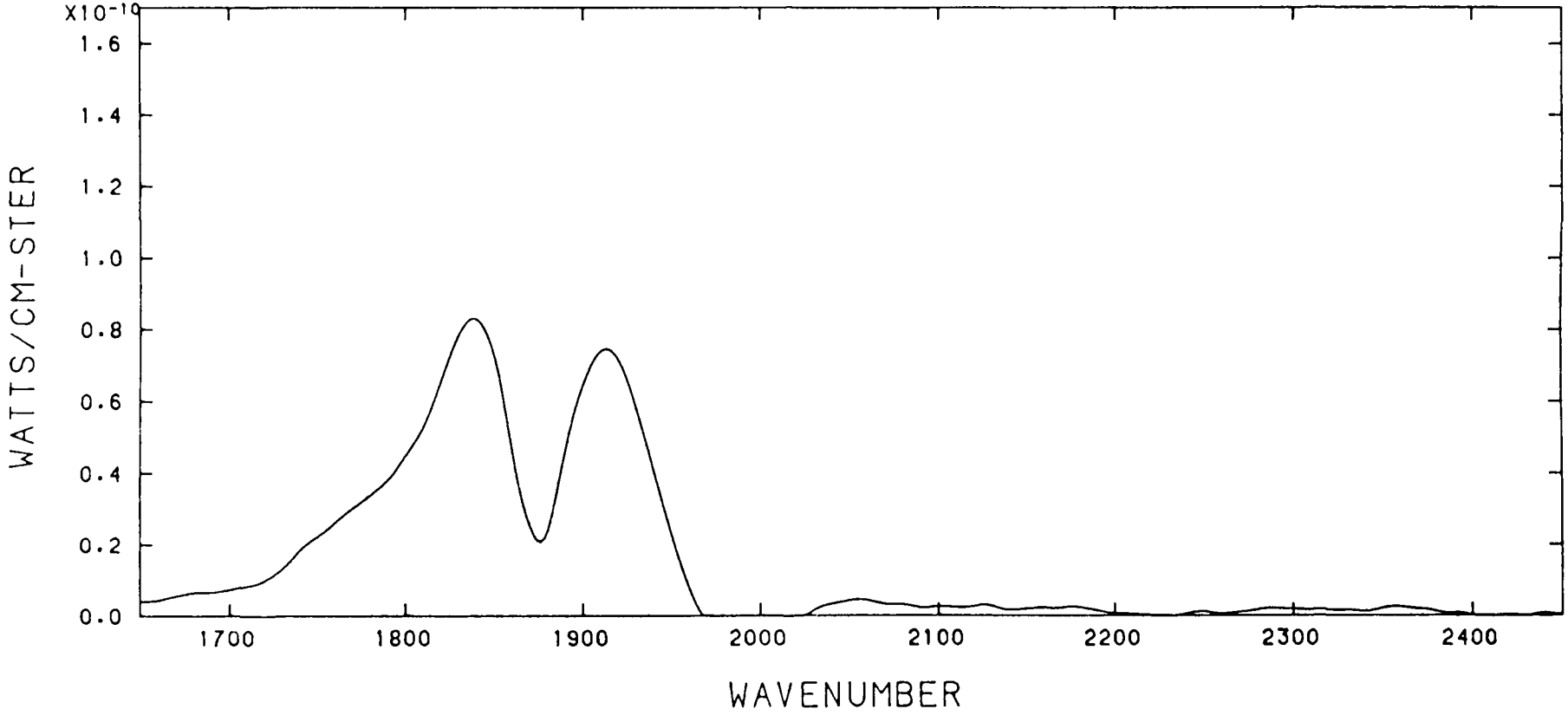
FILE 110, TIME 9:10:42.322, ALT 114.8-114.6 KM

30-NOV-83 09:34



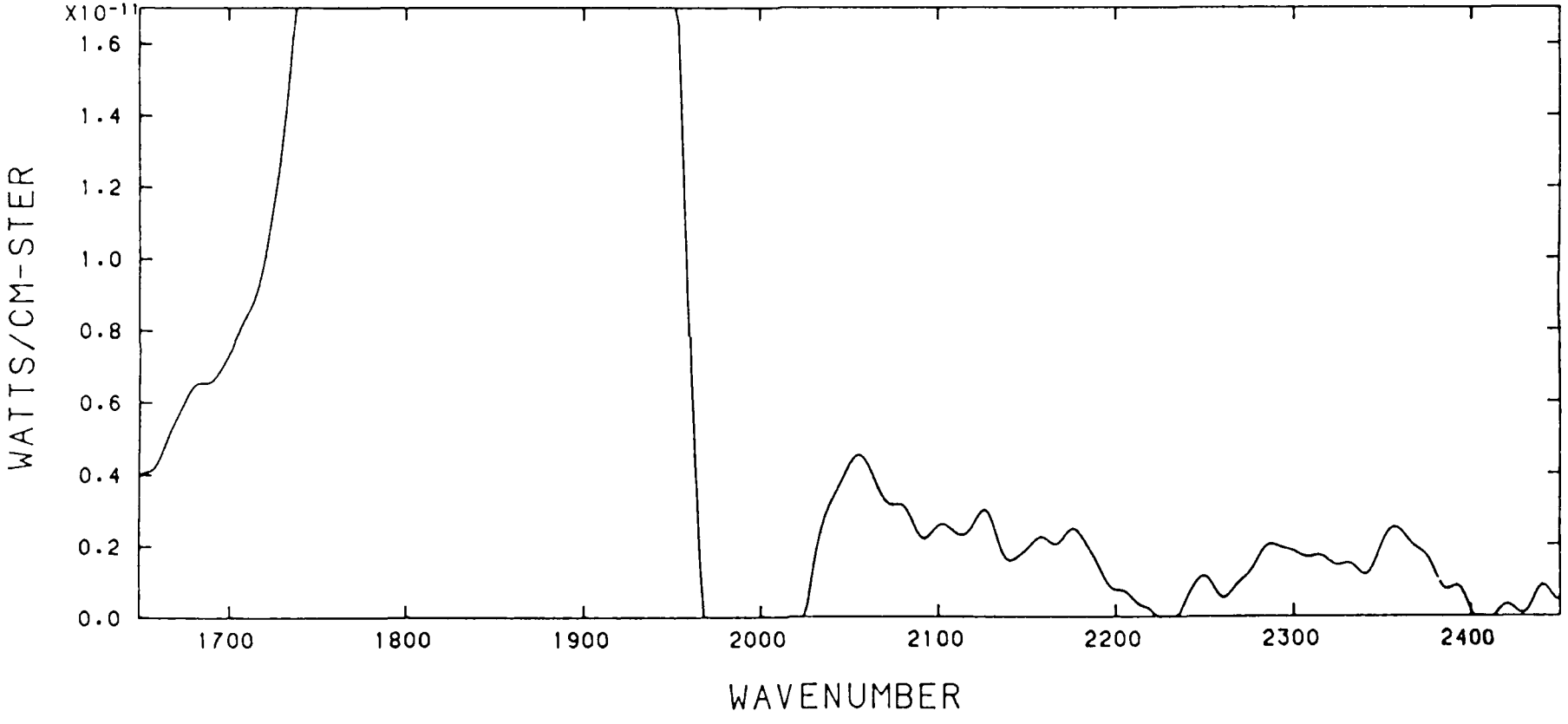
FILE 110, TIME 9:10:42.322, ALT 114.8-114.6 KM

30-NOV-83 09:34



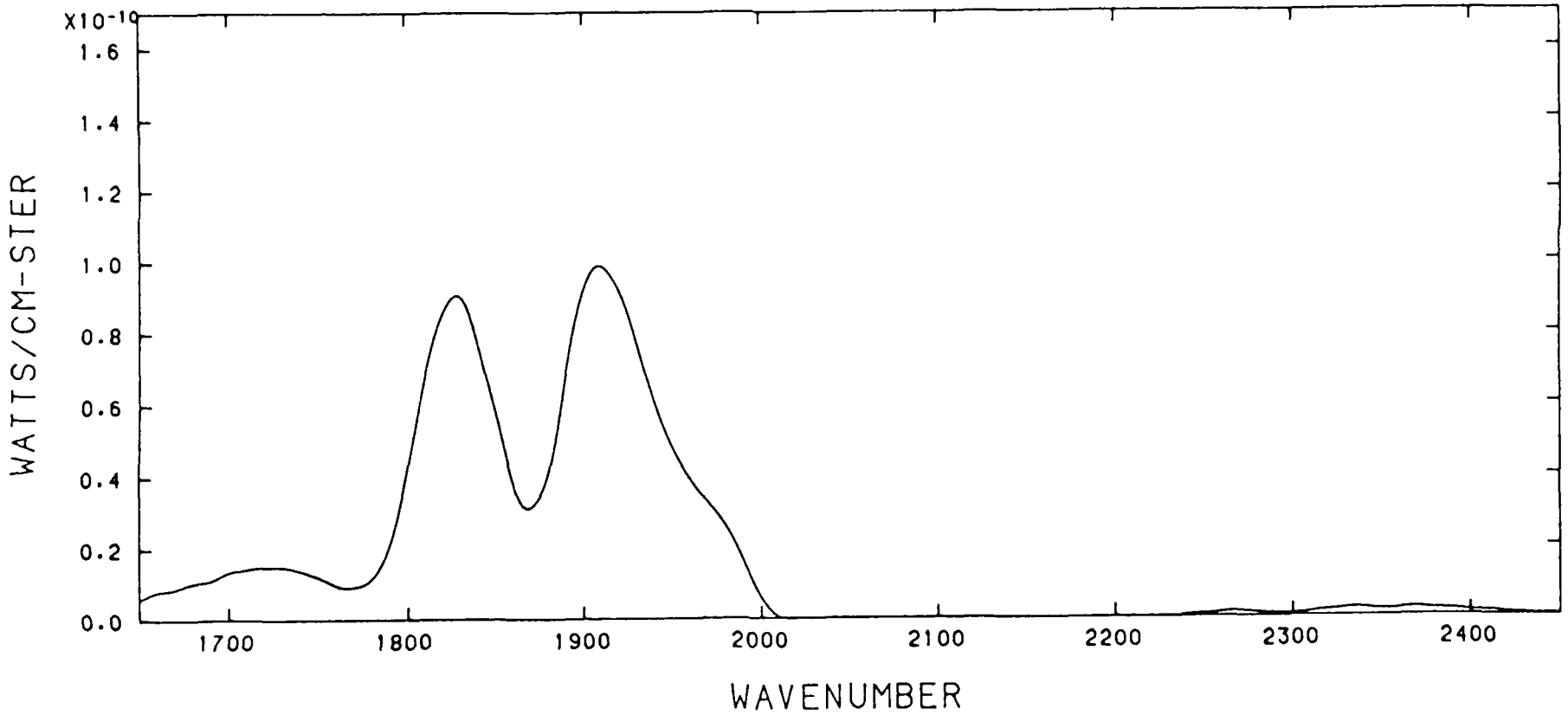
FILE 111, TIME 9:10:42.822, ALT 114.5-114.2 KM

30-NOV-83 09:34



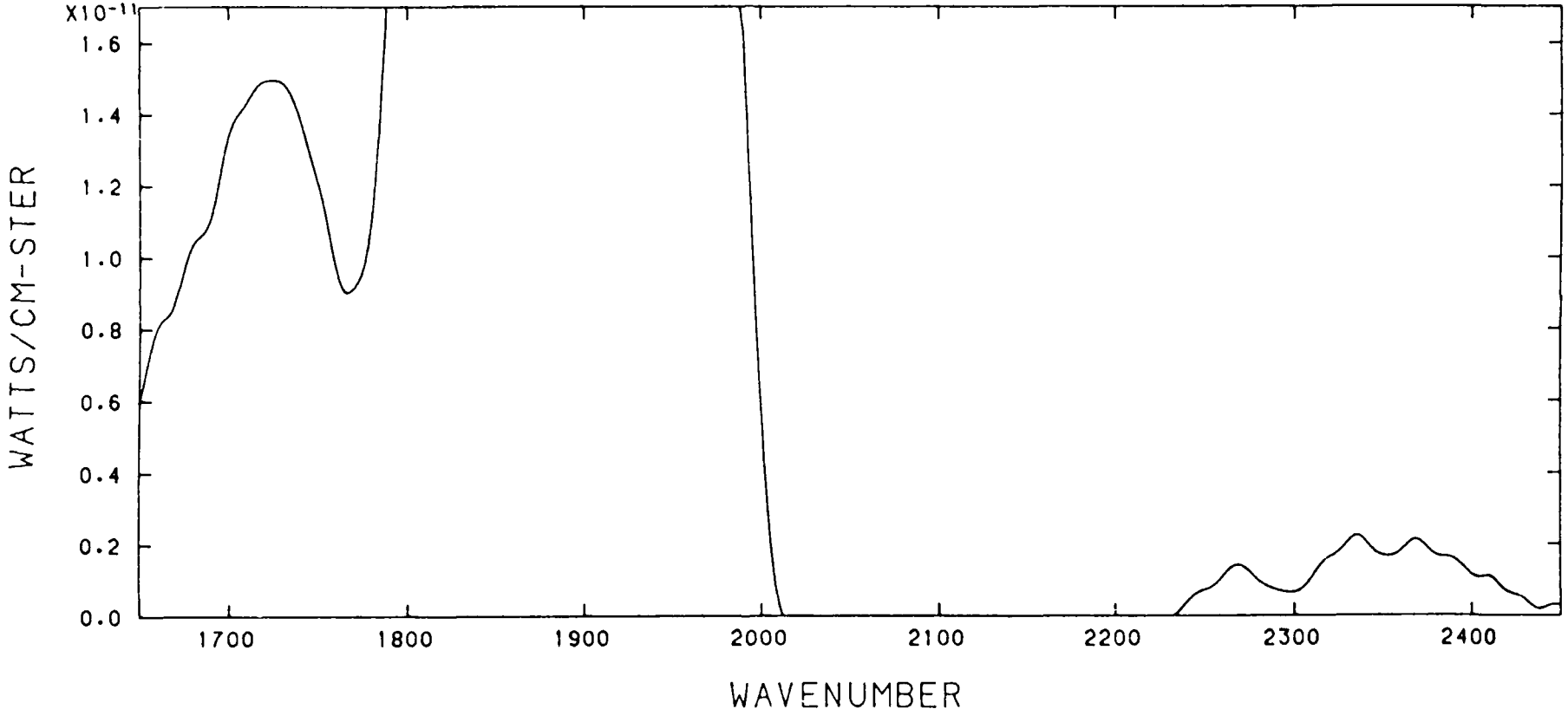
FILE 111, TIME 9:10:42.822, ALT 114.5-114.2 KM

30-NOV-83 09:34



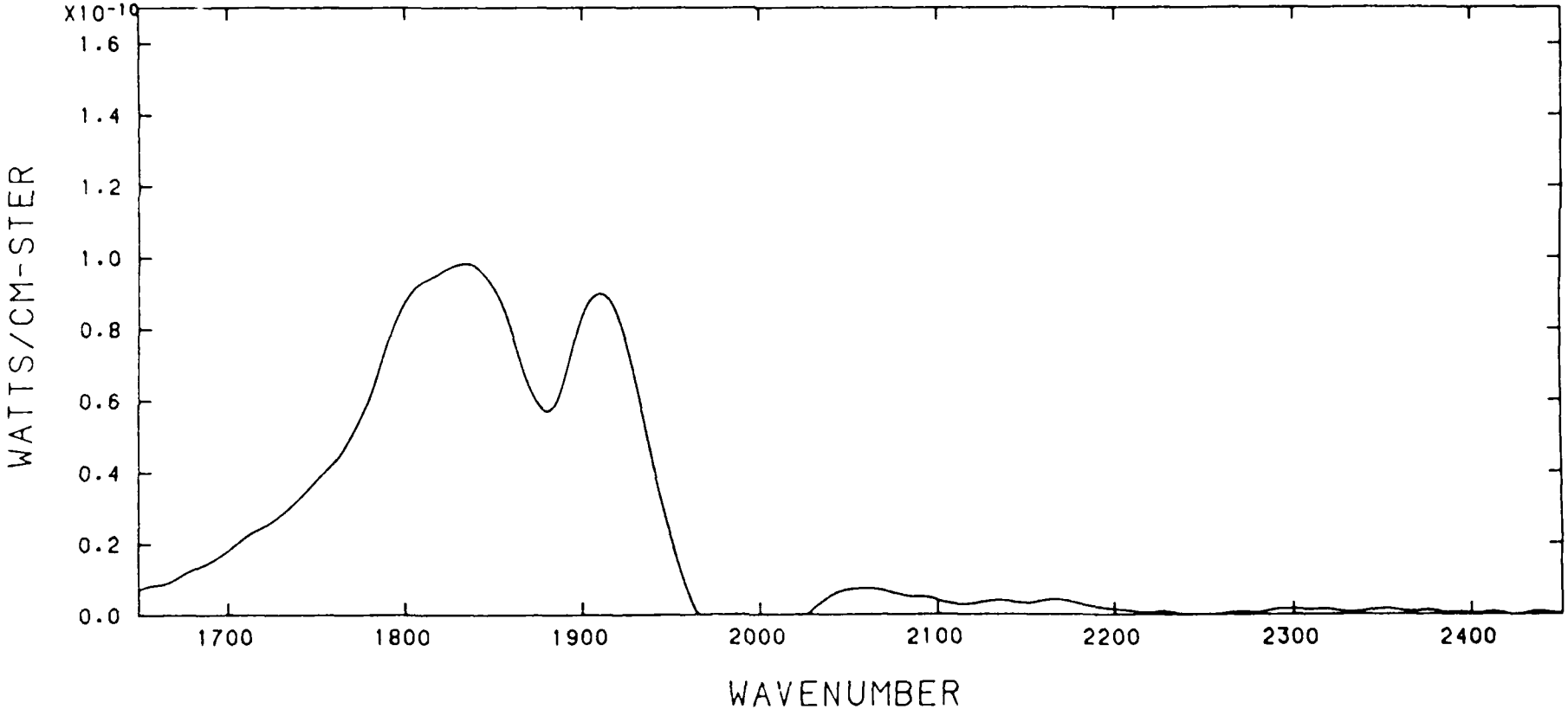
FILE 112, TIME 9:10:45.602, ALT 112.5-112.3 KM

30-NOV-83 09:34



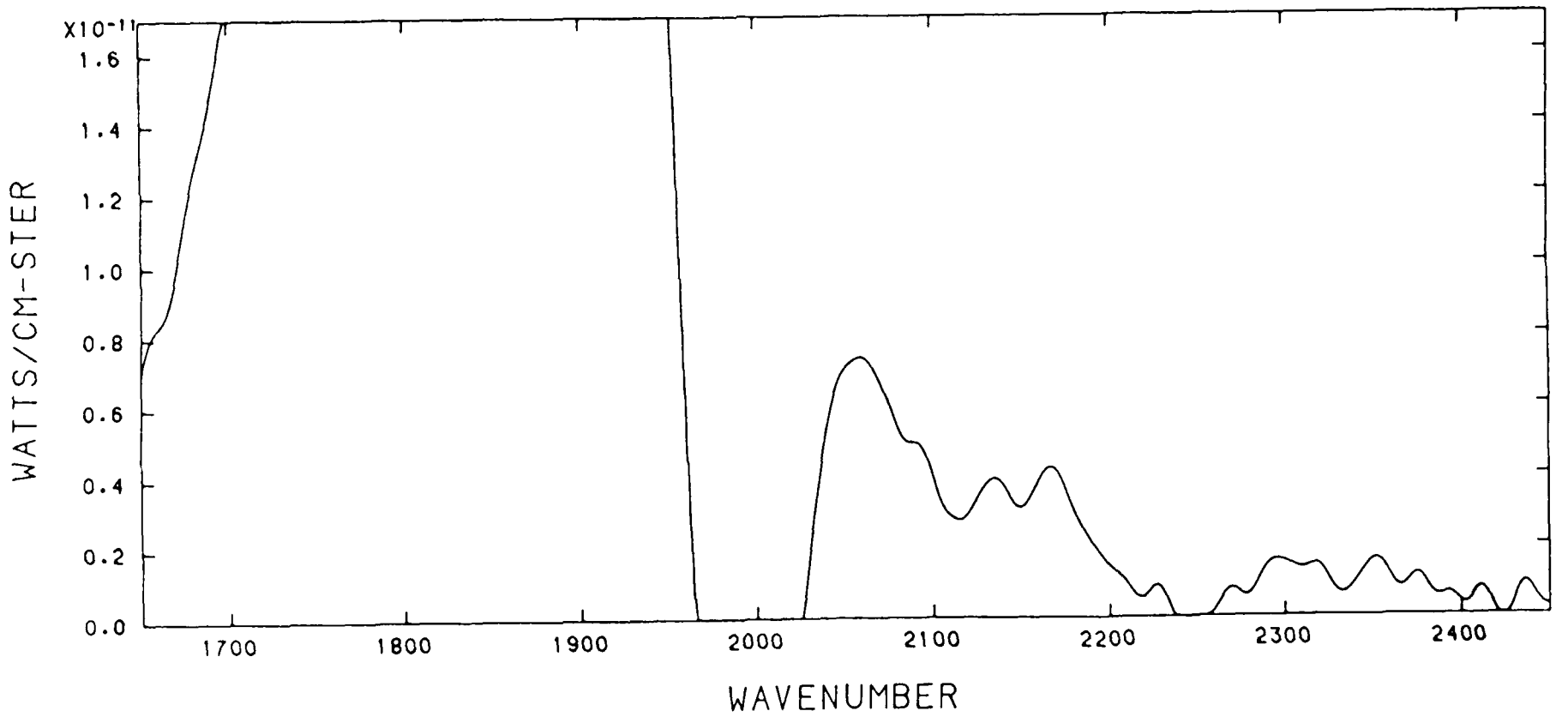
FILE 112, TIME 9:10:45.602, ALT 112.5-112.3 KM

30-NOV-83 09:34



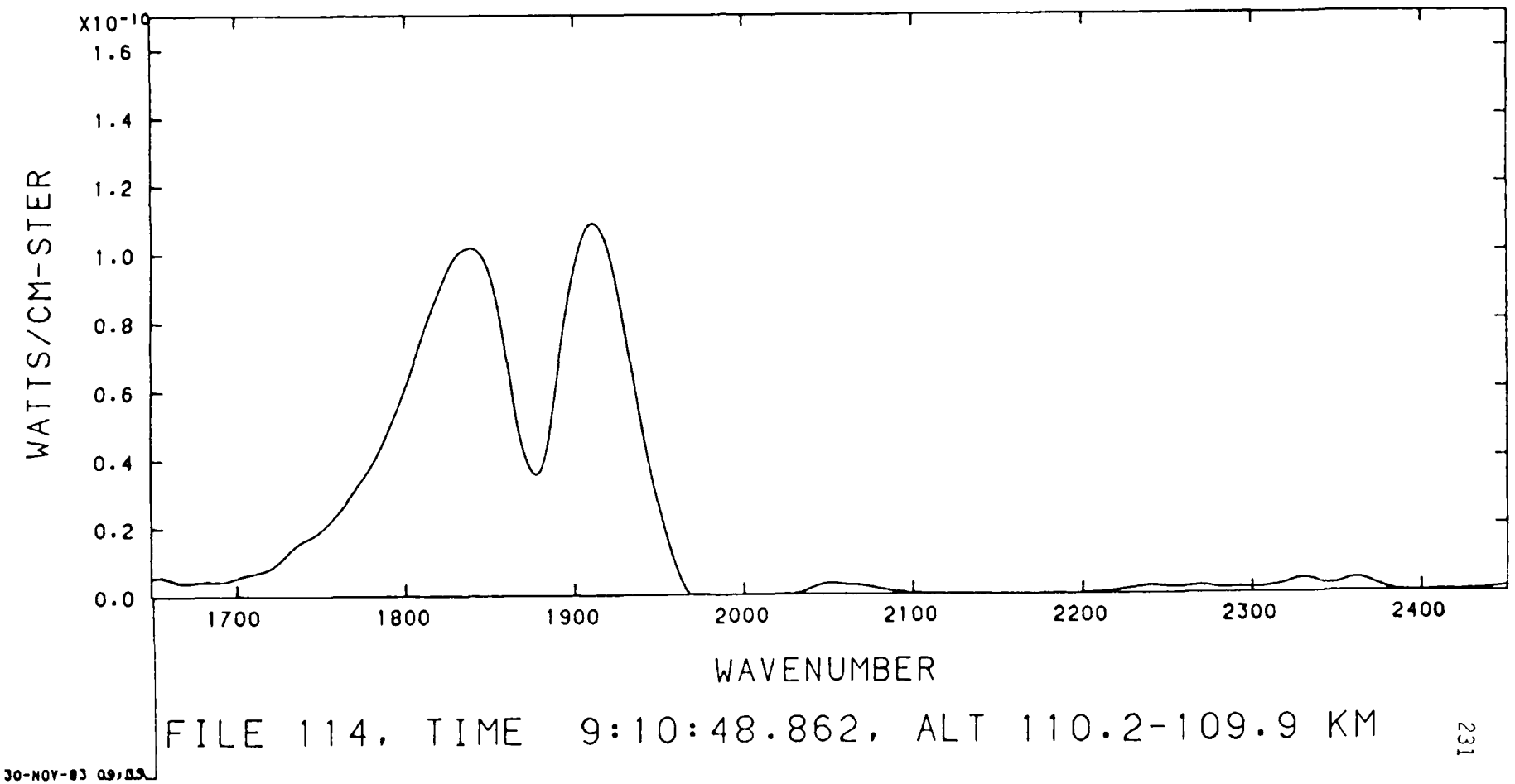
FILE 113, TIME 9:10:46. 96, ALT 112.2-111.9 KM

30-NOV-83 09:34



FILE 113, TIME 9:10:46. 96, ALT 112.2-111.9 KM

30-NOV-83 09:35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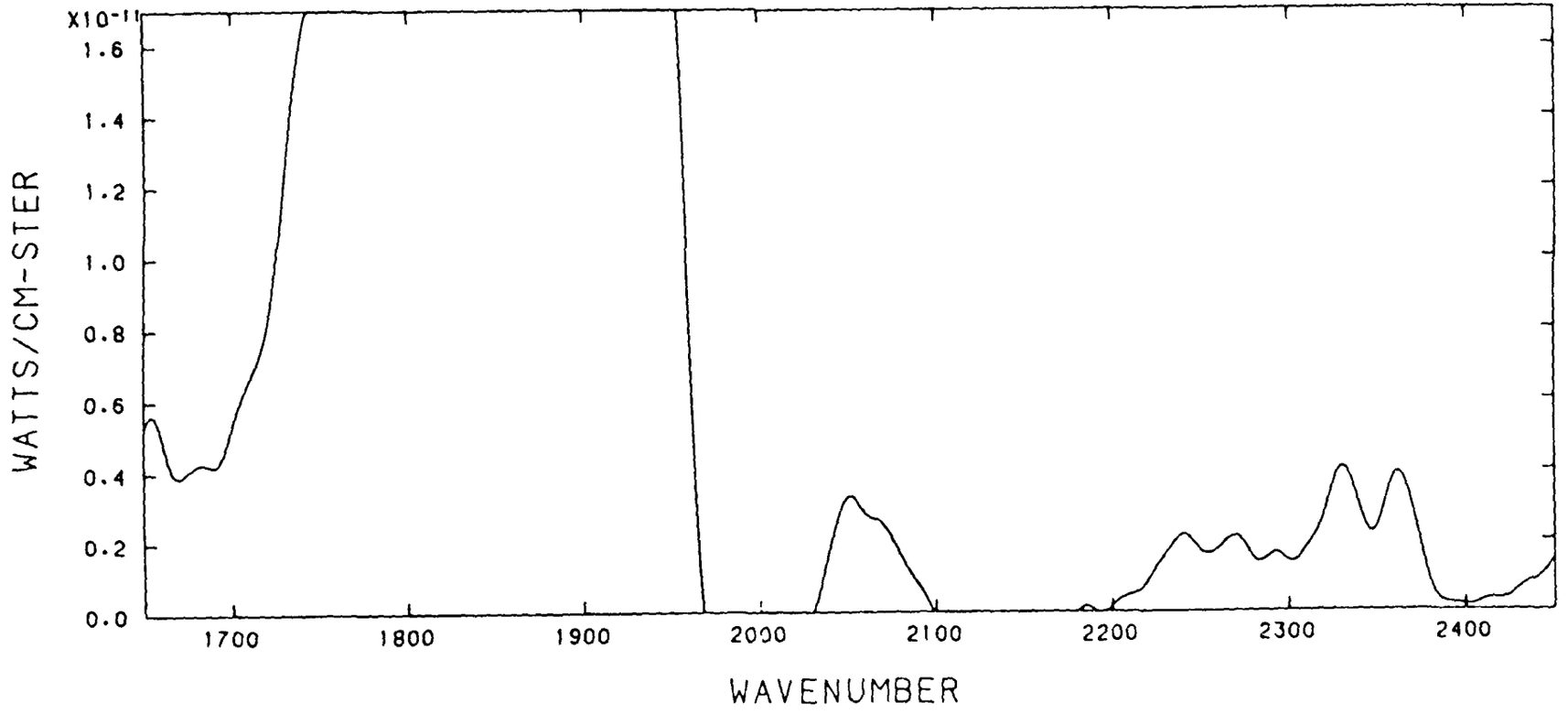
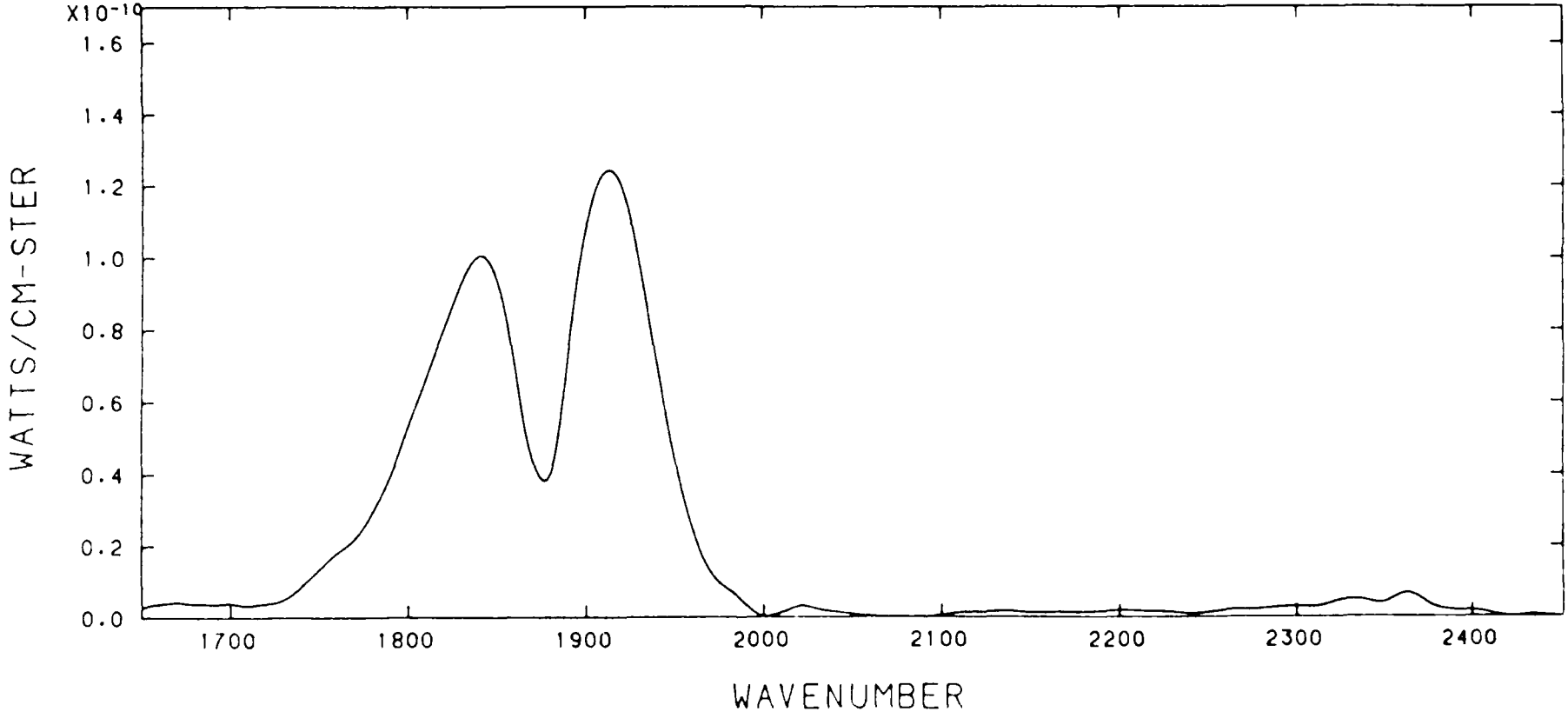
FILE 114, TIME 9:10:48.862, ALT 110.2-109.9 KM
30-NOV-83 09:03



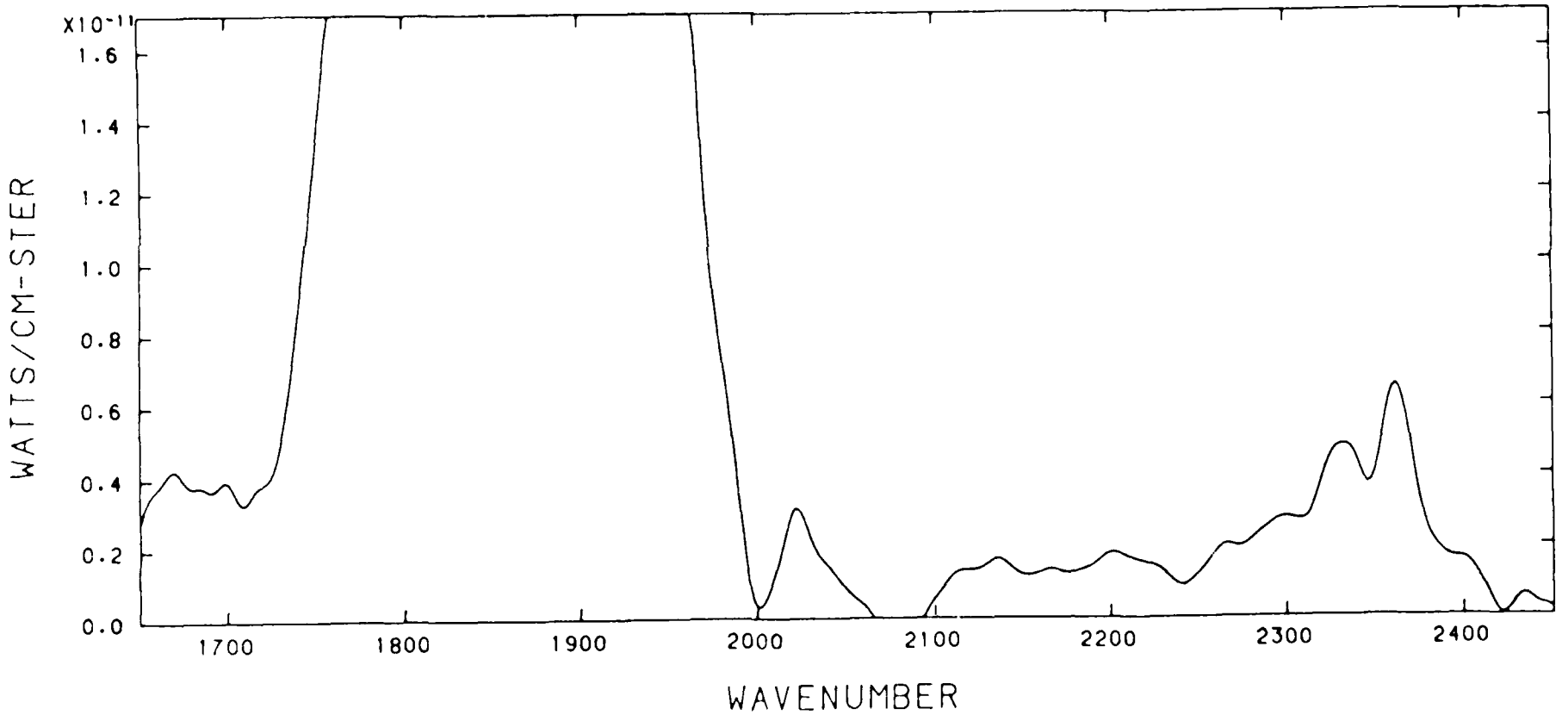
FILE 114, TIME 9:10:48.862, ALT 110.2-109.9 KM

30-NOV-83 09:35



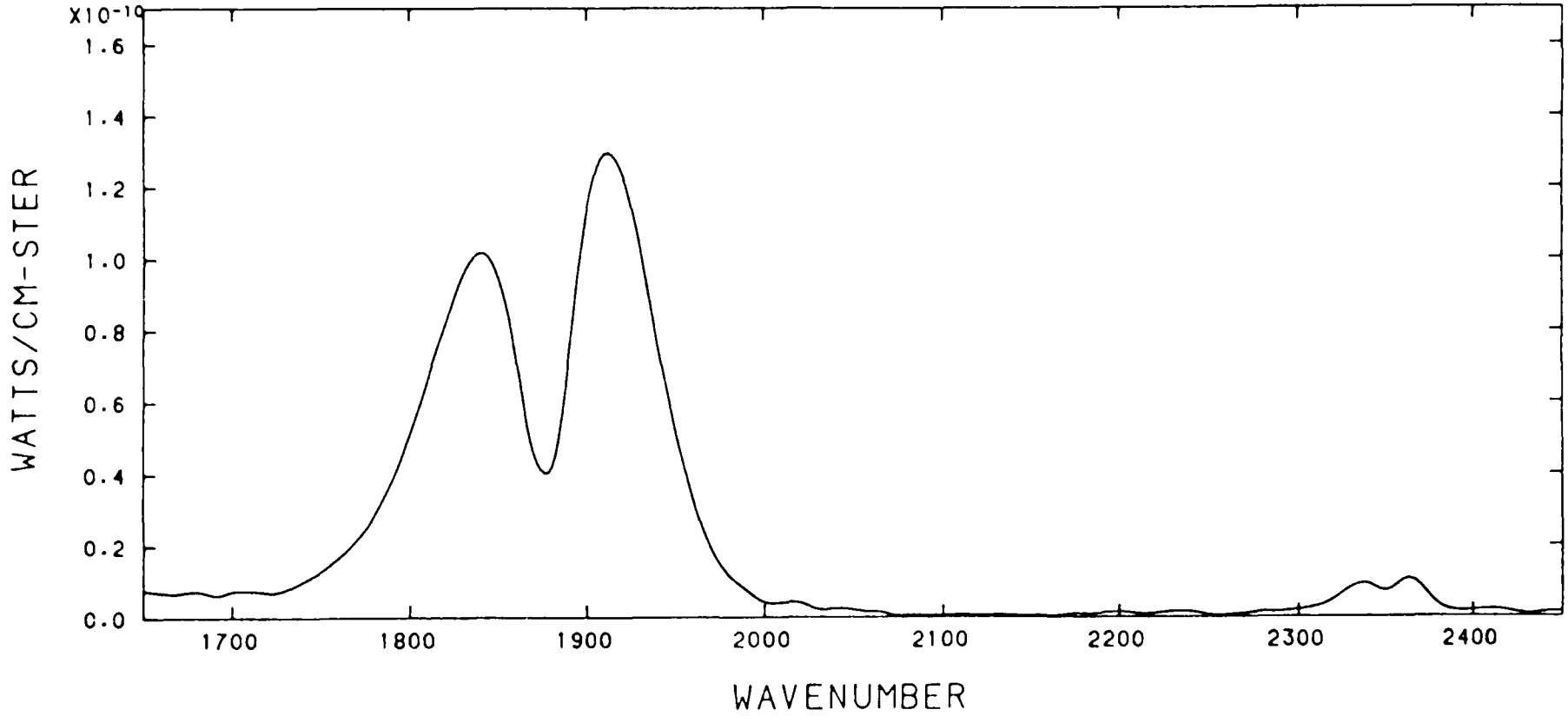
FILE 115, TIME 9:10:49.360, ALT 109.8-109.6 KM

30-NOV-83 09:35



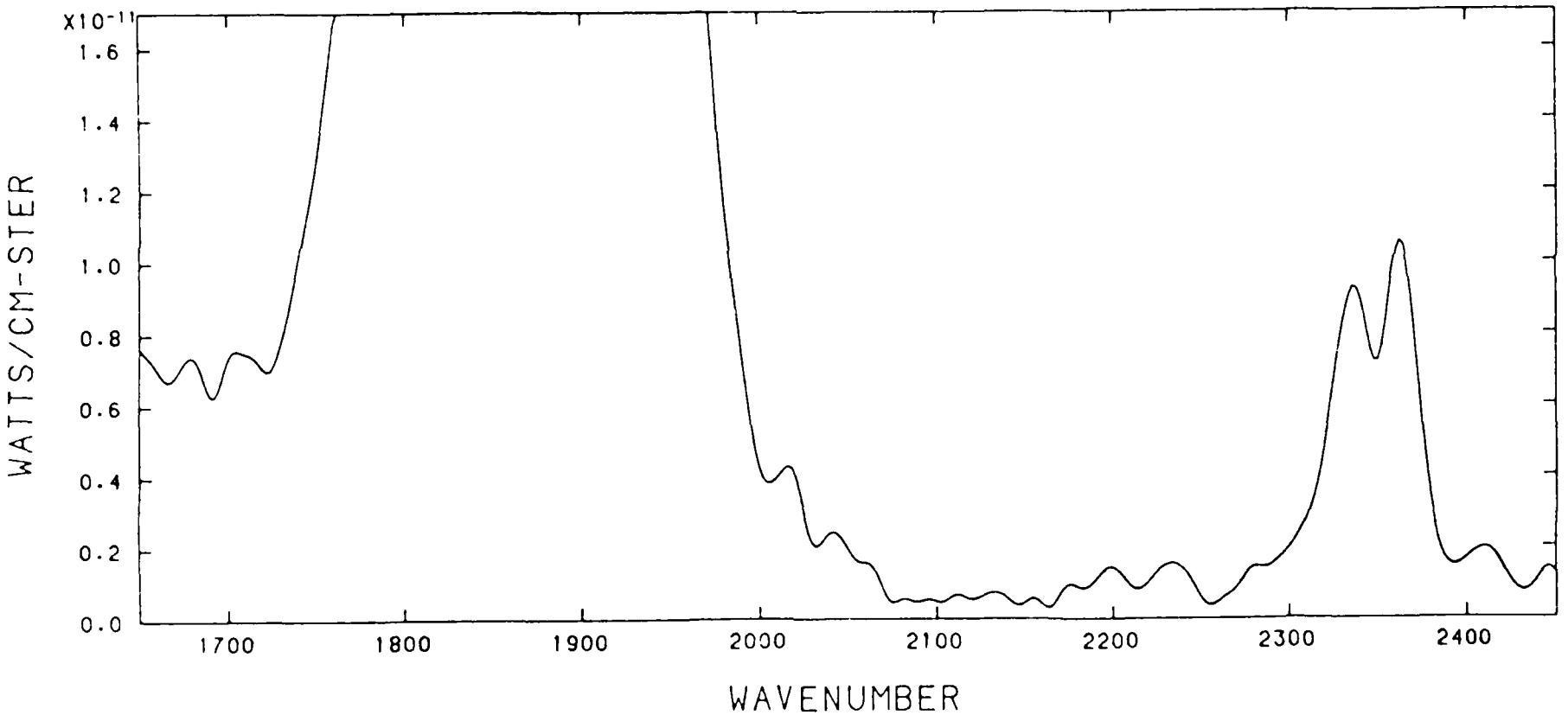
FILE 115, TIME 9:10:49.360, ALT 109.8-109.6 KM

30-NOV-83 09:35



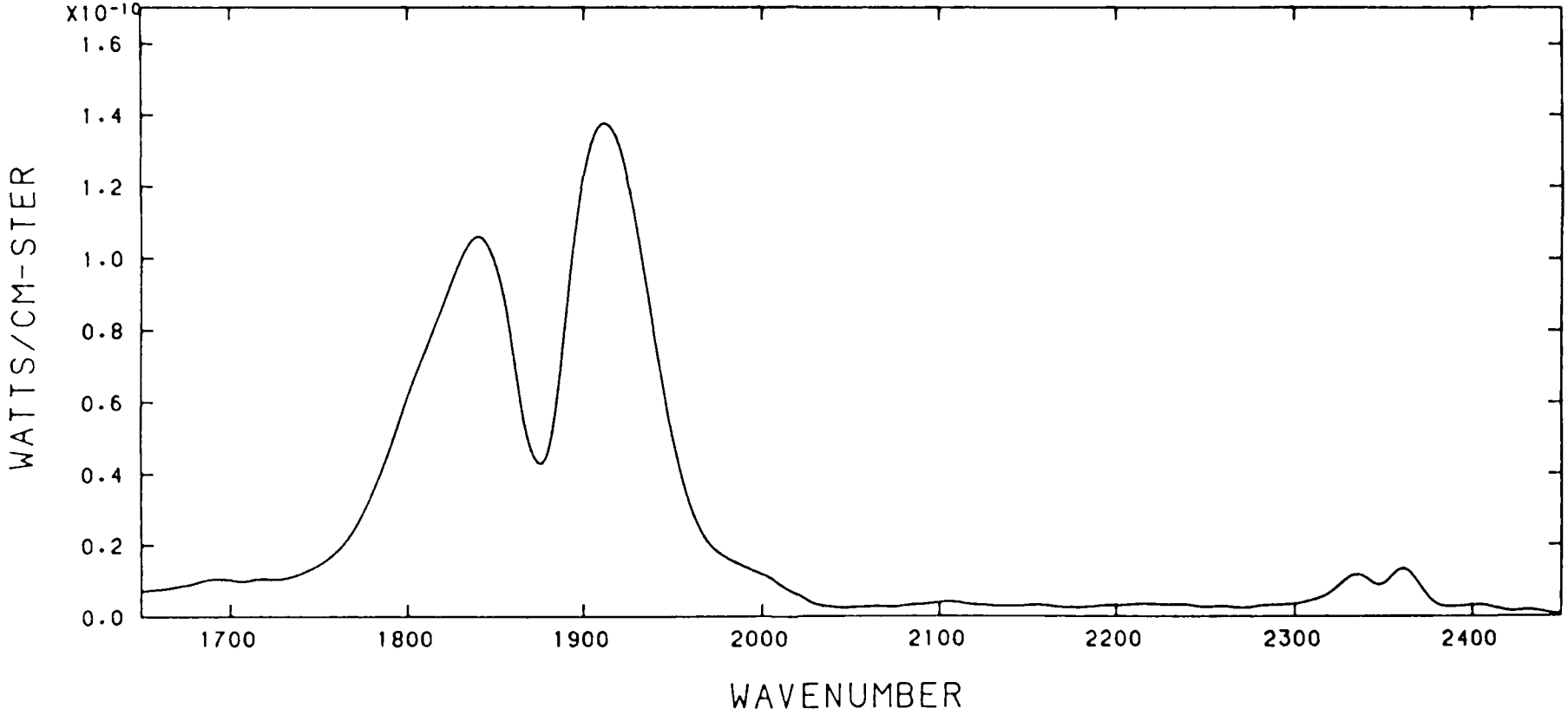
FILE 116, TIME 9:10:52.120, ALT 107.7-107.4 KM

30-NOV-83 09:35



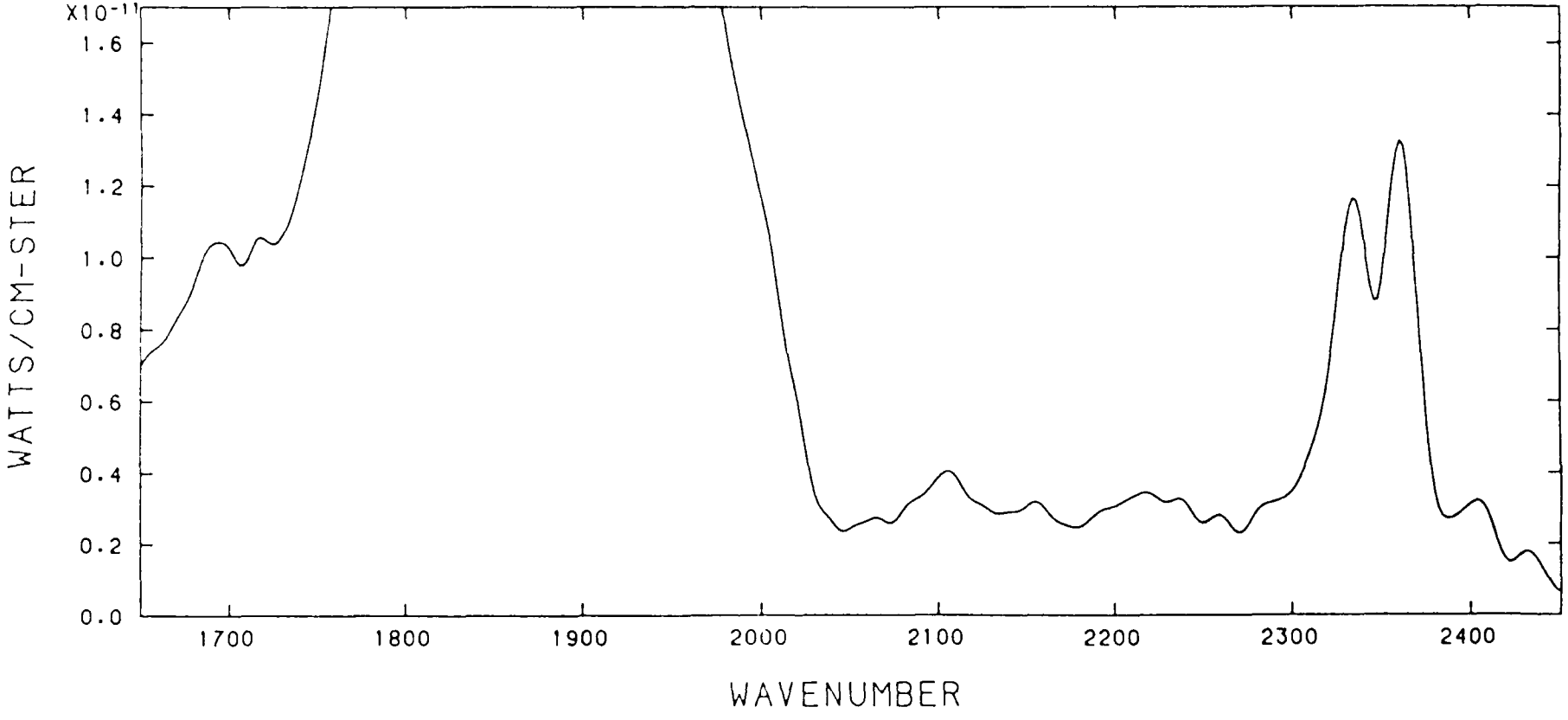
FILE 116, TIME 9:10:52.120, ALT 107.7-107.4 KM

30-NOV-83 09:35



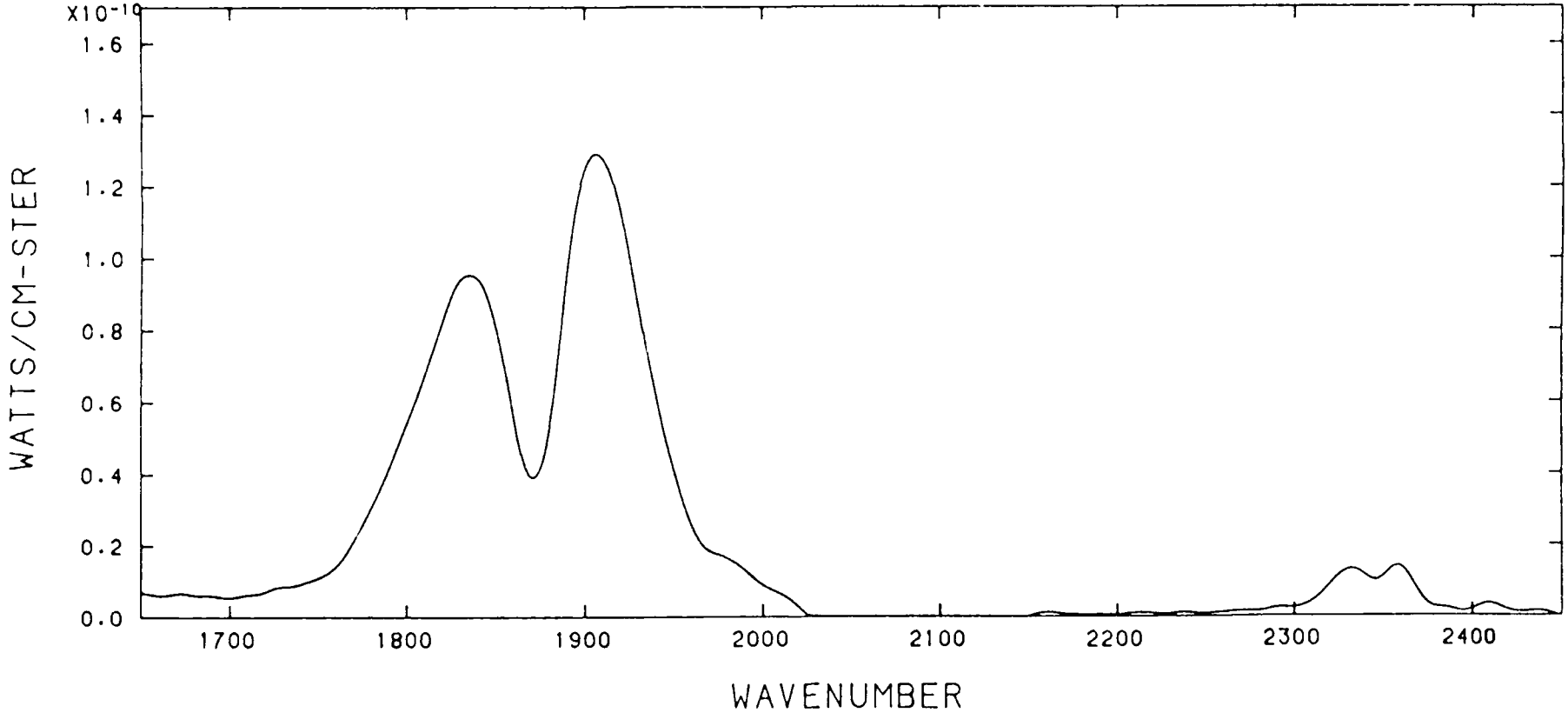
FILE 117, TIME 9:10:52.616, ALT 107.3-107.1 KM

30-NOV-83 09:35



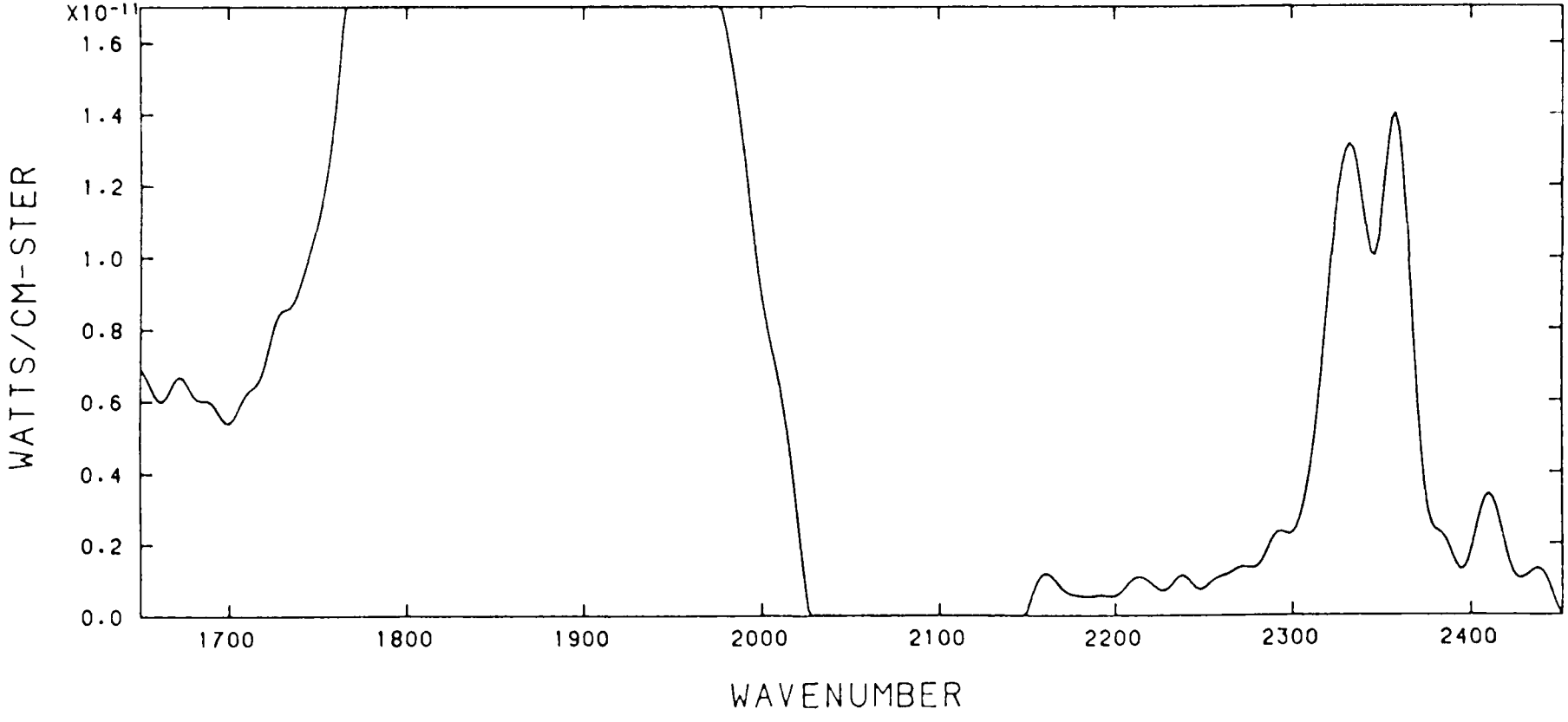
FILE 117, TIME 9:10:52.616, ALT 107.3-107.1 KM

30-NOV-83 09:35



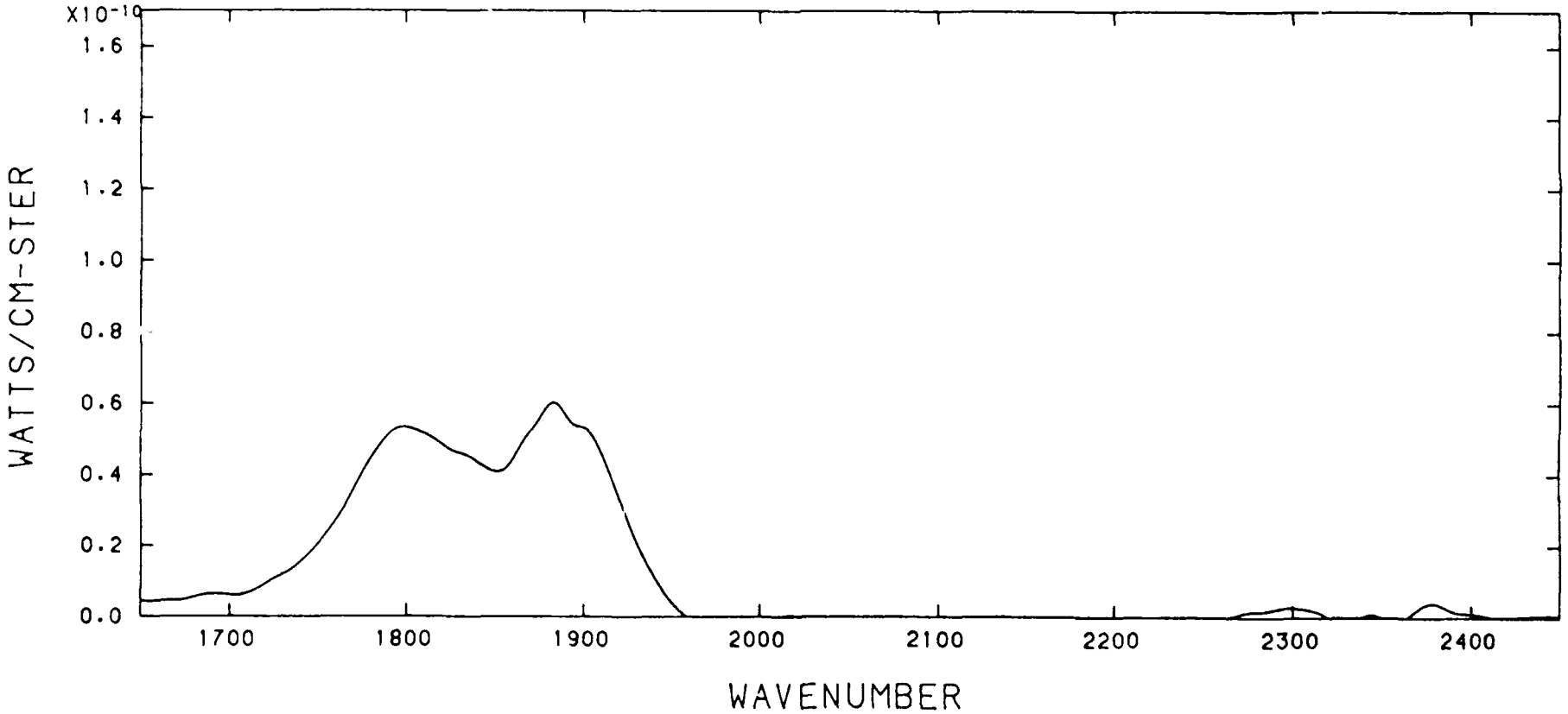
FILE 118, TIME 9:10:55.372, ALT 105.2-104.9 KM

30-NOV-83 09:35



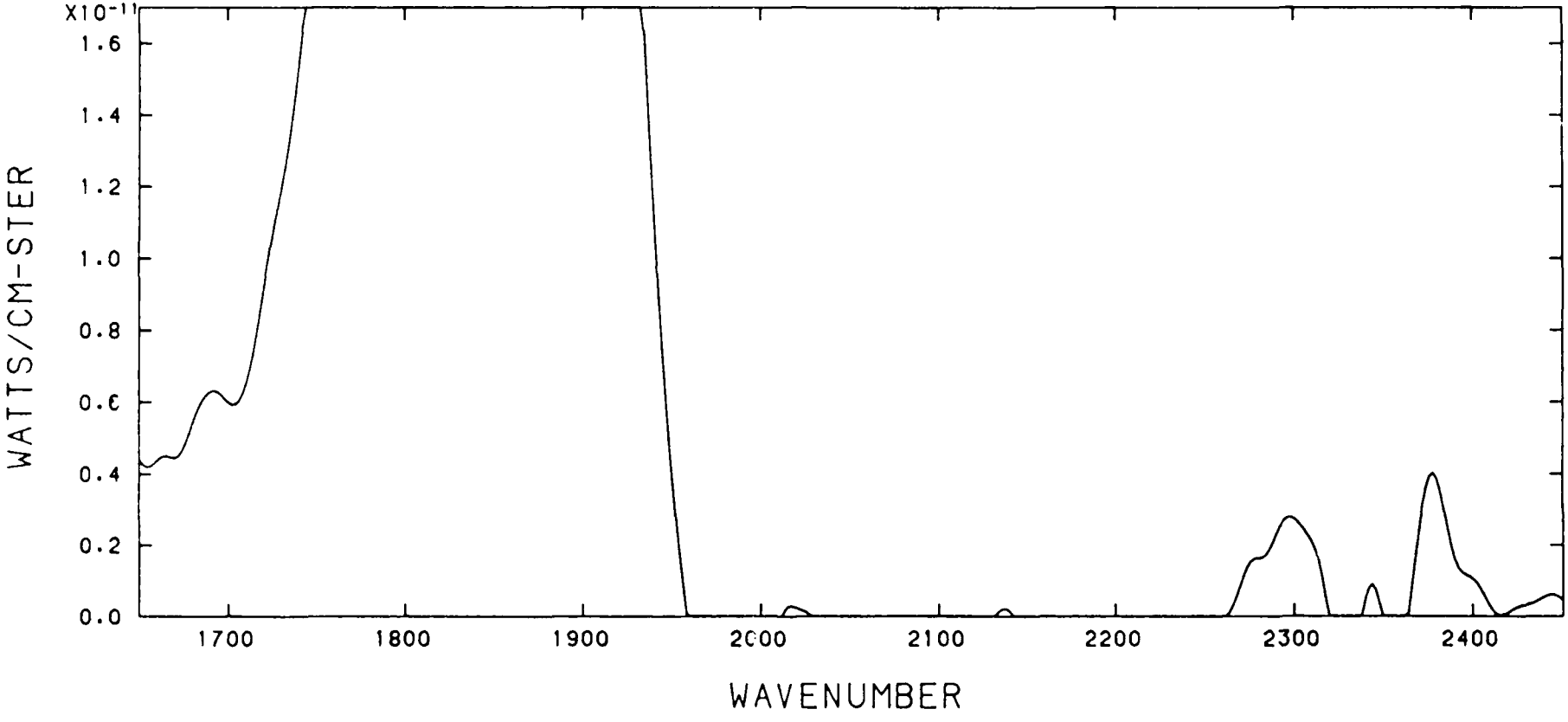
FILE 118, TIME 9:10:55.372, ALT 105.2-104.9 KM

30-NOV-83 09:35



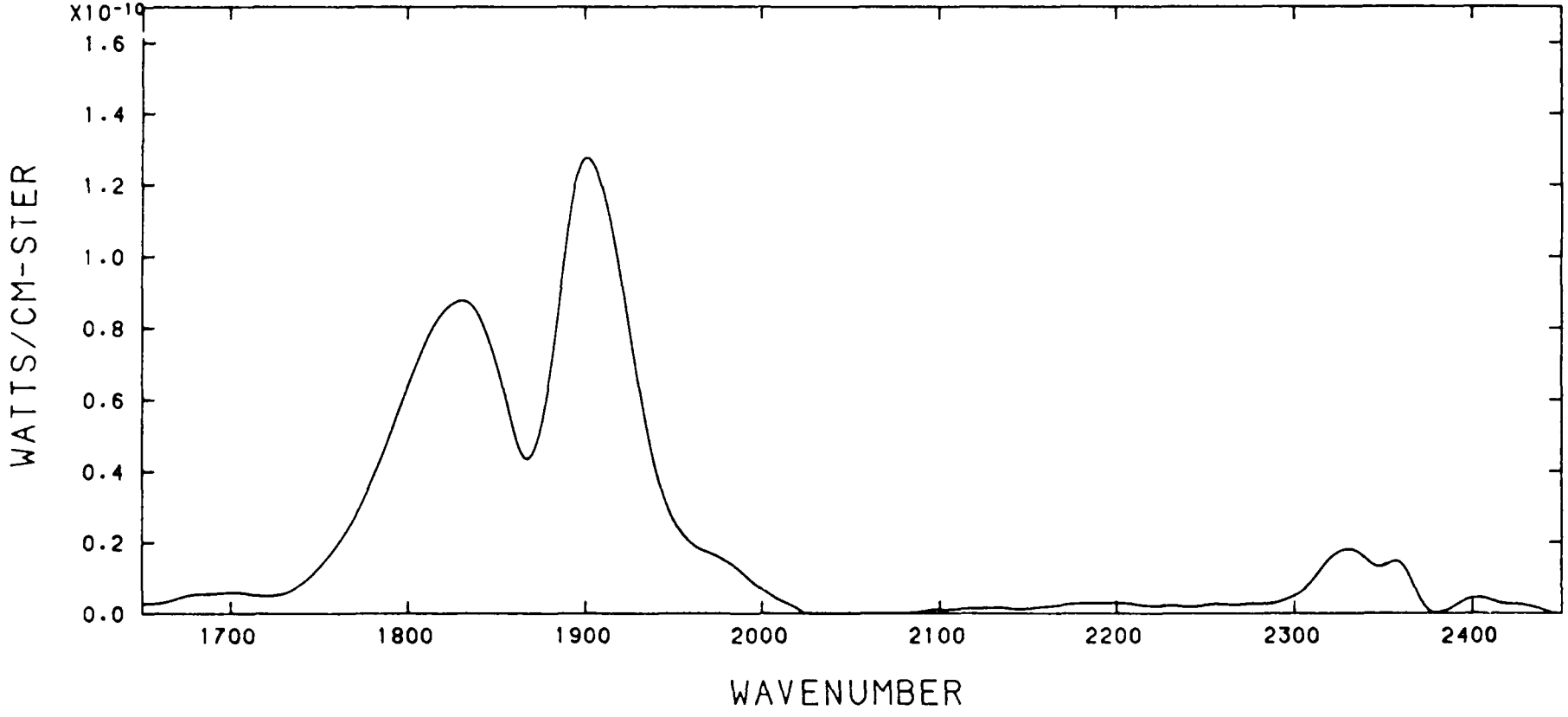
FILE 119, TIME 9:10:55.868, ALT 104.8-104.5 KM

30-NOV-83 09:35



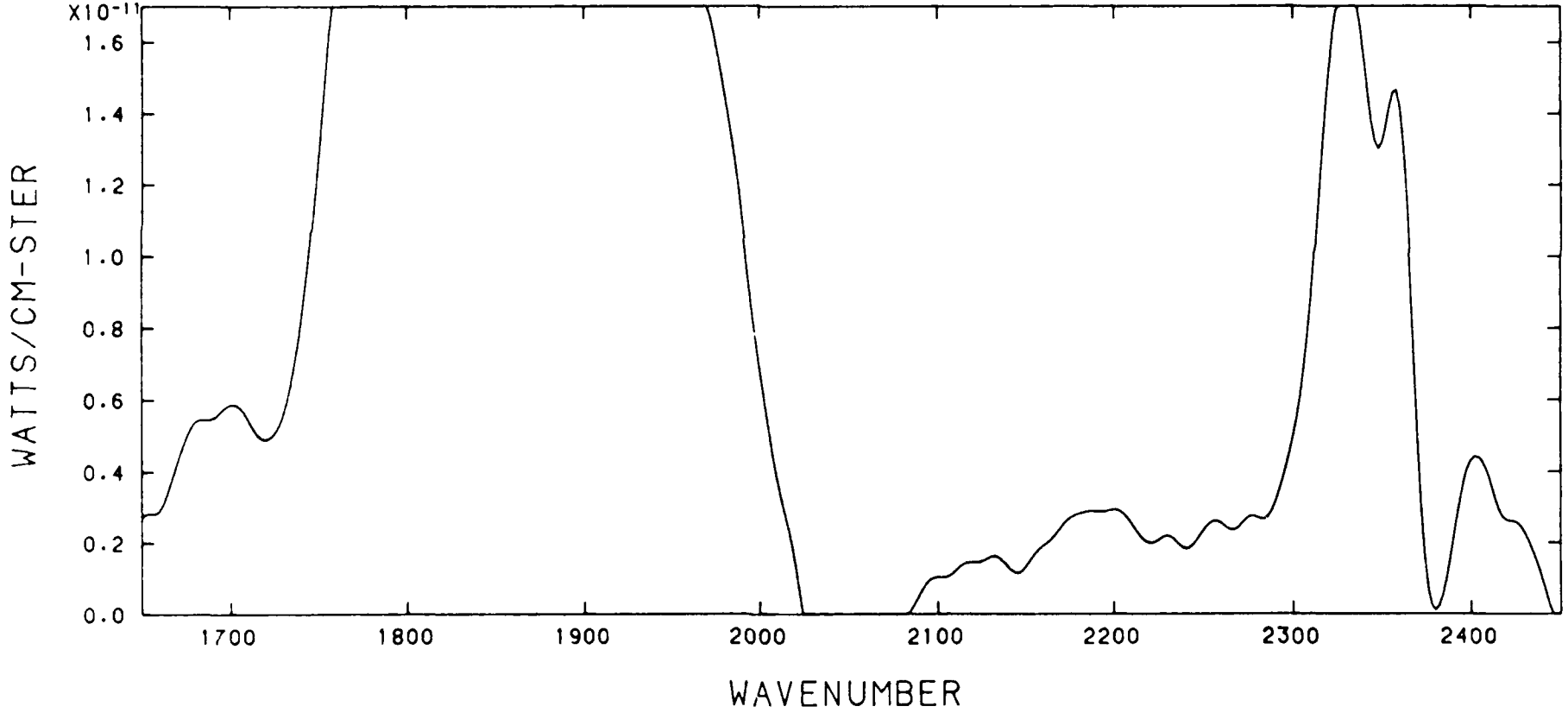
FILE 119, TIME 9:10:55.868, ALT 104.8-104.5 KM

30-NOV-83 09:35



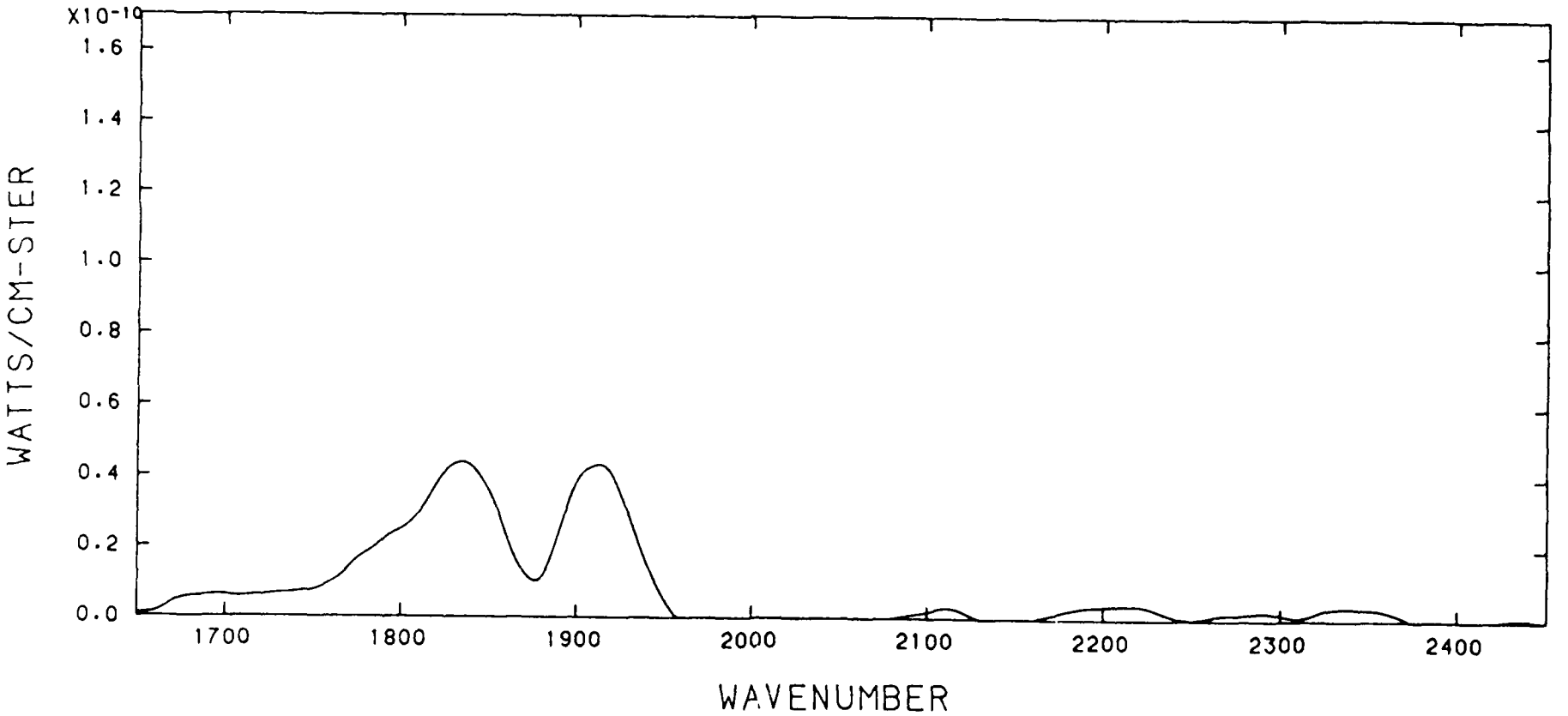
FILE 120, TIME 9:10:58.624, ALT 102.5-102.2 KM

30-NOV-83 09:35



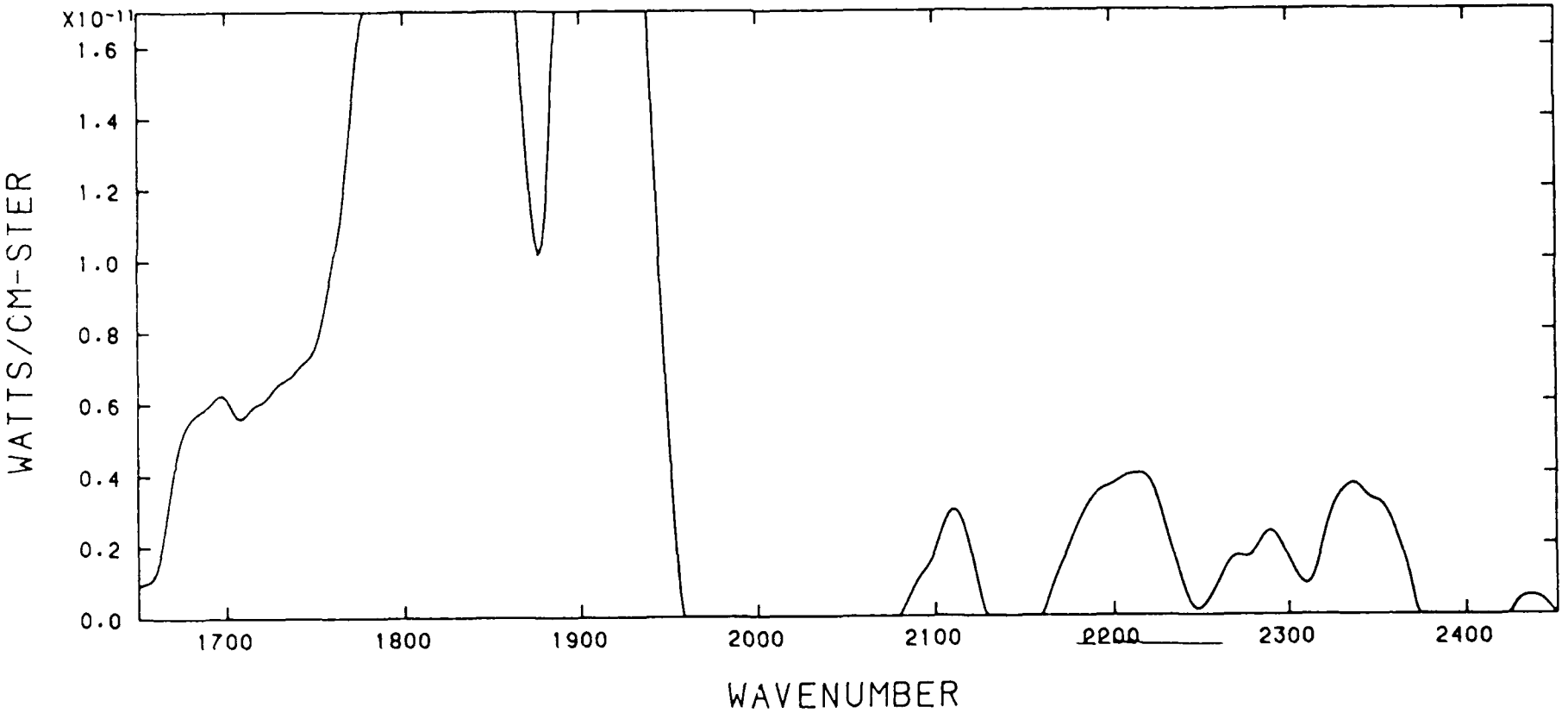
FILE 120, TIME 9:10:58.624, ALT 102.5-102.2 KM

30-NOV-83 09:35



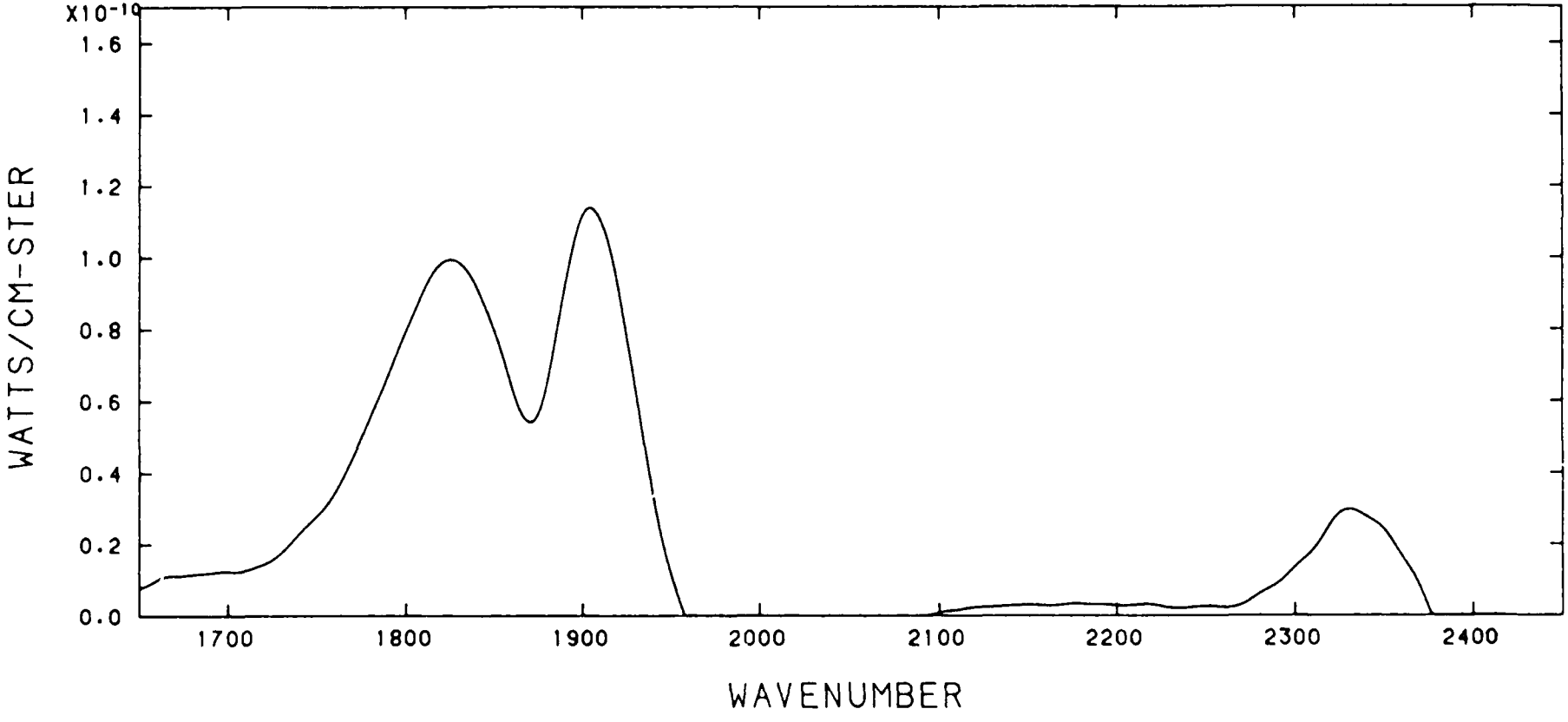
FILE 121, TIME 9:10:59.118, ALT 102.1-101.8 KM

30-NOV-83 09:35



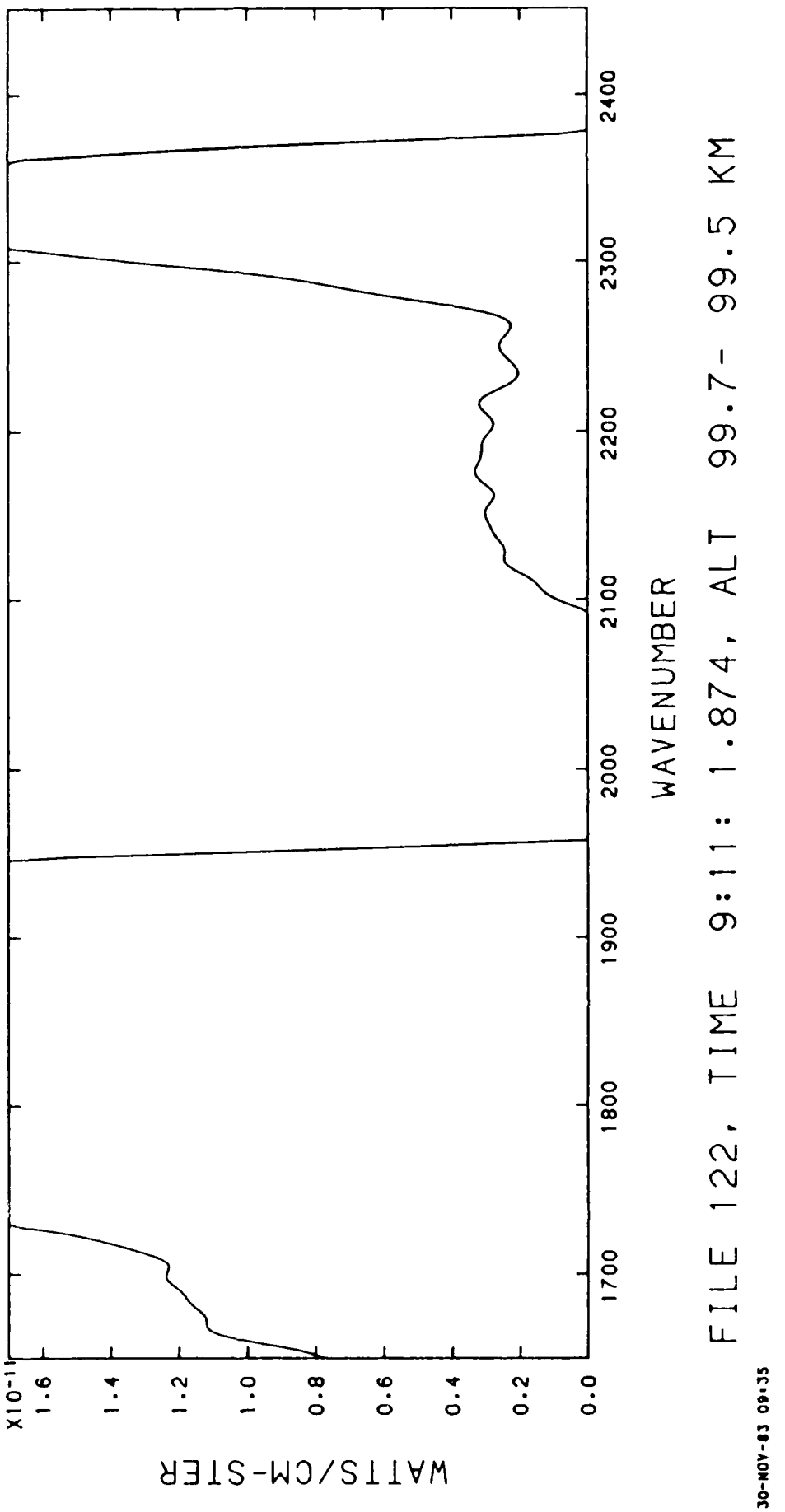
FILE 121, TIME 9:10:59.118, ALT 102.1-101.8 KM

30-NOV-83 09:35



FILE 122, TIME 9:11: 1.874, ALT 99.7- 99.5 KM

30-NOV-83 09:35


FILE 122, TIME 9:11: 1.874, ALT 99.7- 99.5 KM
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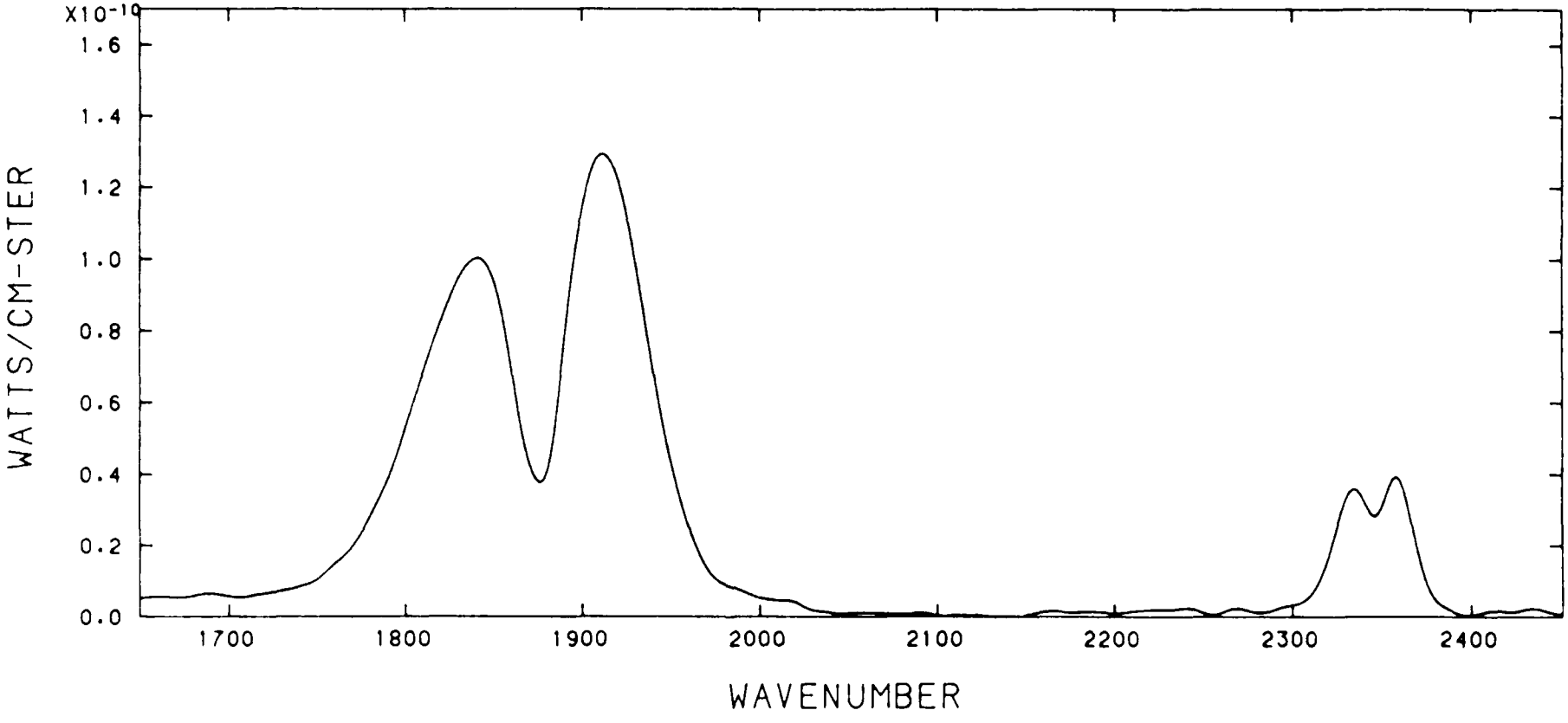
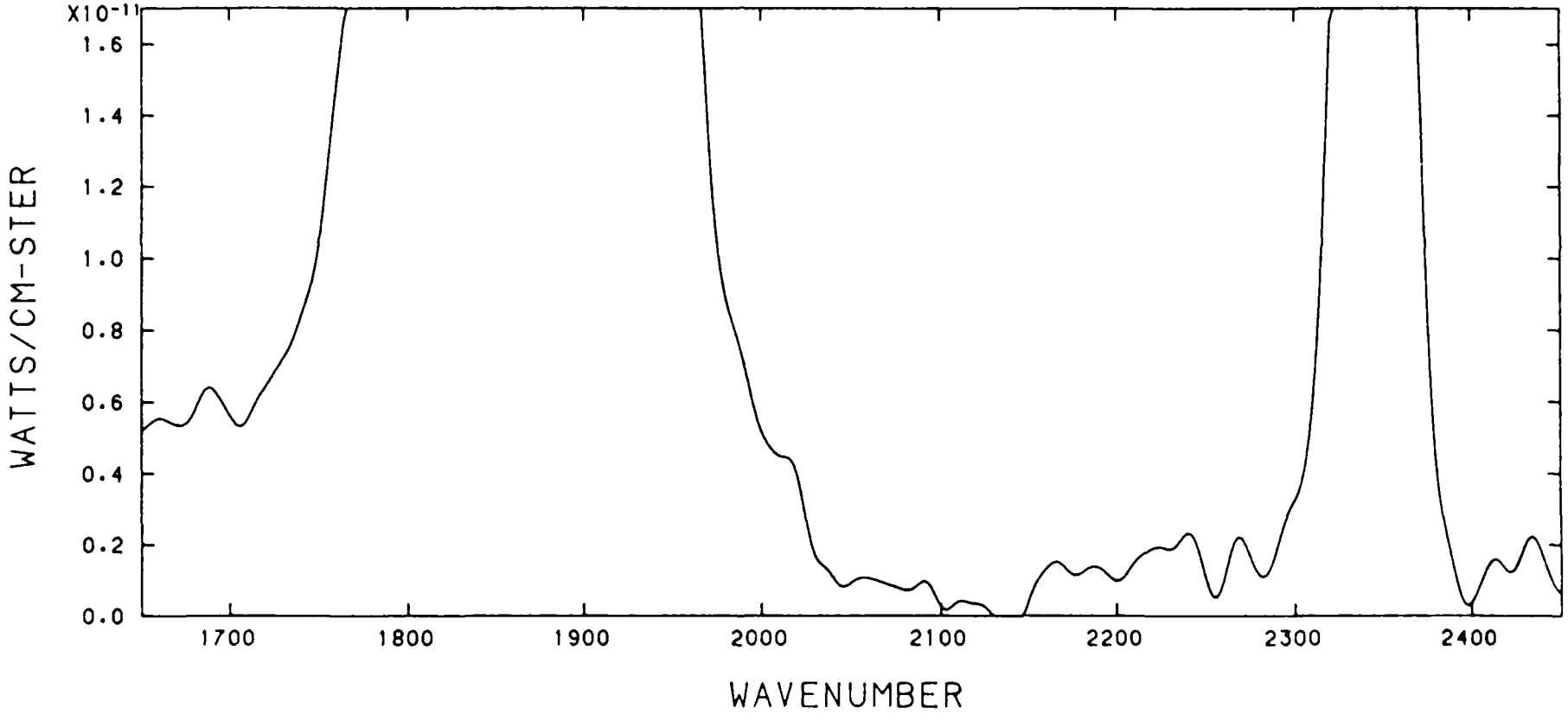
30-NOV-83 09:35



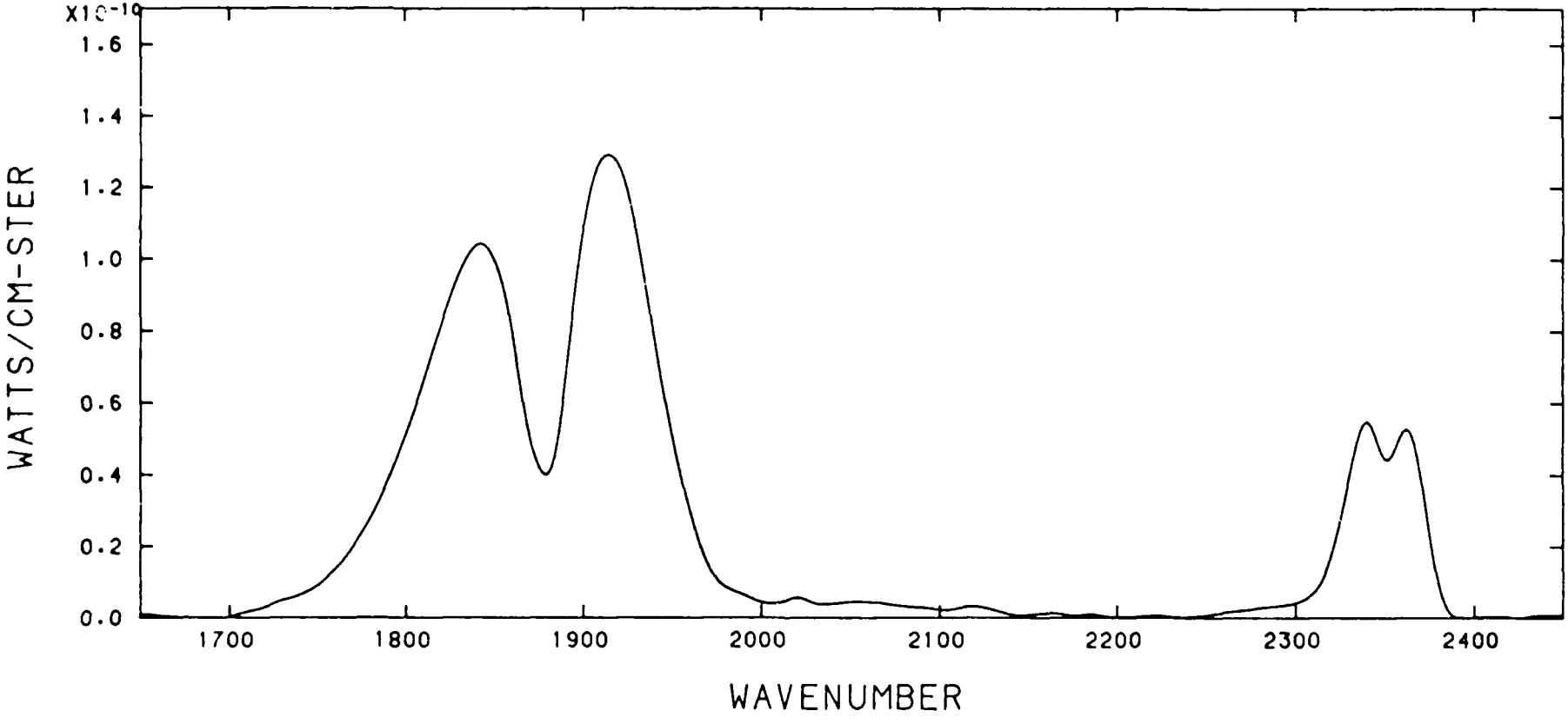
FILE 123, TIME 9:11: 2.370, ALT 99.3- 99.0 KM

30-NOV-83 09:35



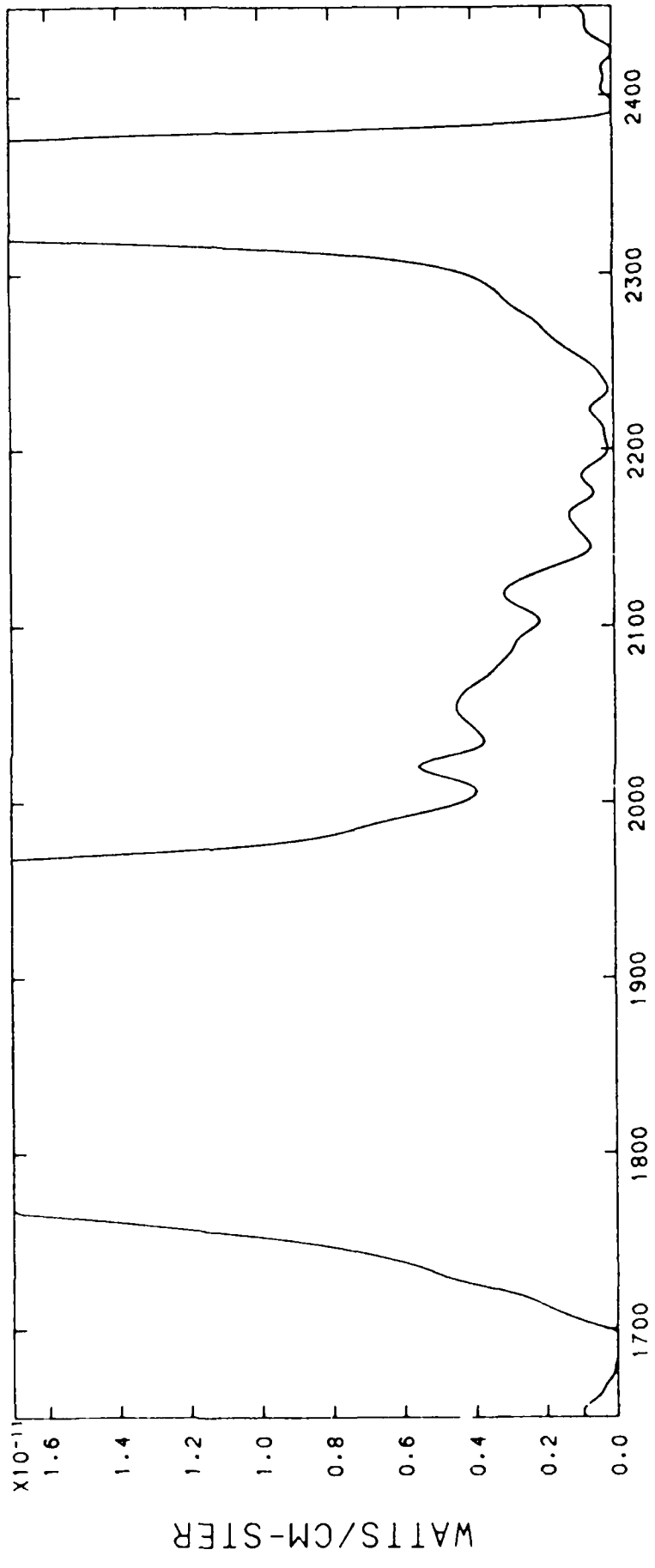
FILE 123, TIME 9:11: 2.370, ALT 99.3- 99.0 KM

30-NOV-83 09:35



FILE 124, TIME 9:11: 5.126, ALT 96.9- 96.6 KM

30-NOV-83 09:35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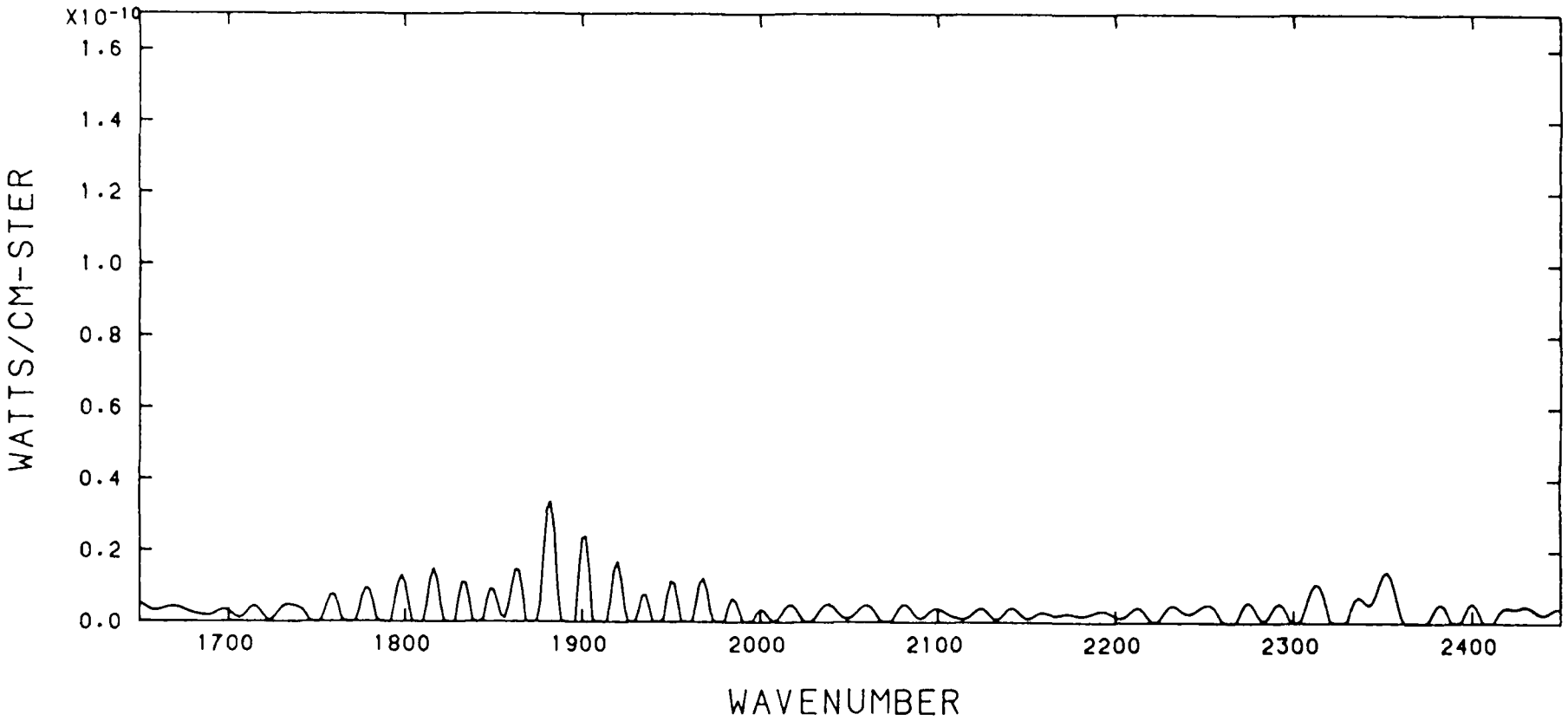
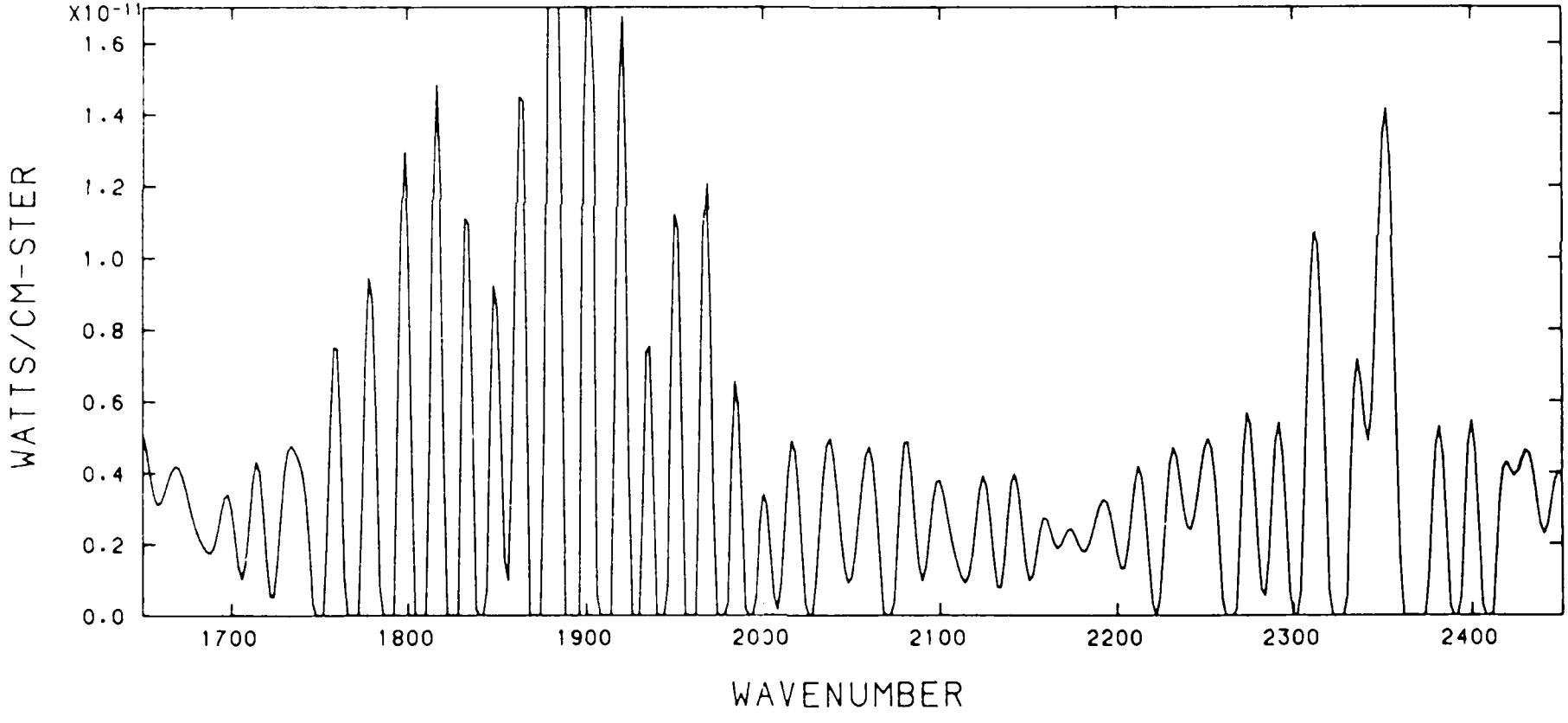
FILE 124, TIME 9:11: 5.126, ALT 96.9- 96.6 KM
30-NOV-83 09:35



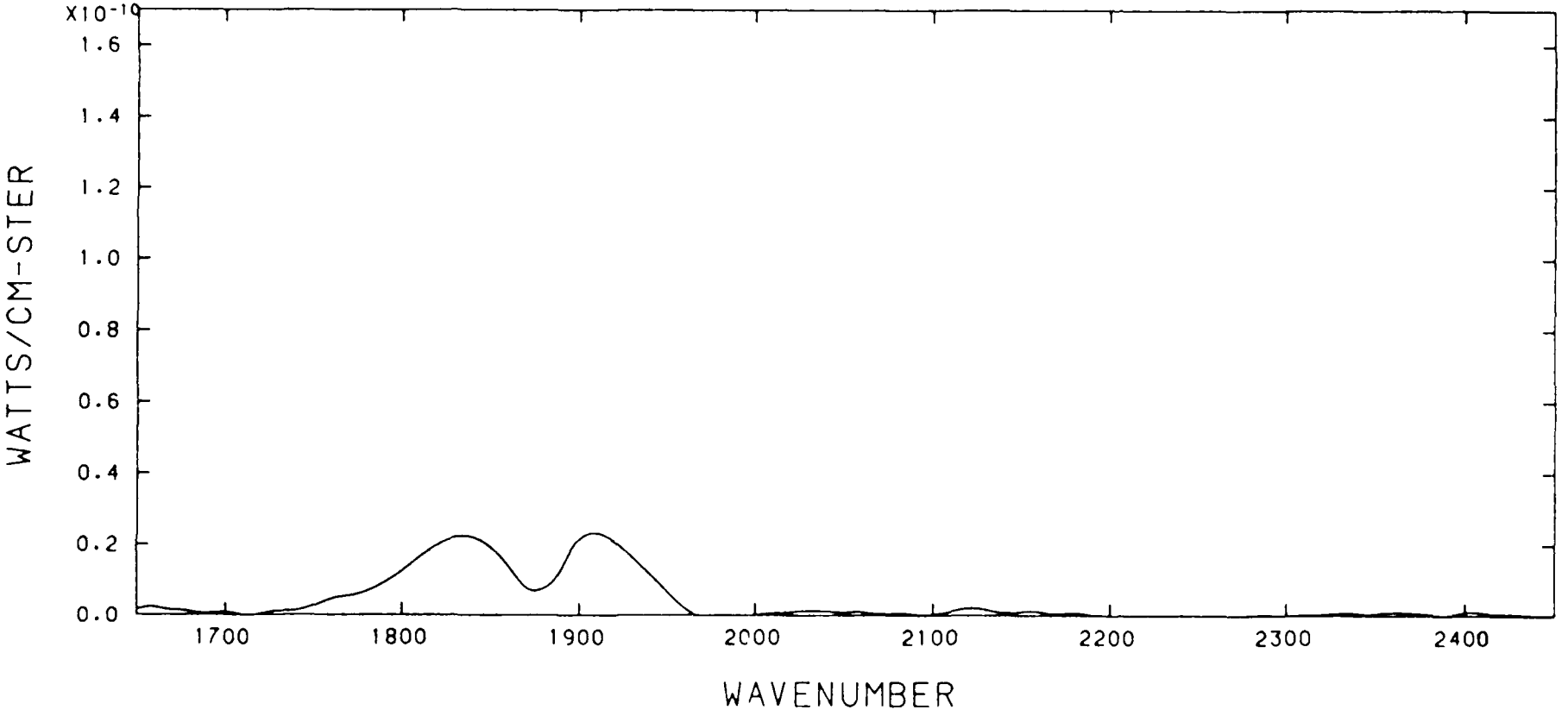
FILE 125, TIME 9:11: 5.548, ALT 96.5- 96.3 KM

30-NOV-83 09:35



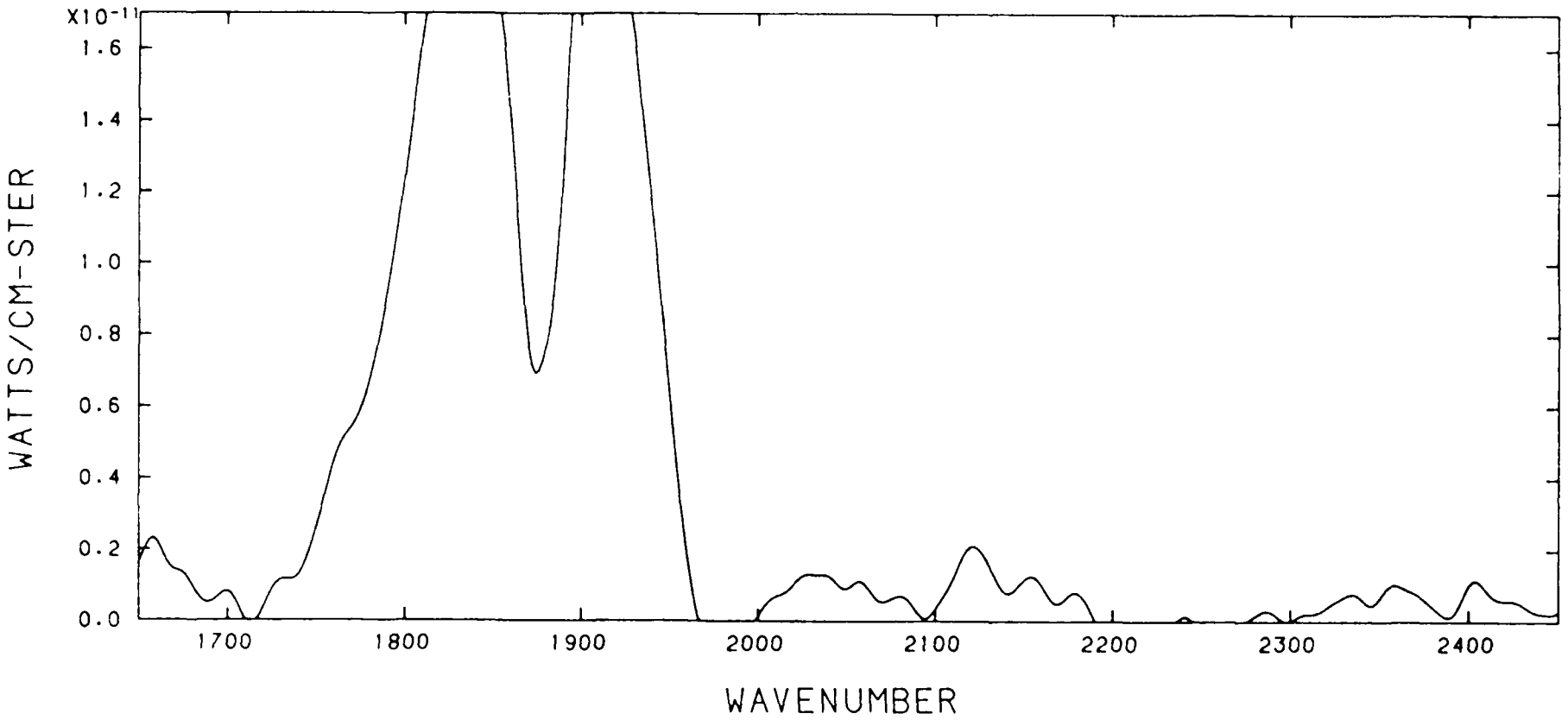
FILE 125, TIME 9:11: 5.548, ALT 96.5- 96.3 KM

30-NOV-83 09:35



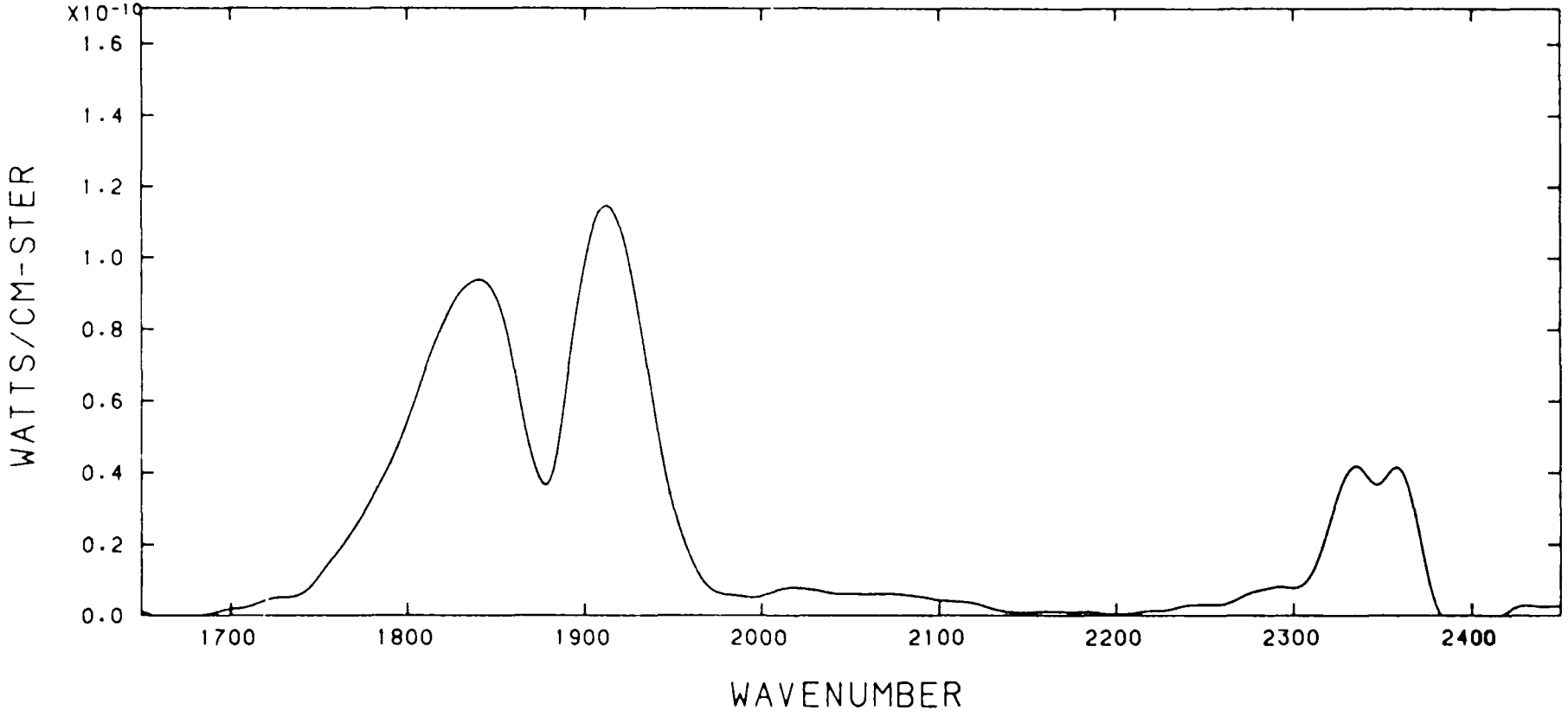
FILE 126, TIME 9:11: 8.374, ALT 93.9- 93.6 KM

30-NOV-83 09:36



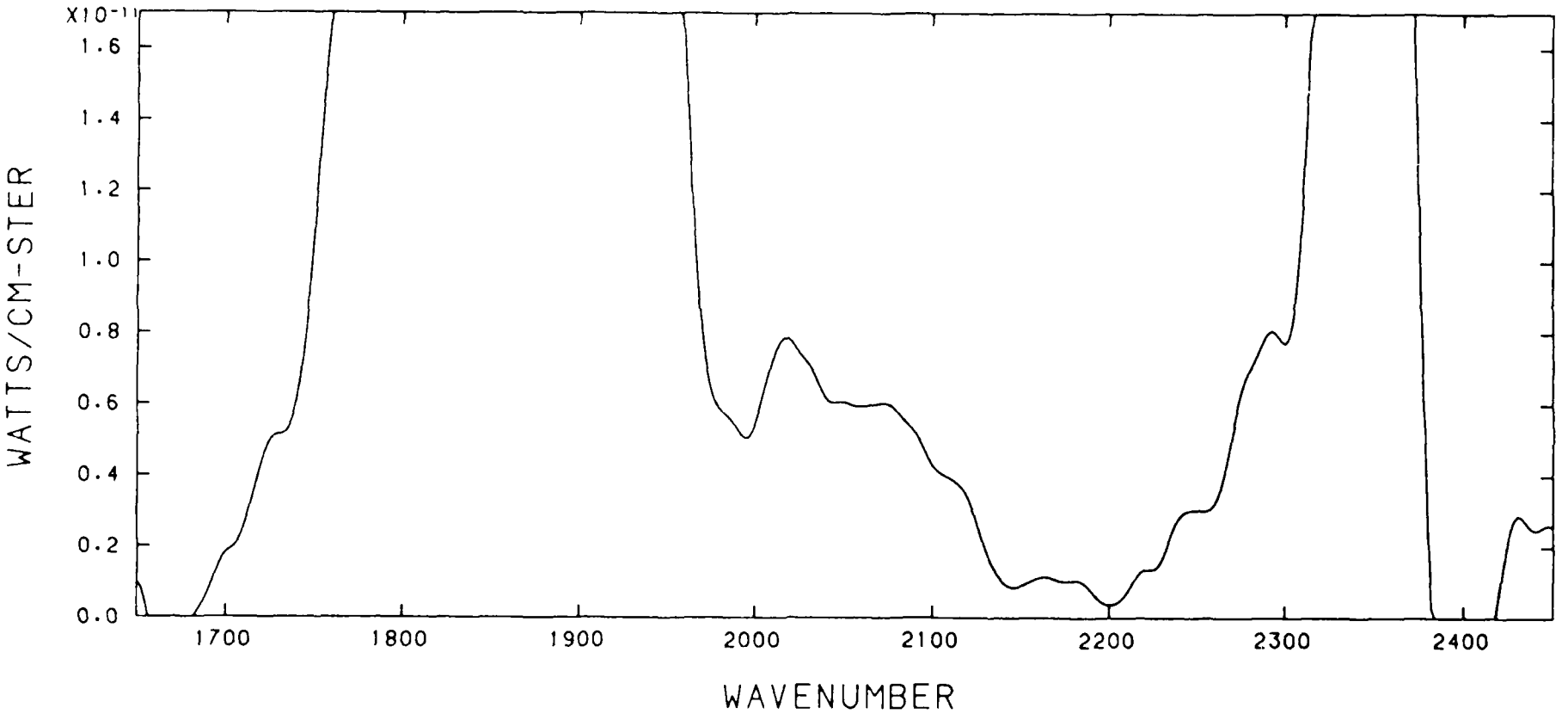
FILE 126, TIME 9:11: 8.374, ALT 93.9- 93.6 KM

30-NOV-83 09:36



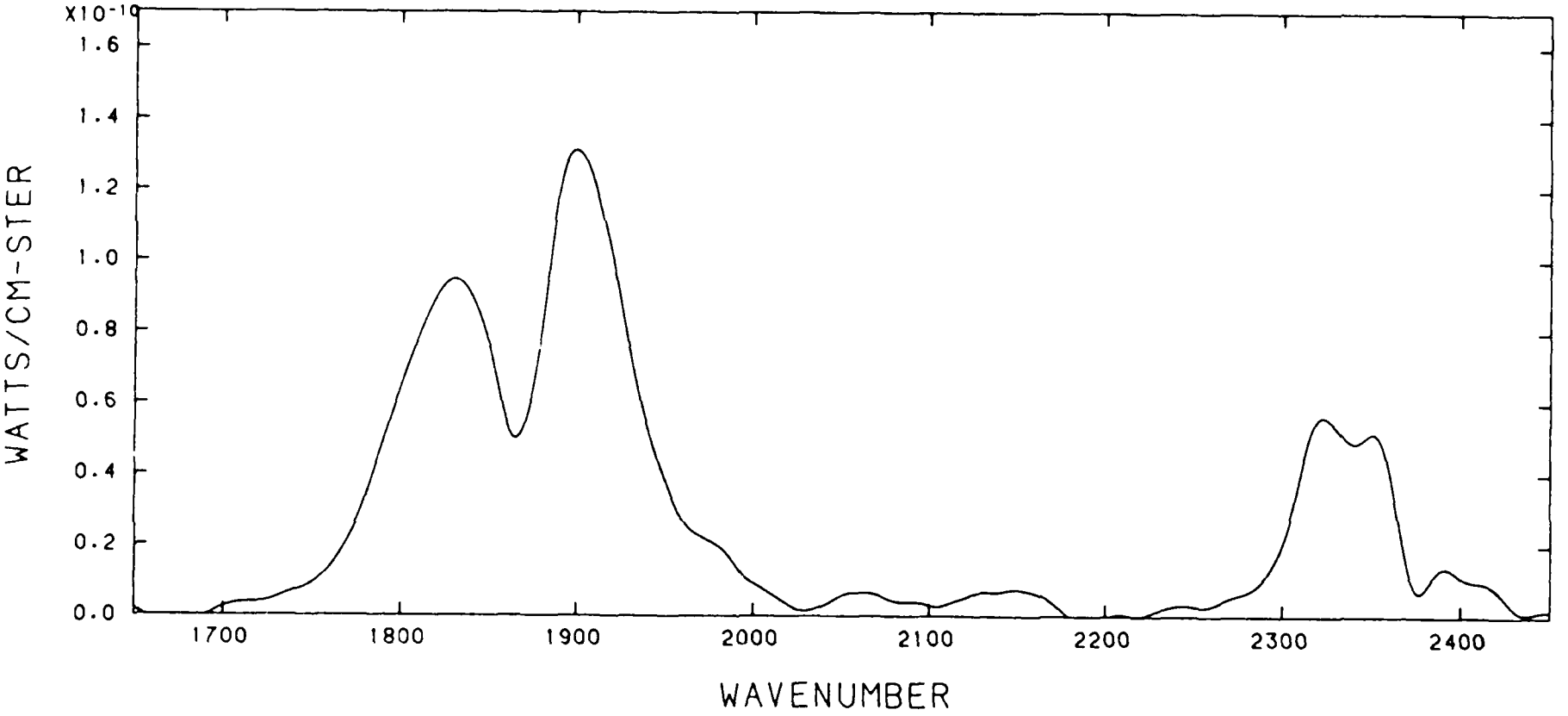
FILE 127, TIME 9:11: 8.870, ALT 93.5- 93.2 KM

30-NOV-83 09:36



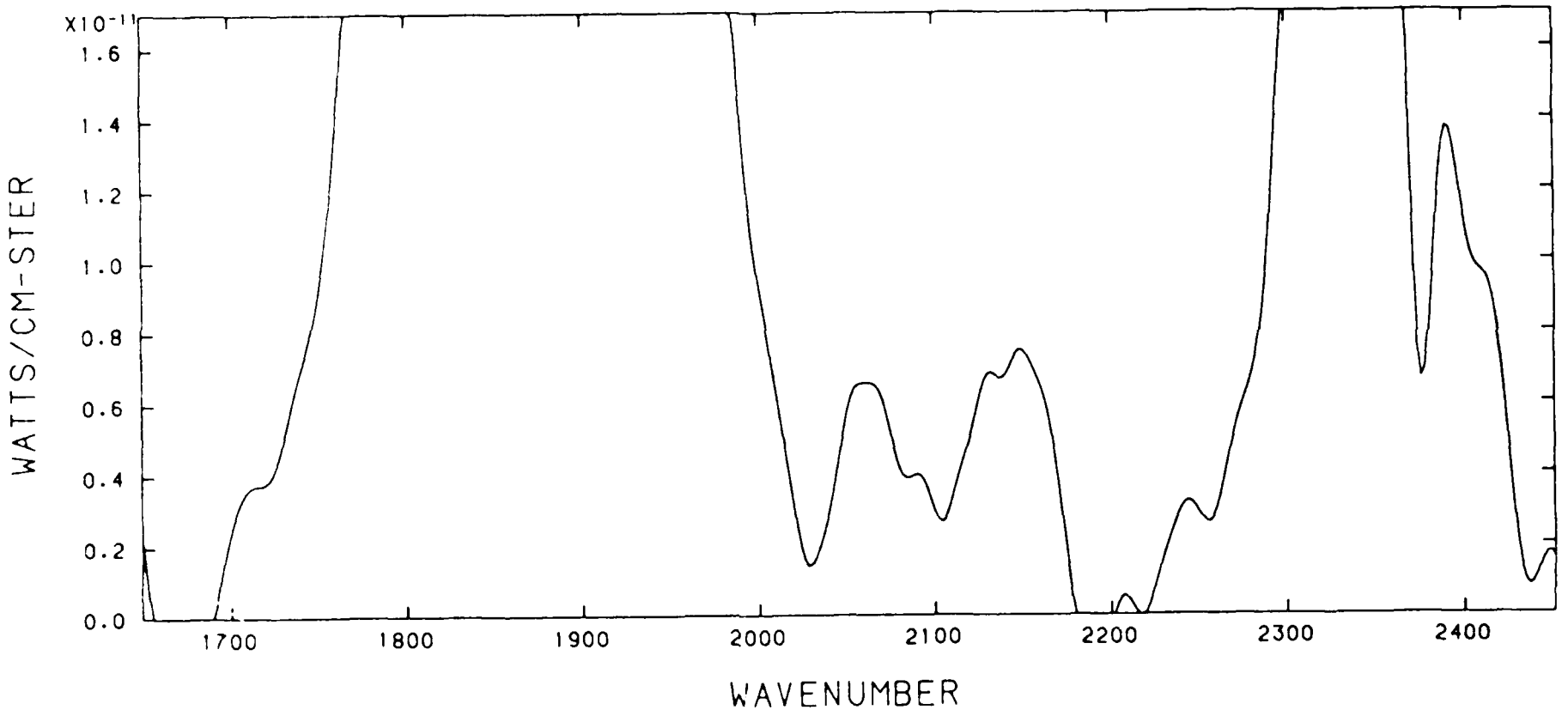
FILE 127, TIME 9:11: 8.870, ALT 93.5- 93.2 KM

30-NOV-83 09:36



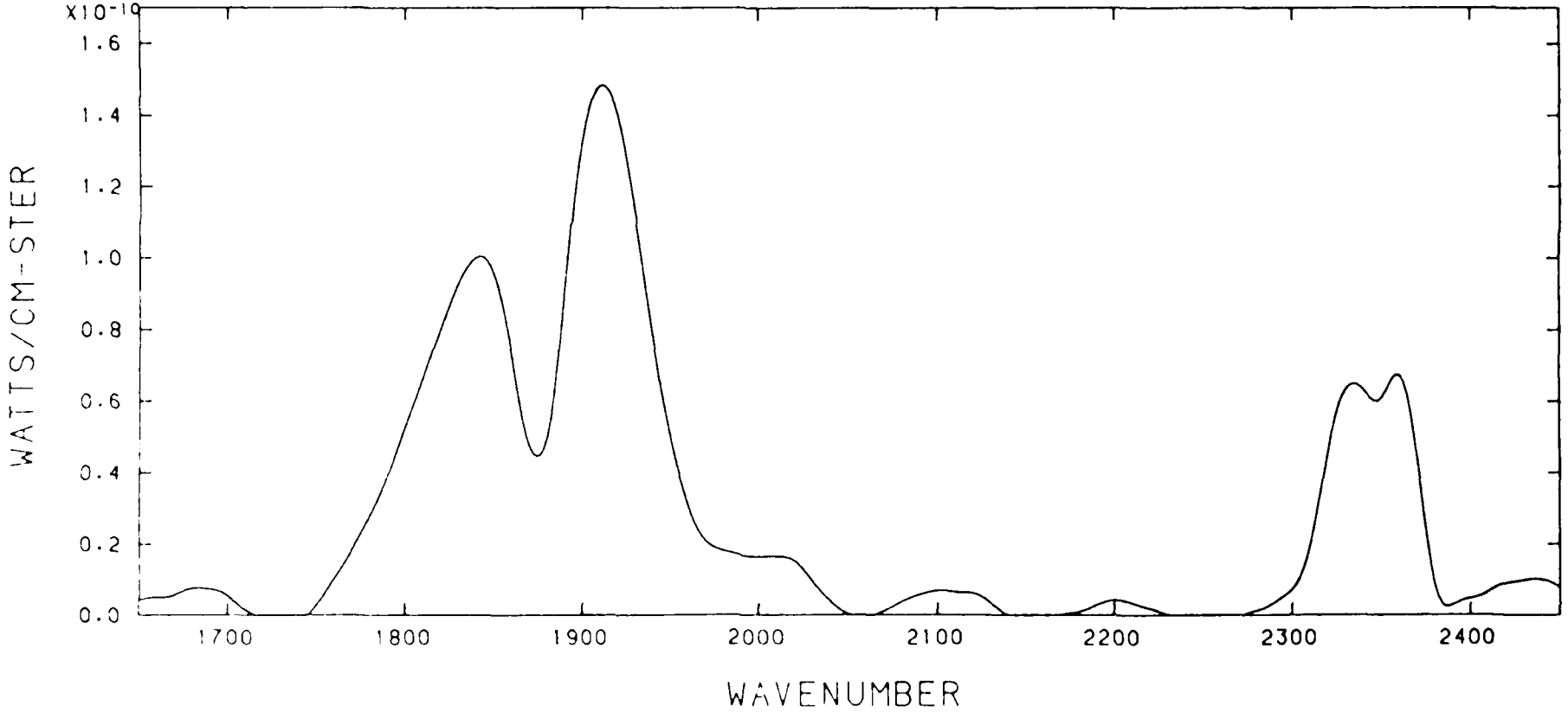
FILE 128, TIME 9:11:11.622, ALT 90.9- 90.6 KM

30-NOV-83 09:36



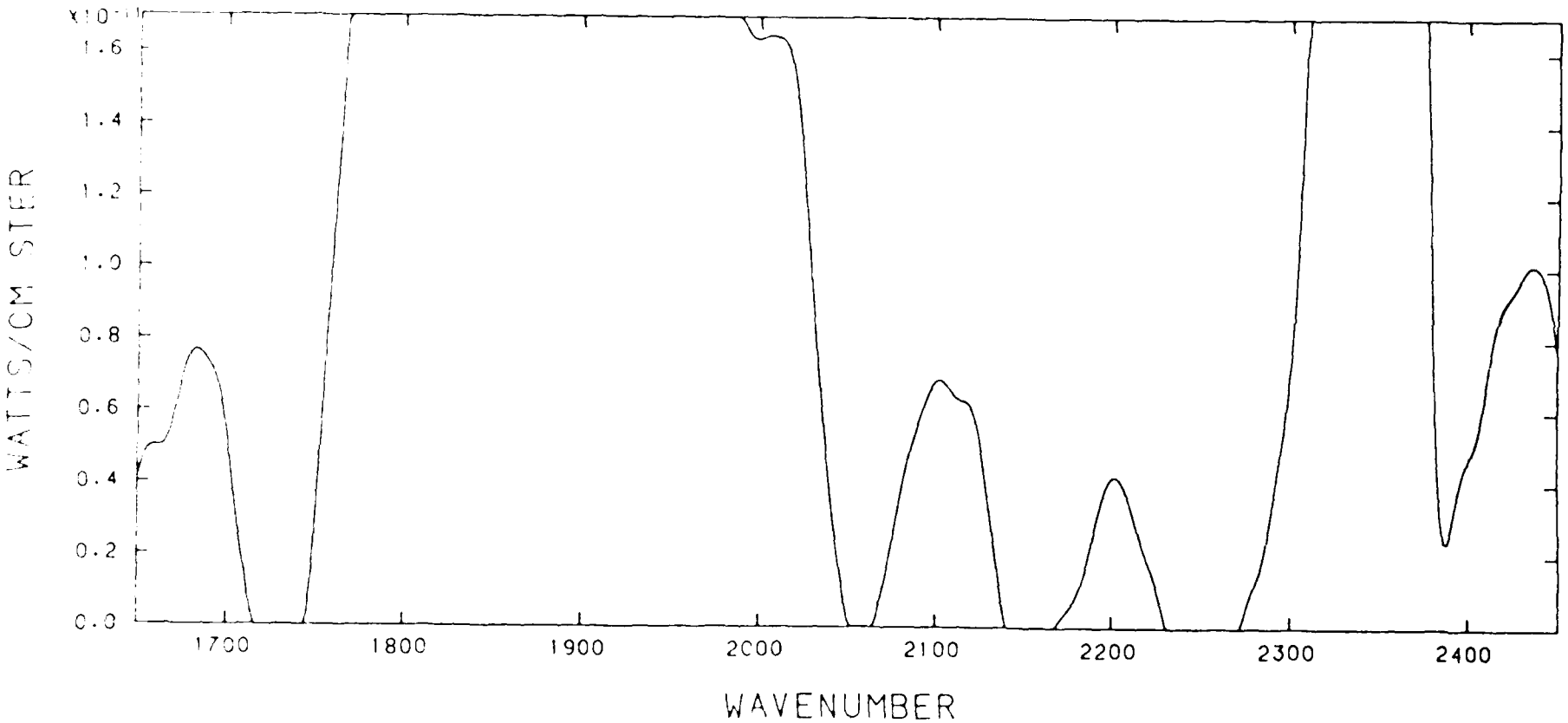
FILE 128, TIME 9:11:11.622, ALT 90.9- 90.6 KM

30-NOV-83 09:36



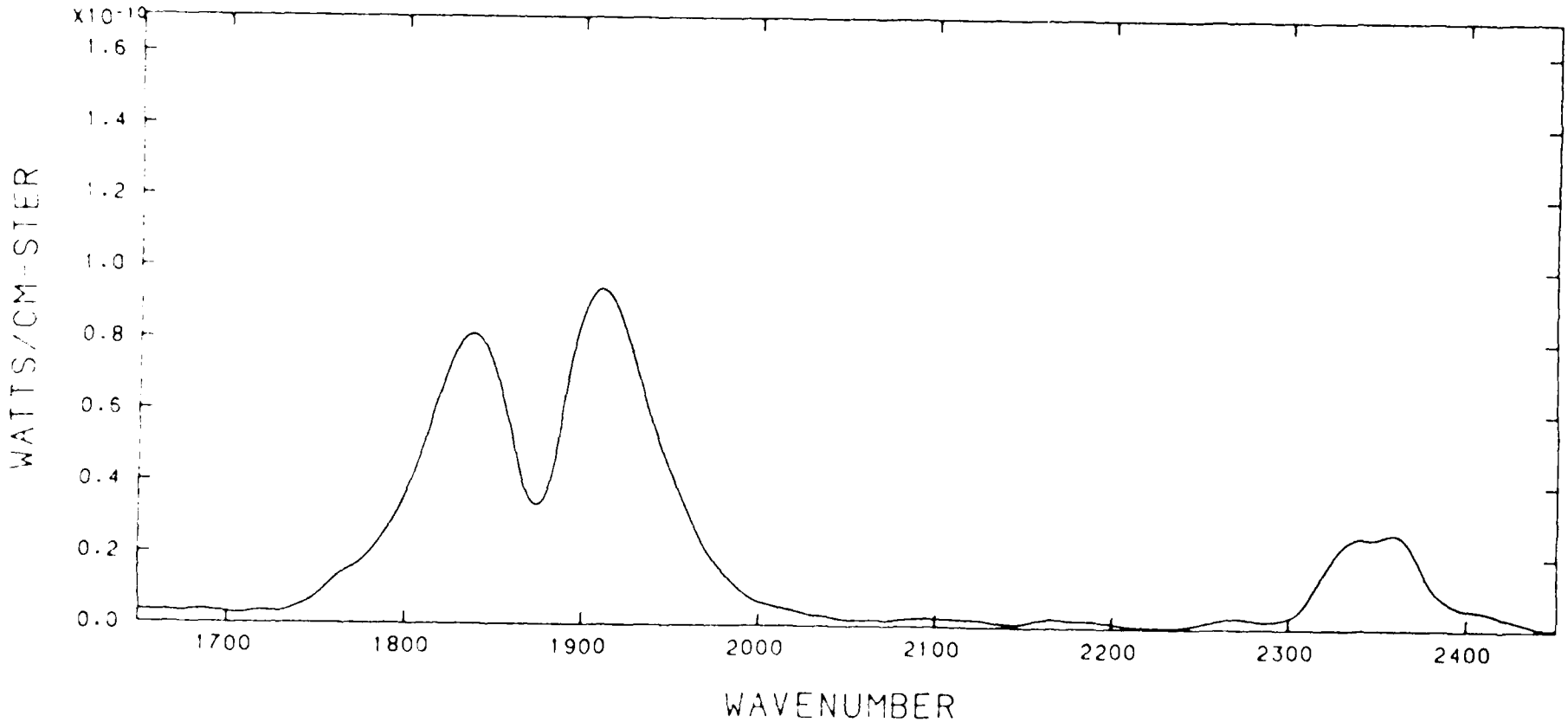
FILE 129, TIME 9:11:12.118, ALT 90.4- 90.1 KM

30-NOV-83 09:36



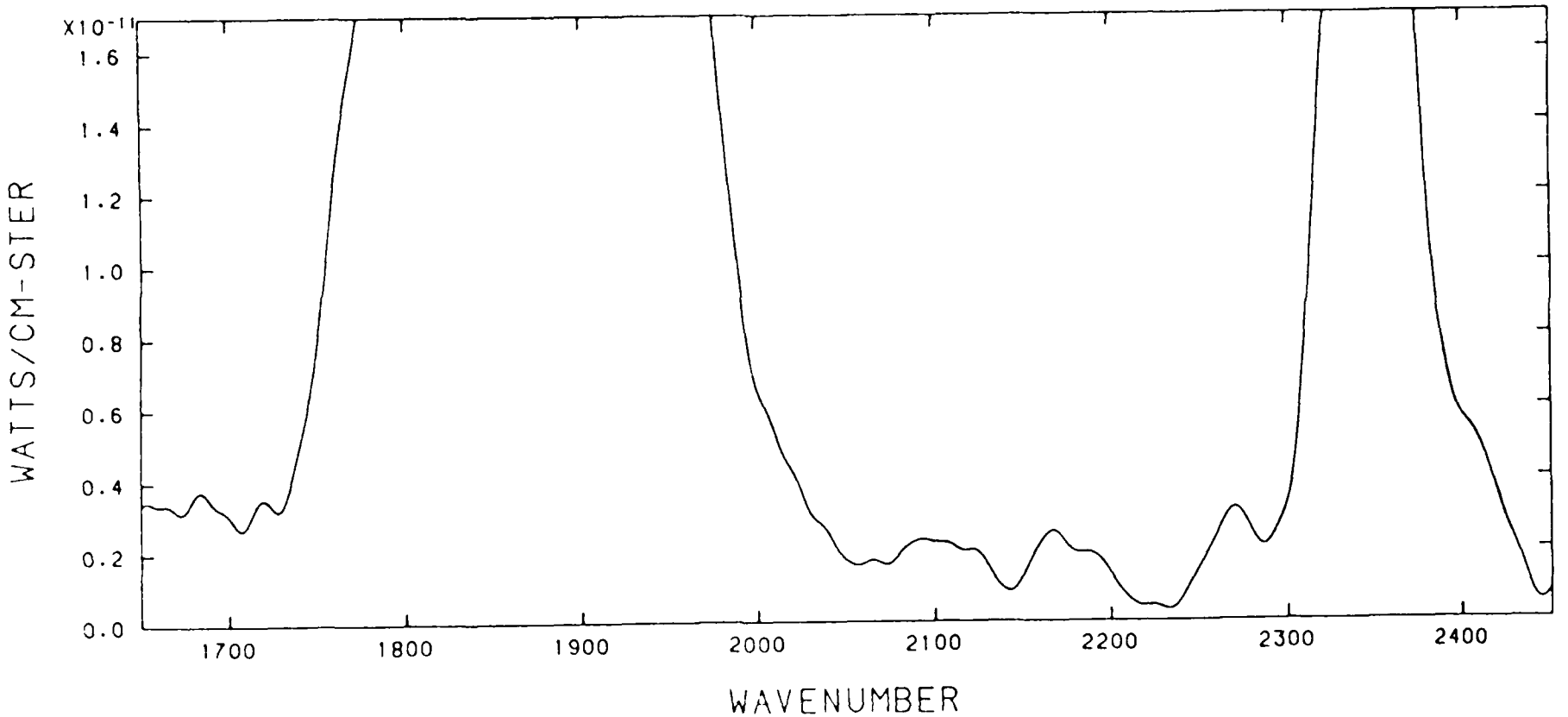
FILE 129, TIME 9:11:12.118, ALT 90.4- 90.1 KM

30-NOV-83 09:38



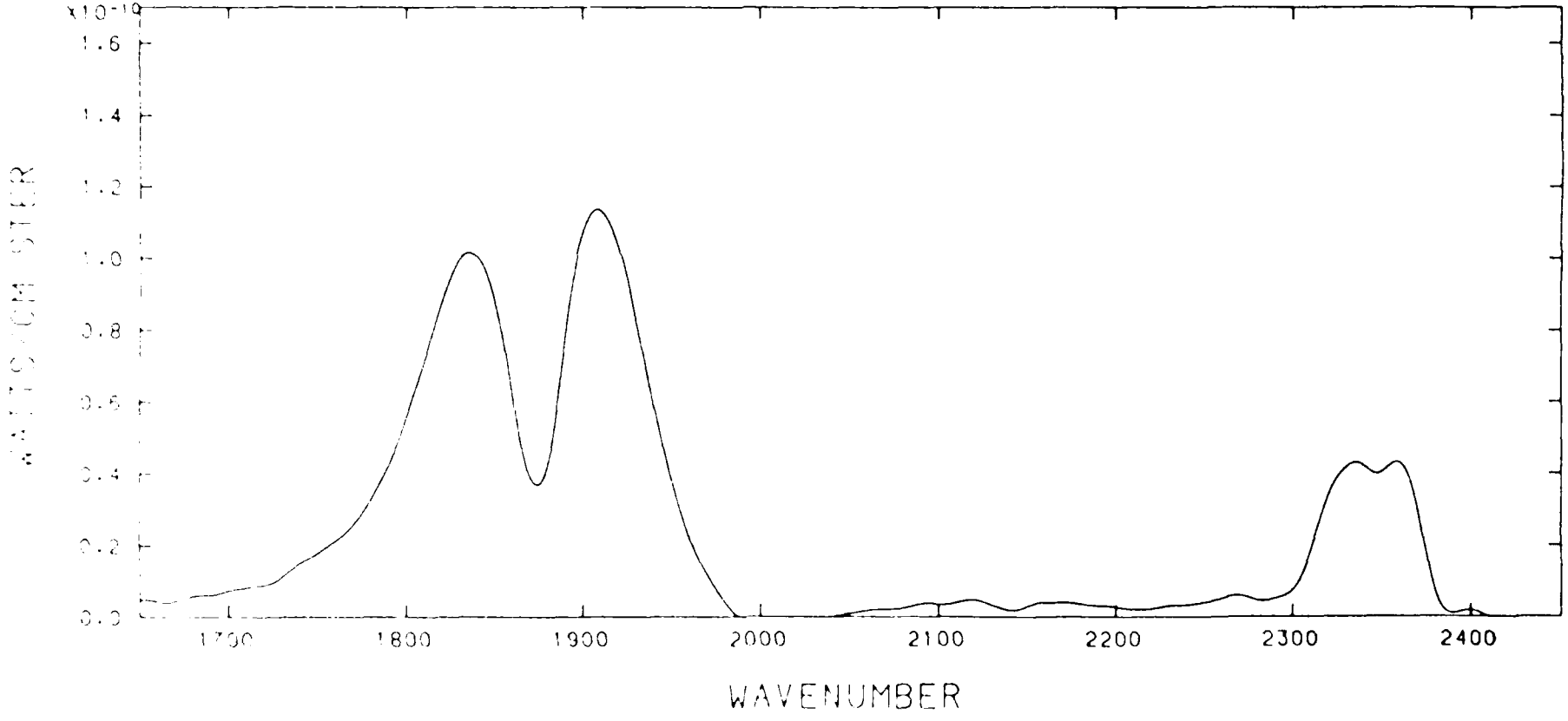
FILE 130, TIME 9:11:14.872, ALT 87.7- 87.4 KM

30-NOV-83 09:36

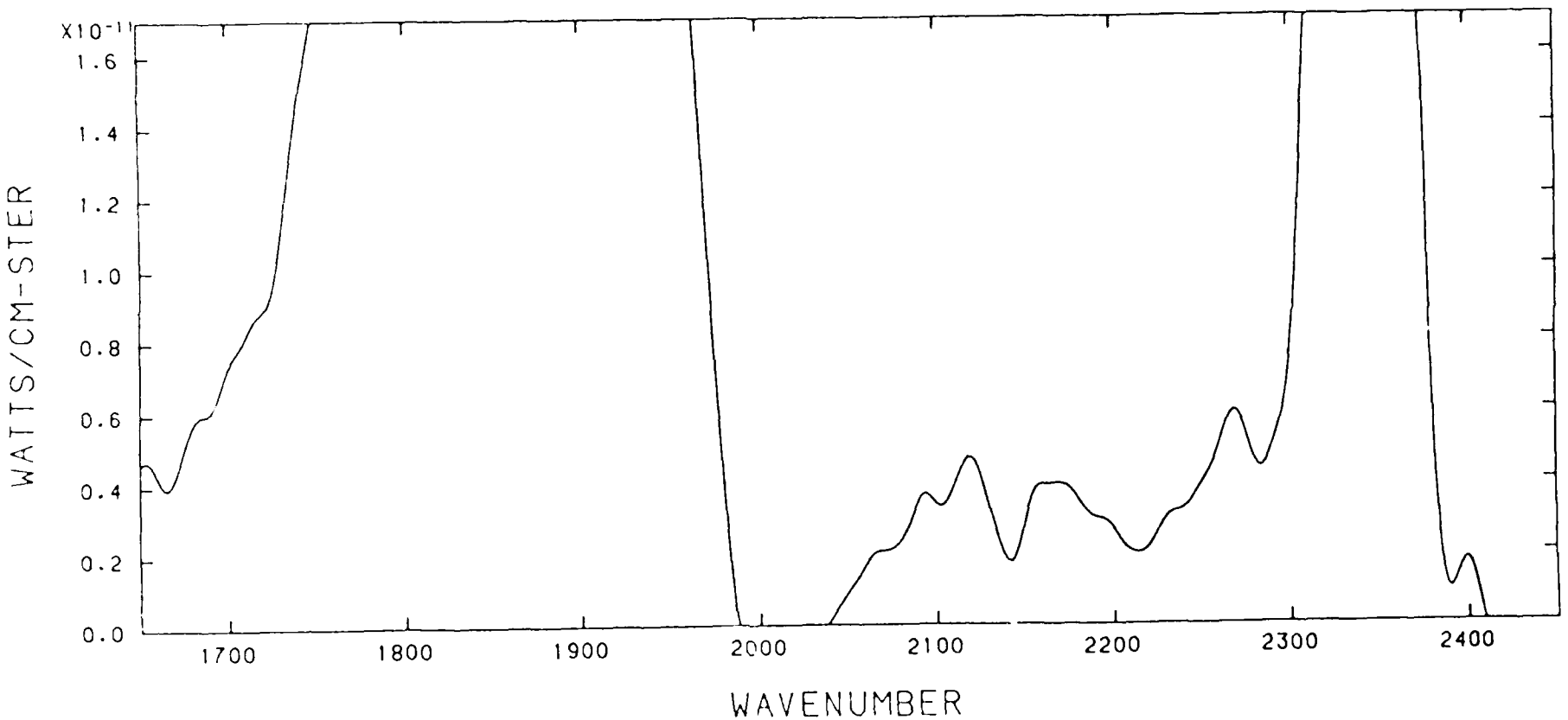


FILE 130, TIME 9:11:14.872, ALT 87.7- 87.4 KM

30-NOV-83 09:36

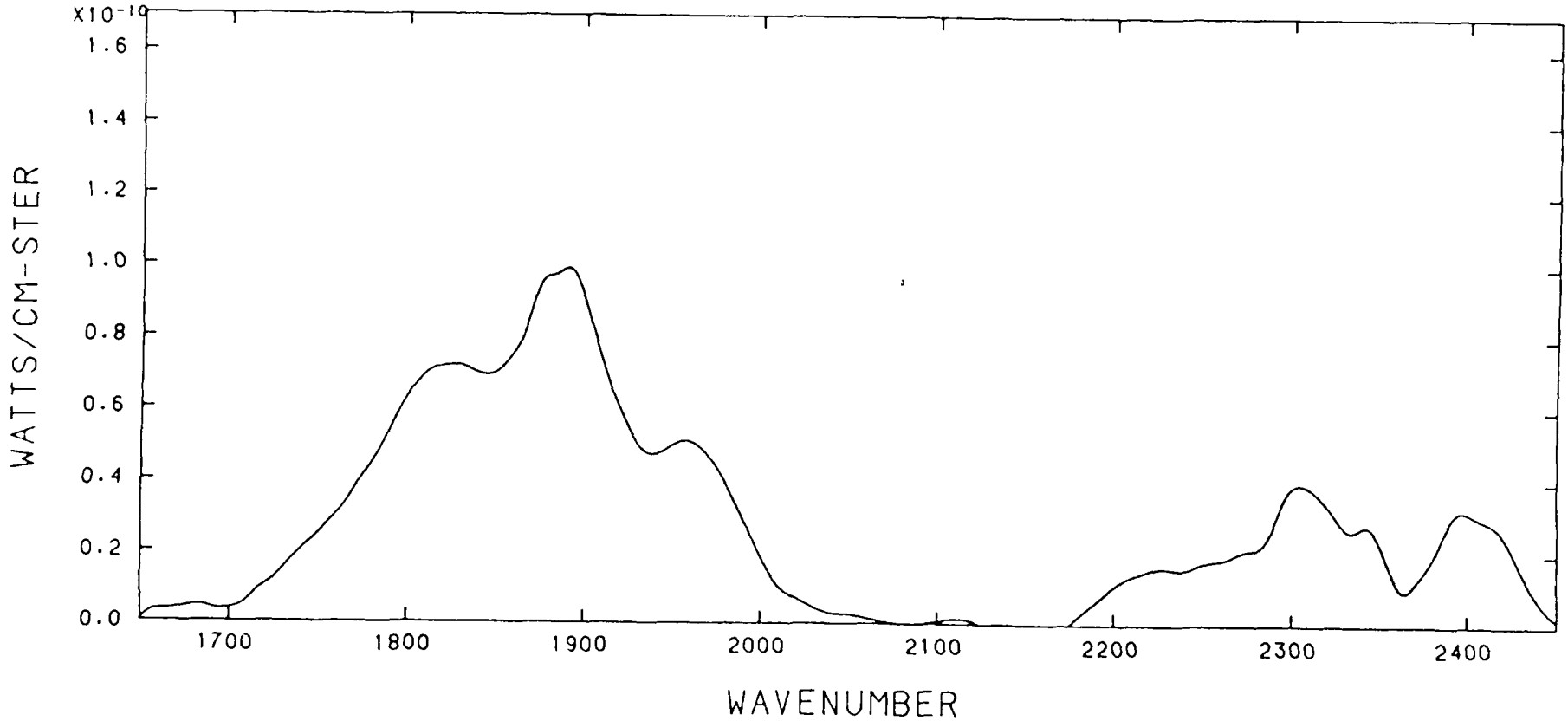


FILE 131, TIME 9:11:15.366, ALT 87.3- 86.9 KM



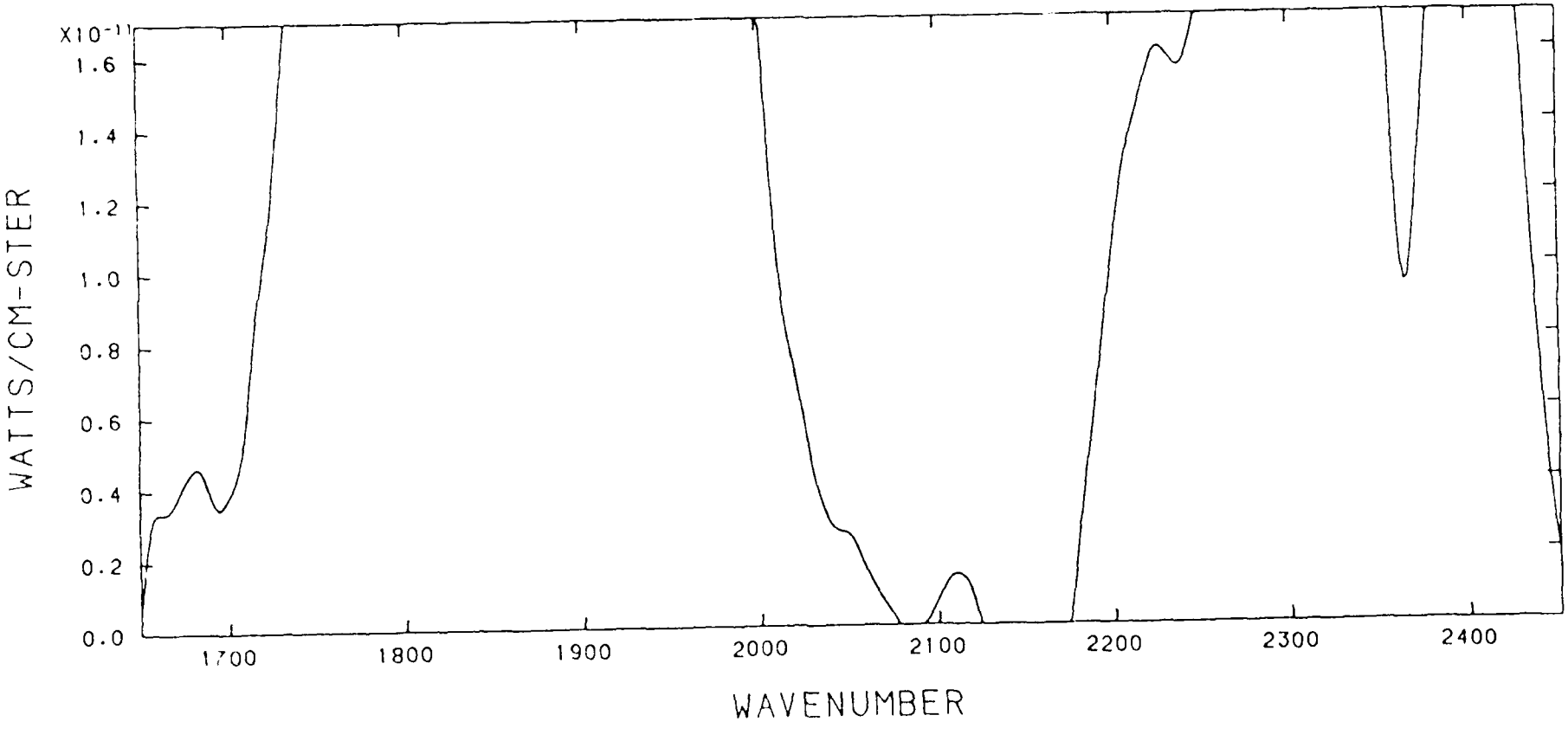
FILE 131, TIME 9:11:15.366, ALT 87.3- 86.9 KM

30-NOV-83 09:36



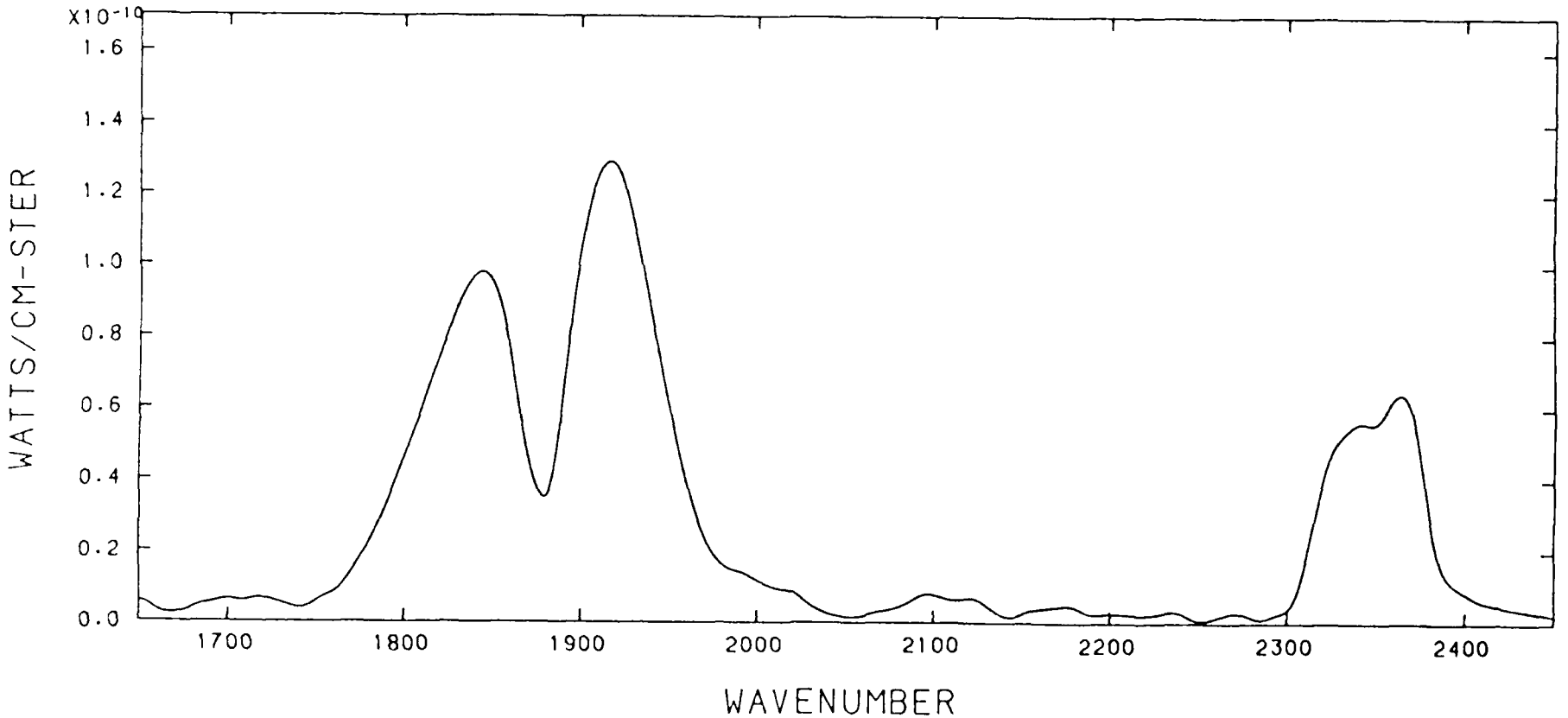
FILE 132, TIME 9:11:18.122, ALT 84.5- 84.1 KM

30-NOV-83 09:36



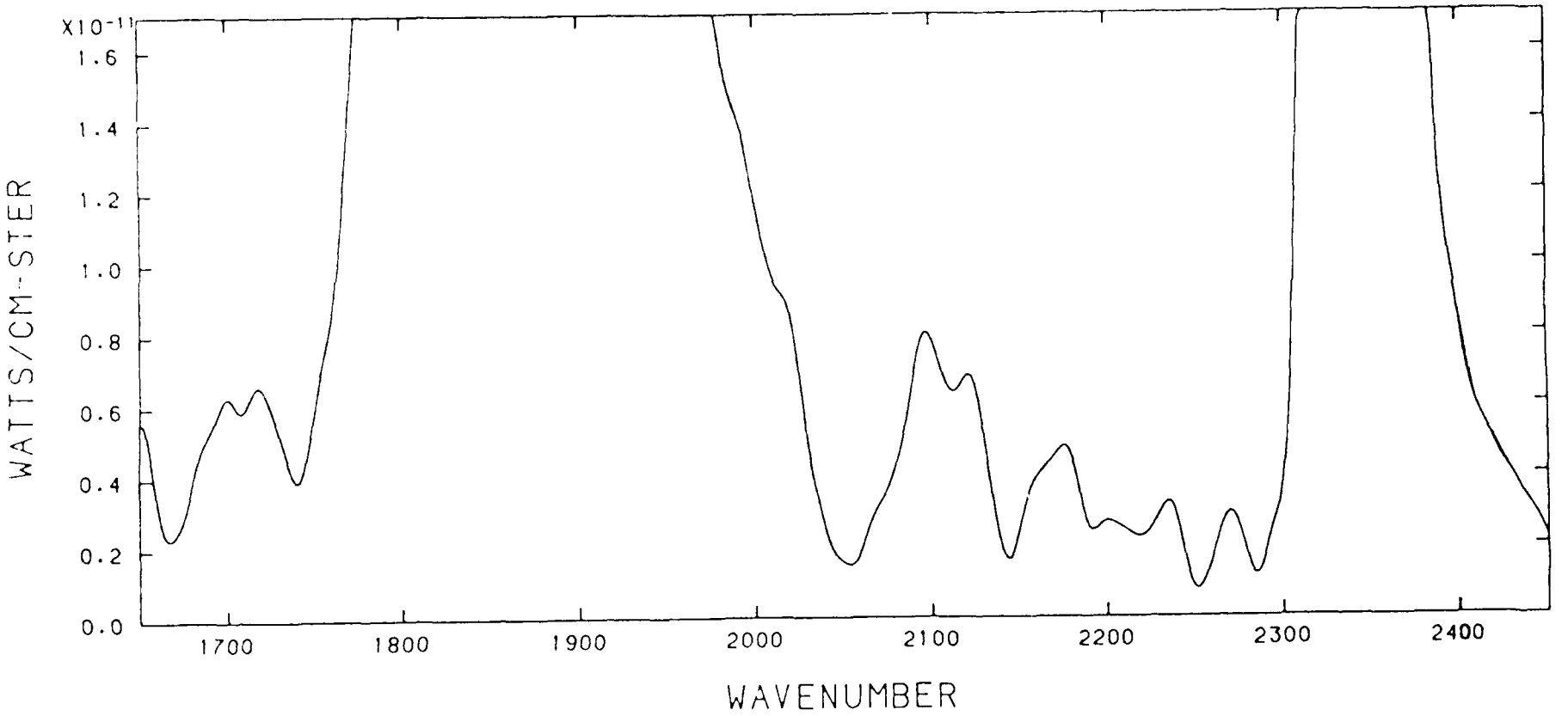
FILE 132, TIME 9:11:18.122, ALT 84.5- 84.1 KM

30-NOV-83 09:36



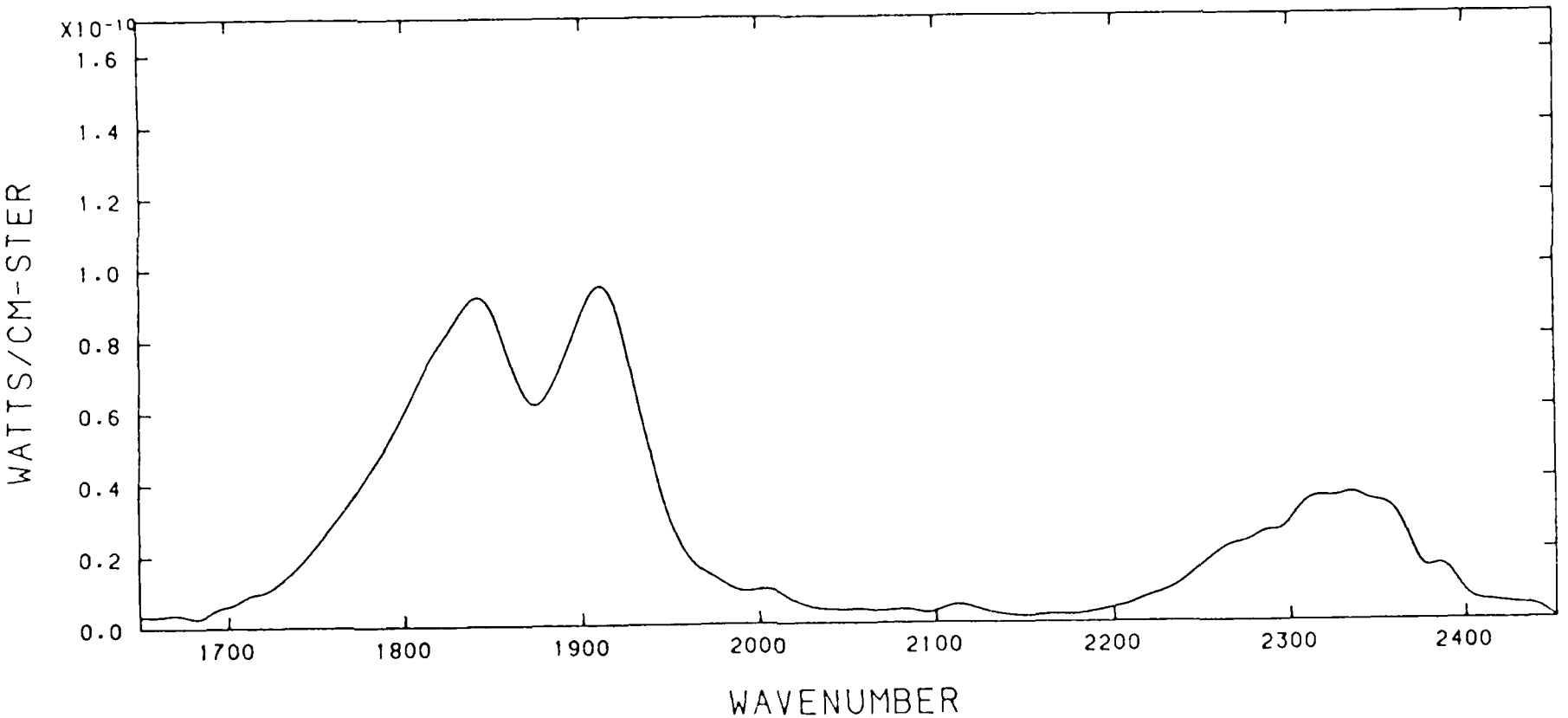
FILE 133, TIME 9:11:18.618, ALT 84.0- 83.6 KM

30-NOV-83 09:36



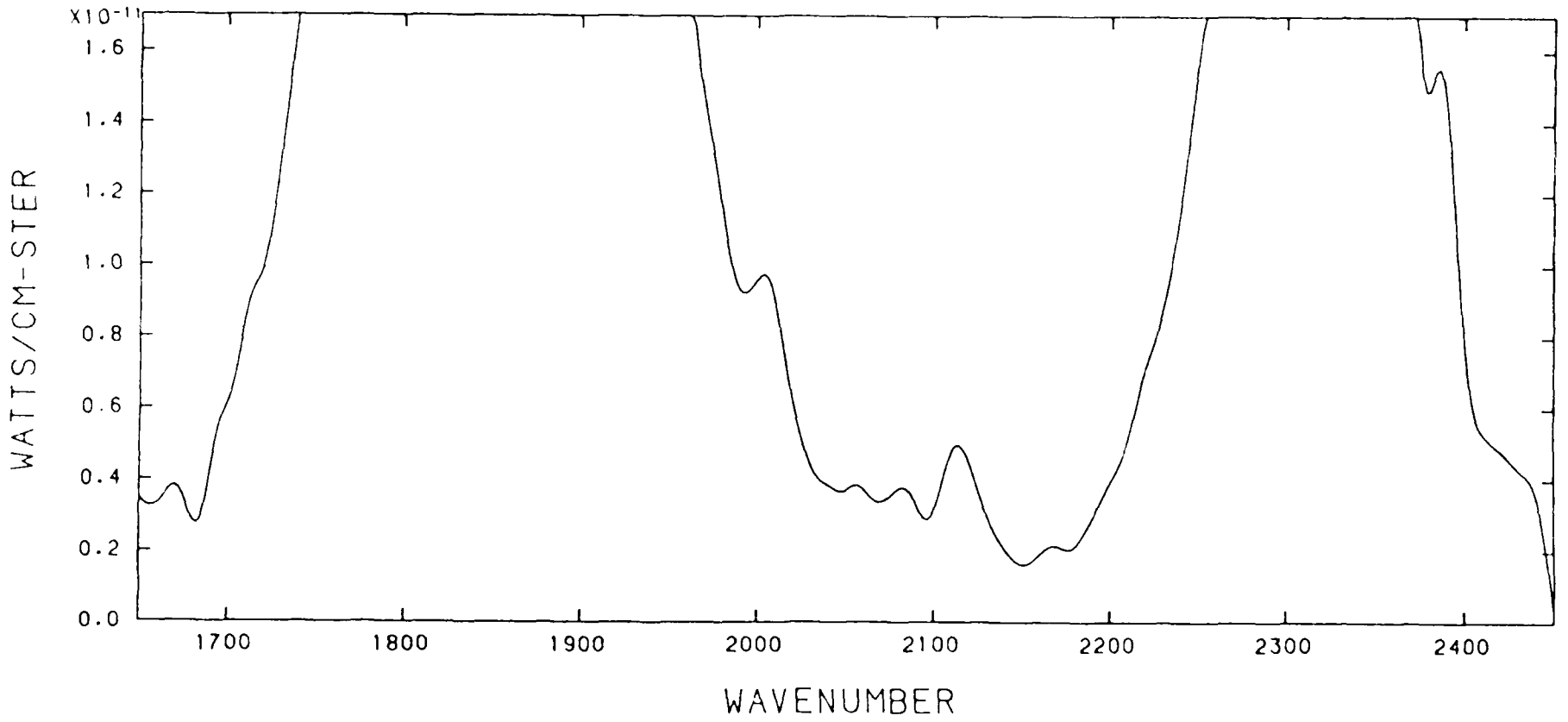
FILE 133, TIME 9:11:18.618, ALT 84.0- 83.6 KM

30-NOV-83 09:37



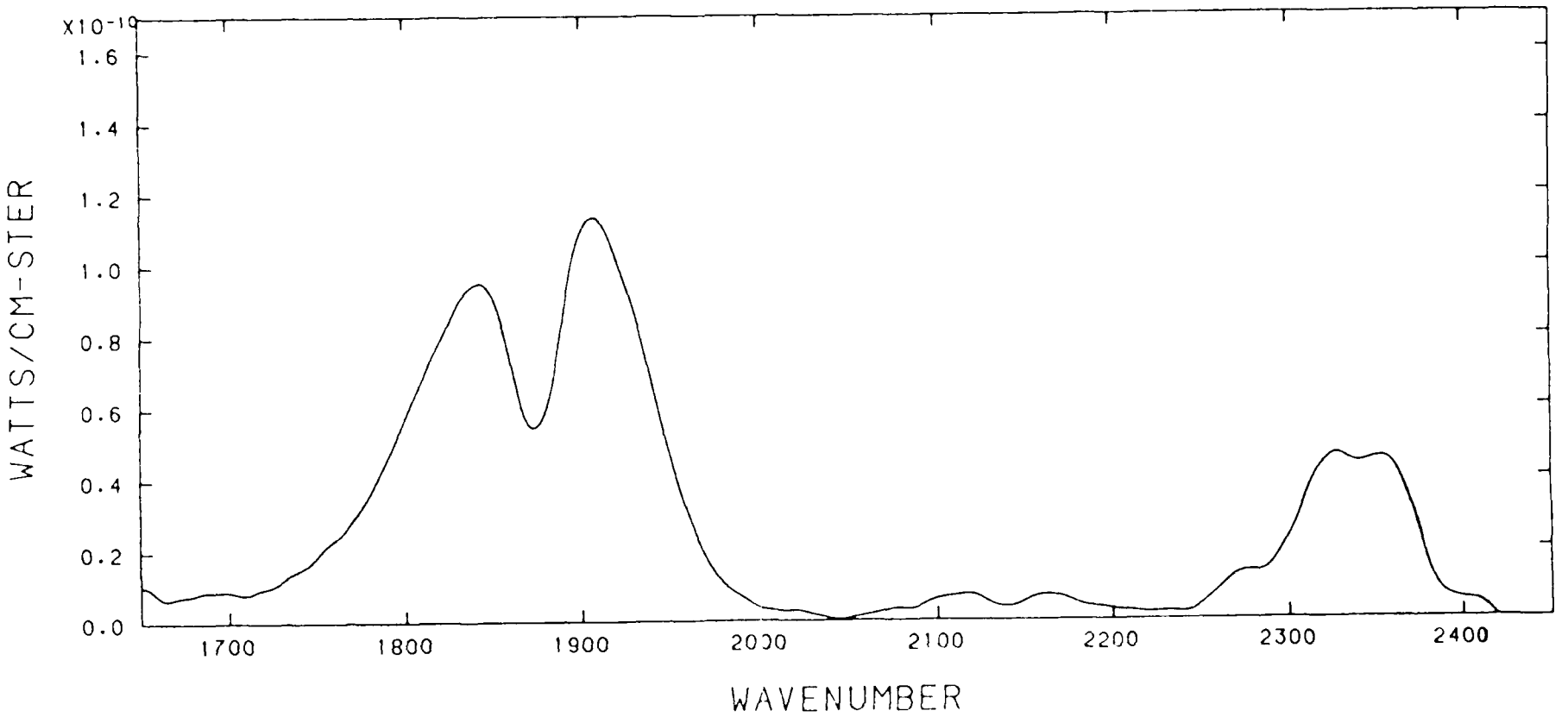
FILE 134, TIME 9:11:21.372, ALT 81.1- 80.8 KM

30-NOV-83 09:37



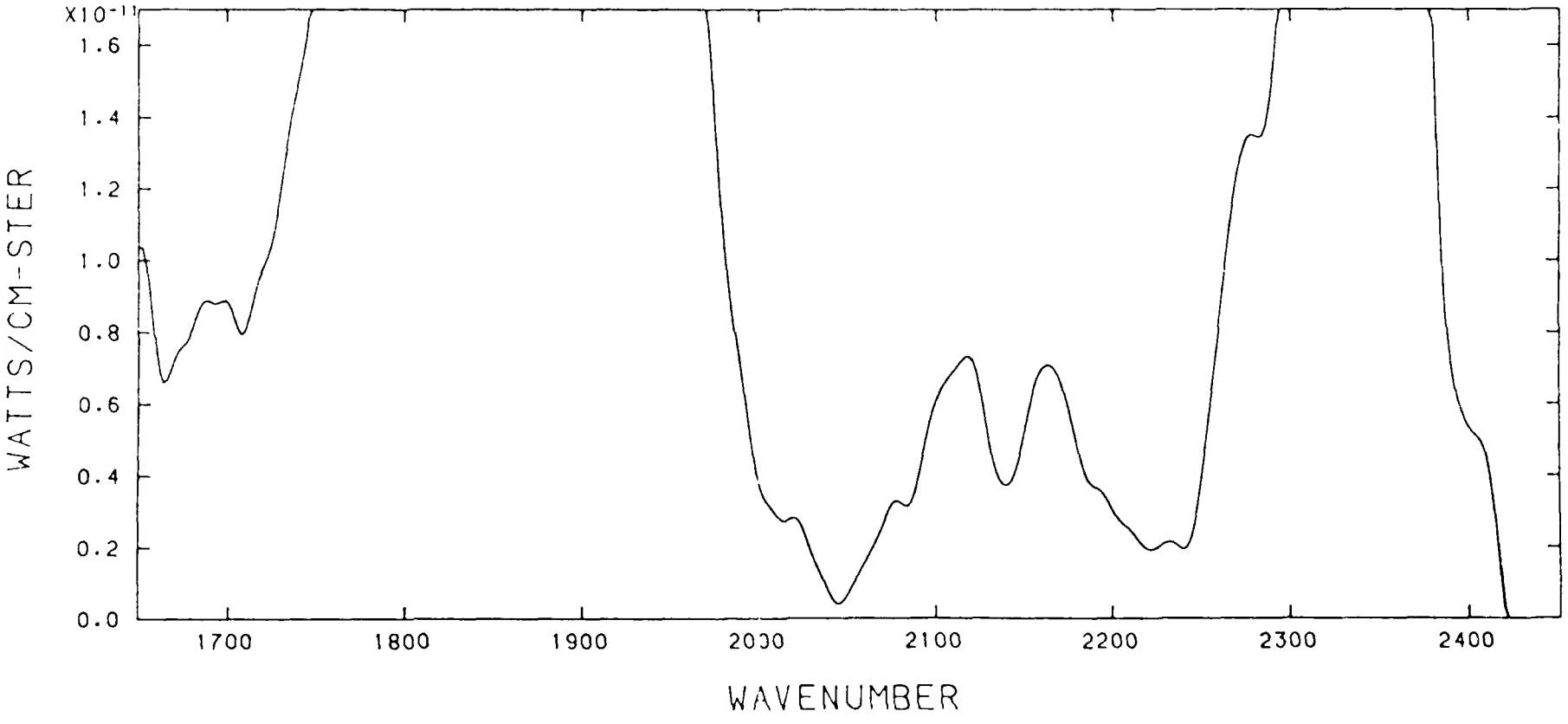
FILE 134, TIME 9:11:2[illegible].372, ALT 81.1- 80.8 KM

30-NOV-83 09:37



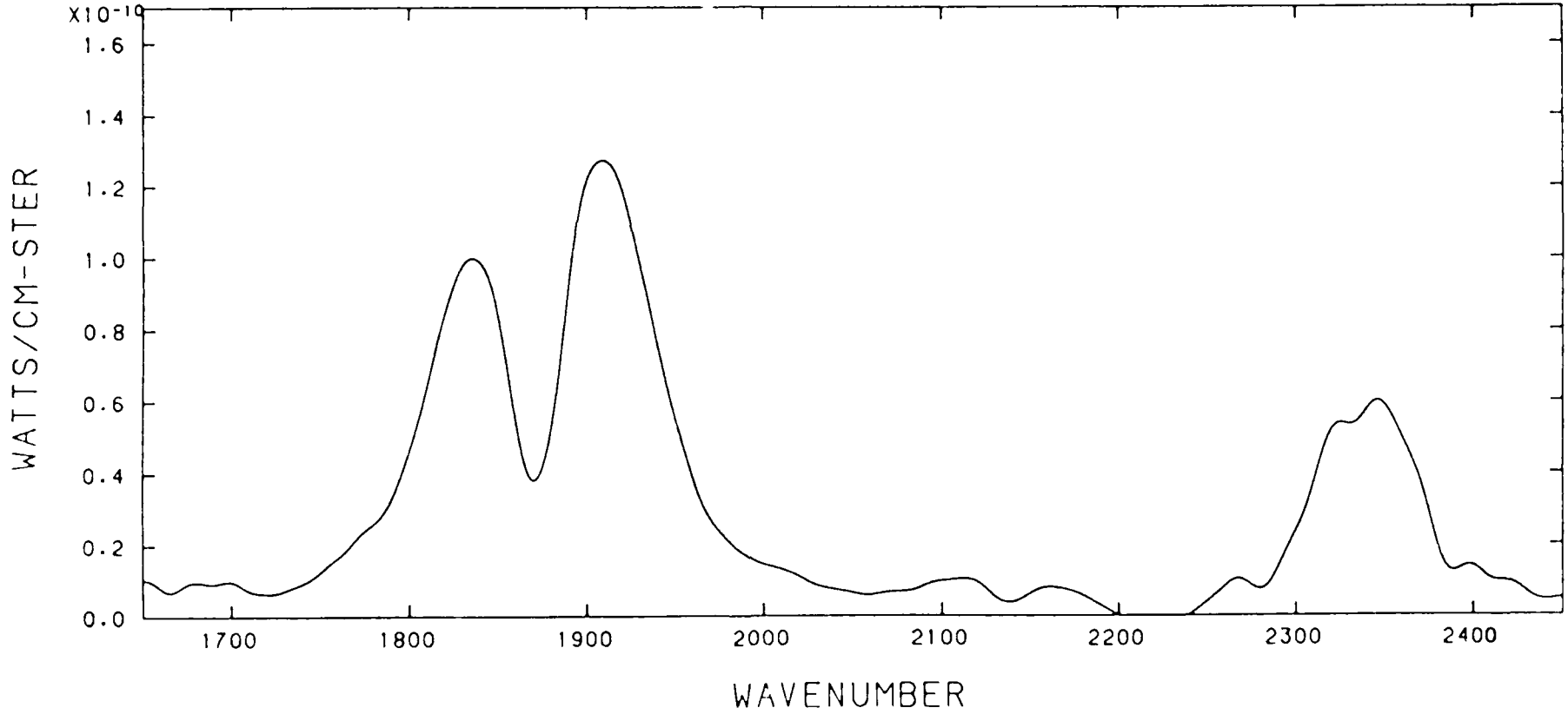
FILE 135, TIME 9:11:21.868, ALT 80.6- 80.3 KM

30-NOV-83 09:37



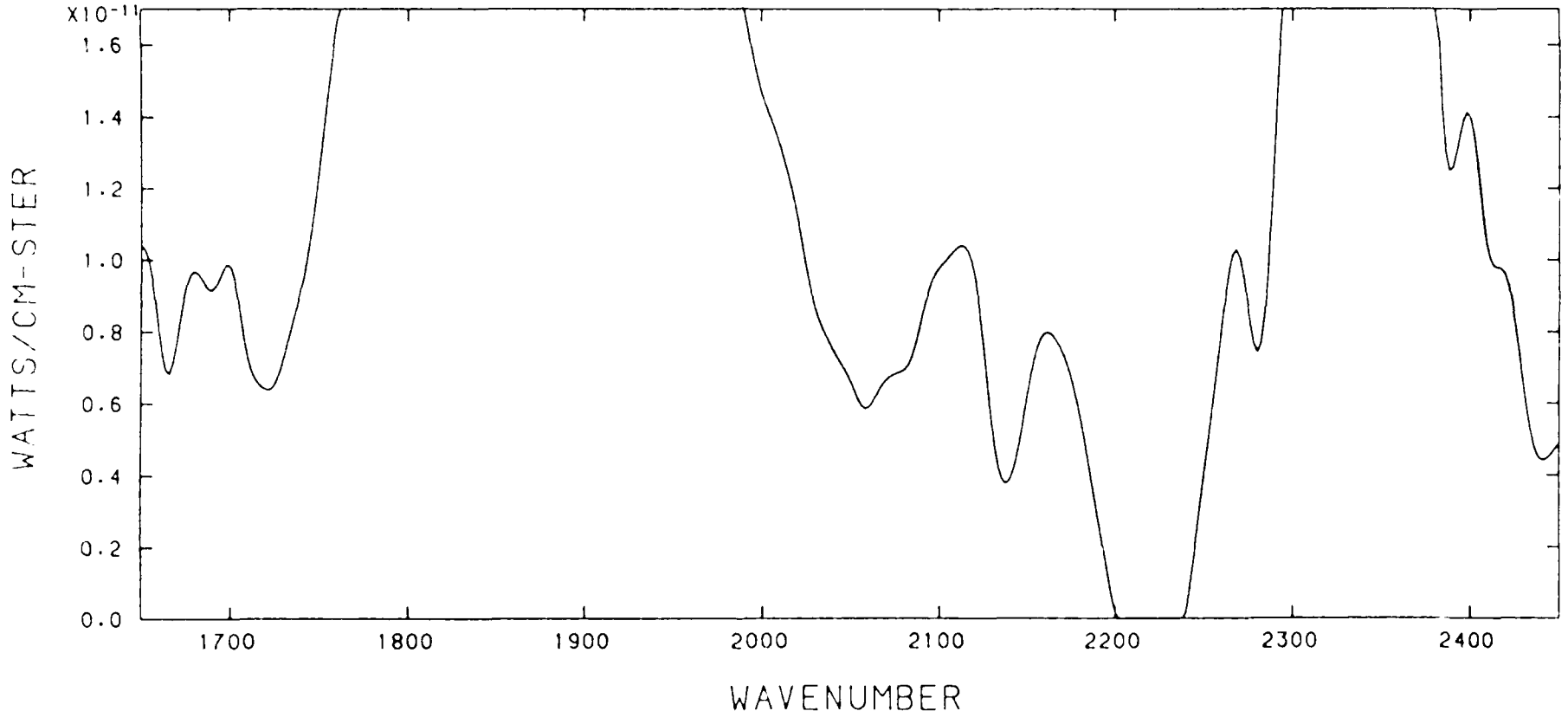
FILE 135, TIME 9:11:21.868, ALT 80.6- 80.3 KM

30-NOV-83 09:37



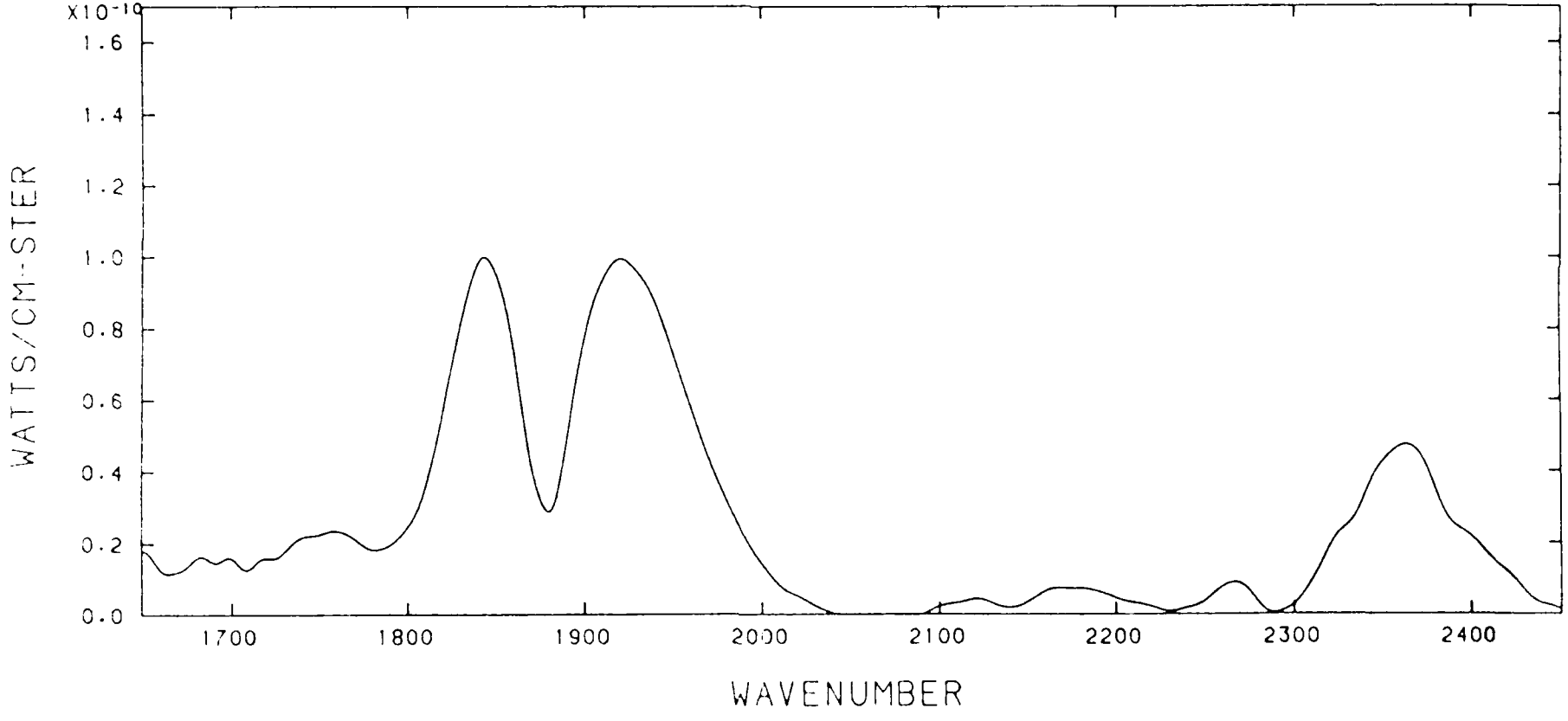
FILE 136, TIME 9:11:24.622, ALT 77.7- 77.3 KM

30-NOV-83 09:37



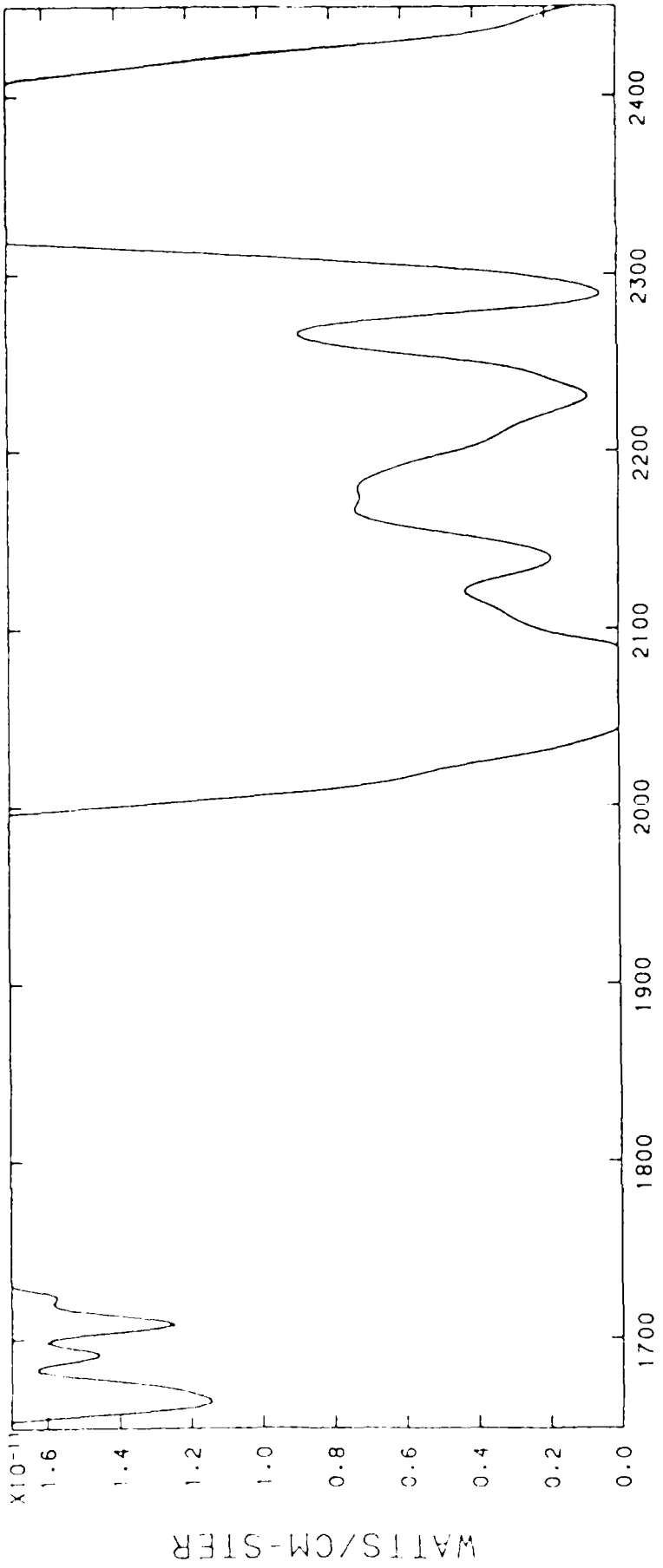
FILE 136, TIME 9:11:24.622, ALT 77.7- 77.3 KM

30-NOV-83 09:37

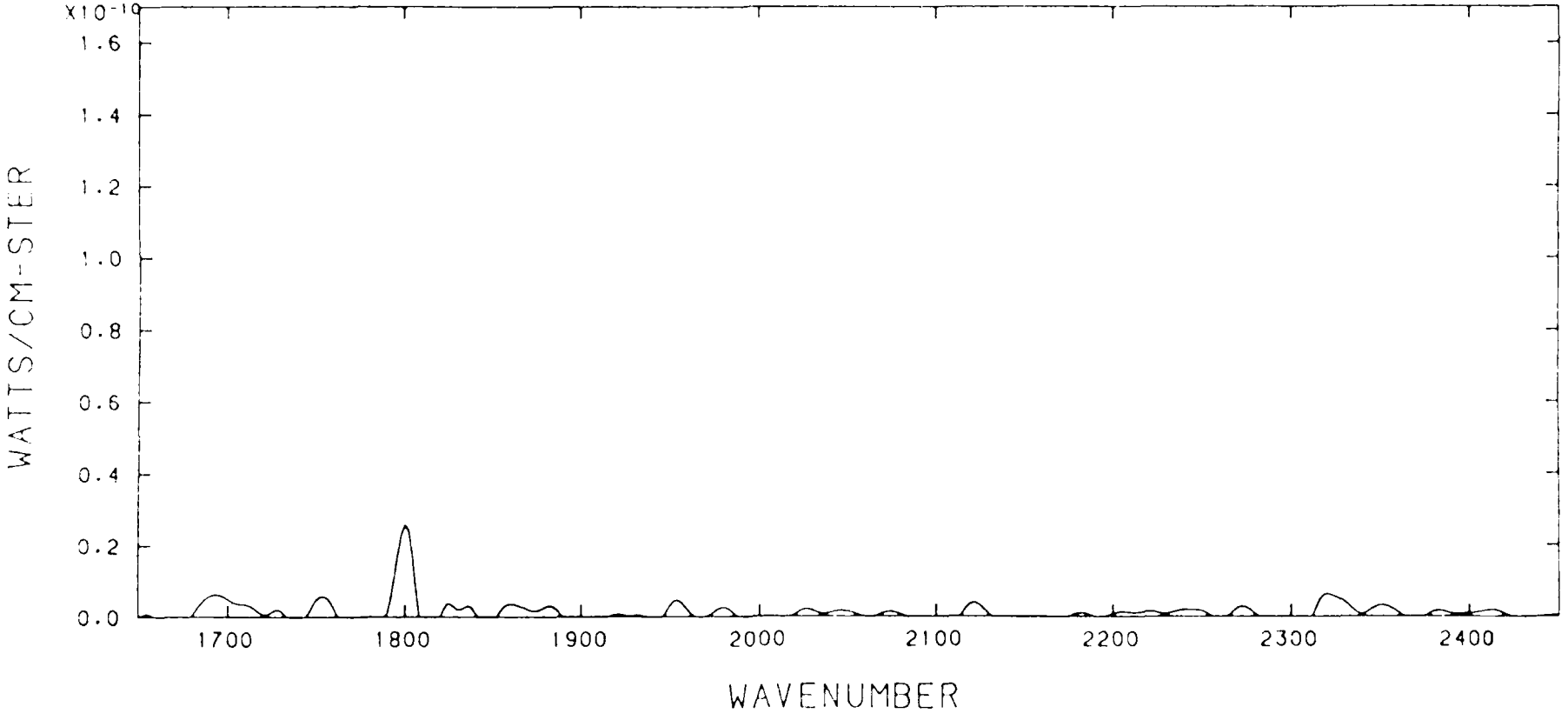


FILE 137, TIME 9:11:25.116, ALT 77.2- 76.8 KM

30-NOV-93 09:37

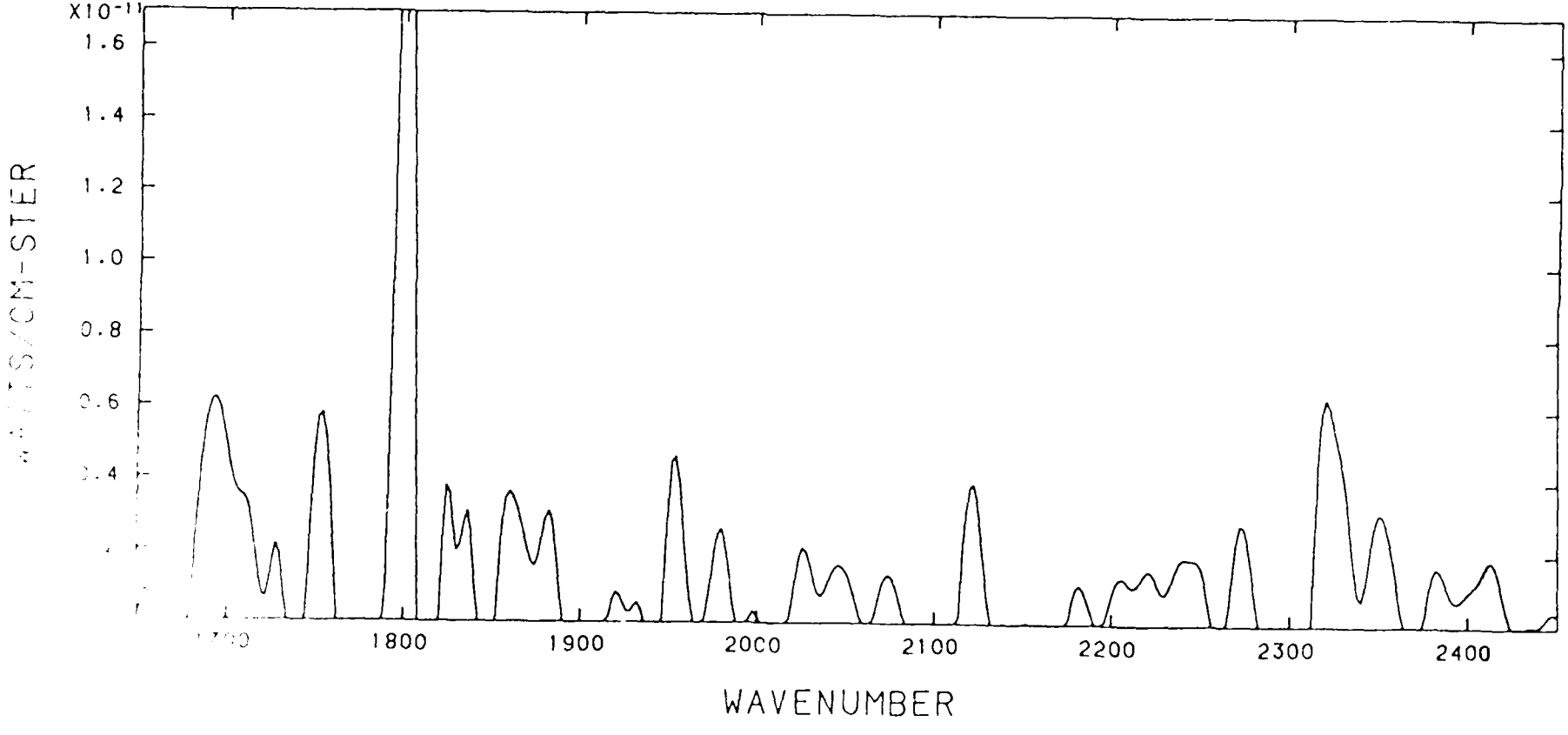


FILE 137, TIME 9:11:25.116, ALT 77.2- 76.8 KM



FILE 138, TIME 9:11:26.726, ALT 75.4- 75.0 KM

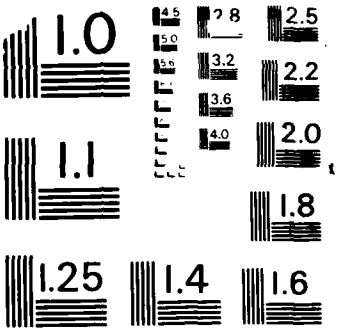
30-NOV-83 09:37

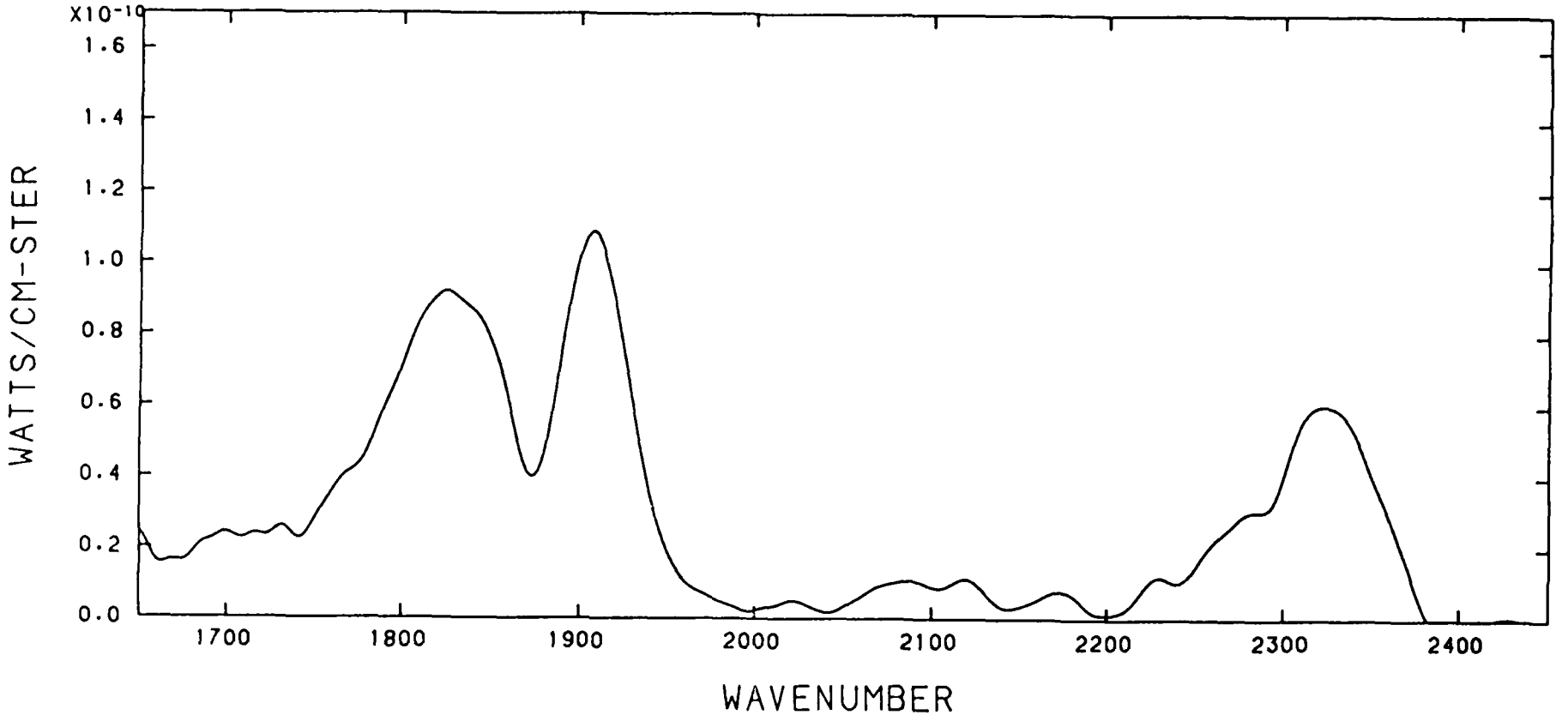


48, TIME 9:11:26.726, ALT 75.4- 75.0 KM

AD-A181 164 CATALOG OF LOW RESOLUTION INFRARED SPECTRA: FIELD-WIDENED INTERFEROMETER (U) UTAH STATE UNIV LOGAN SPACE DYNAMICS LABS R H HAYCOCK ET AL 26 JUN 85 4/4

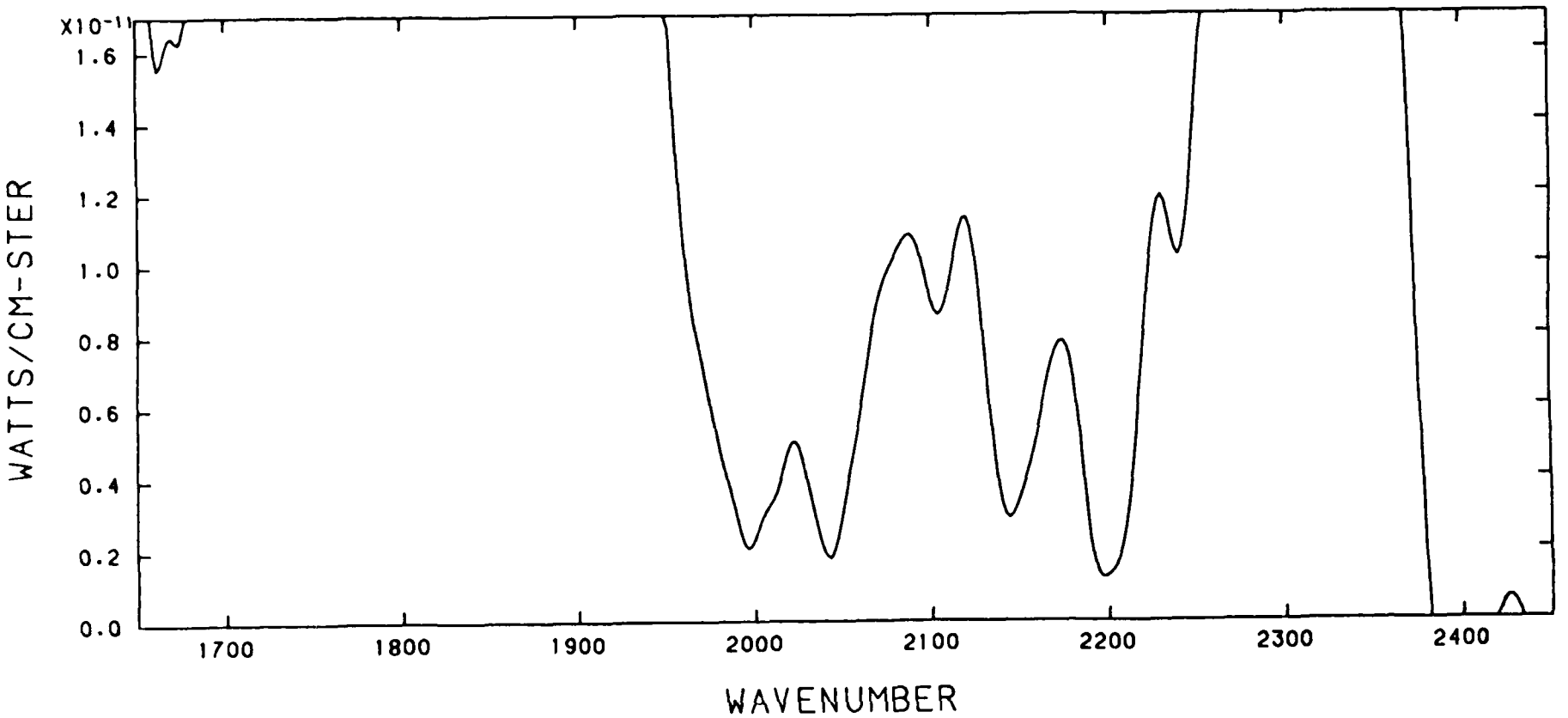
UNCLASSIFIED SDL/85-046 AFGL-TR-85-0162 F19628-83-C-0056 F/G 20/6 NL





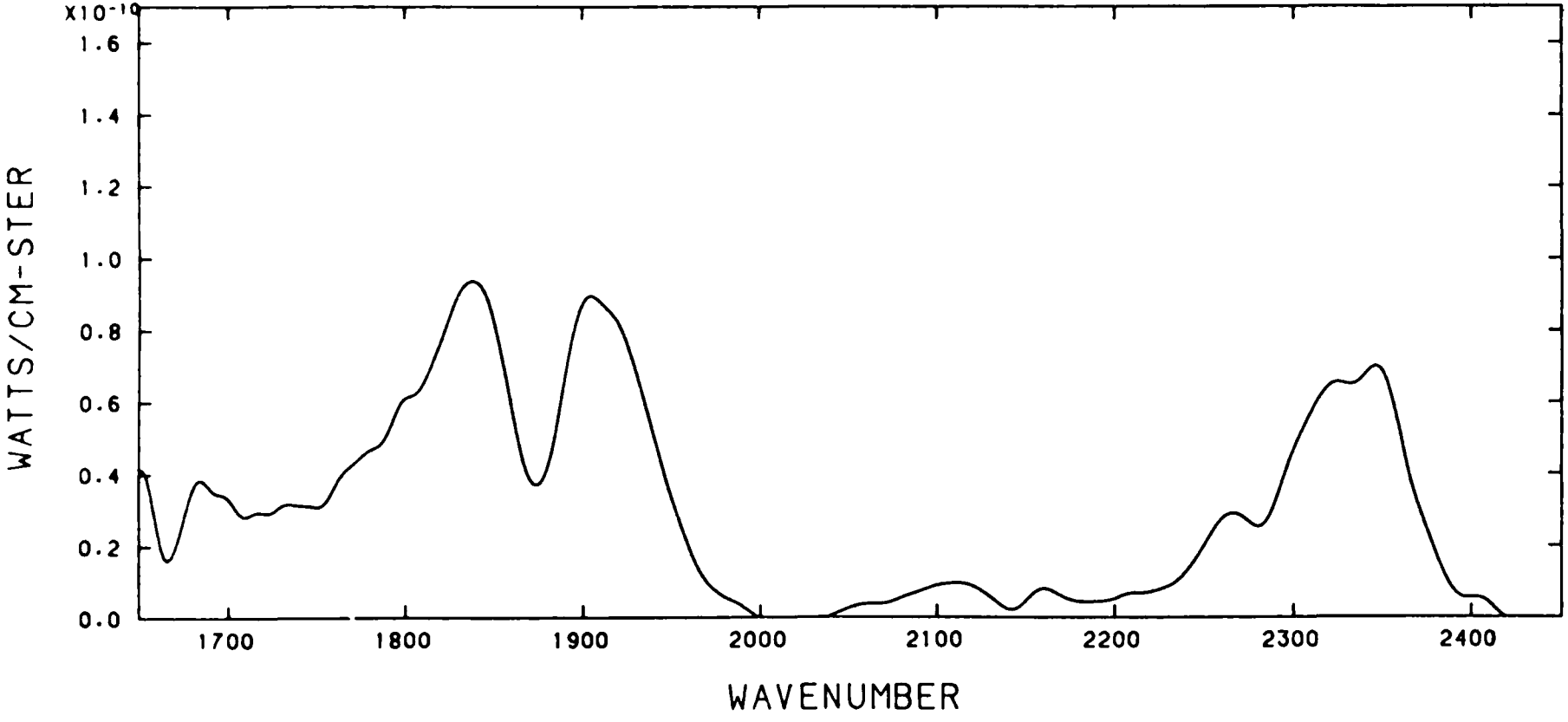
FILE 139, TIME 9:11:28.368, ALT 73.6- 73.2 KM

30-NOV-83 09:37



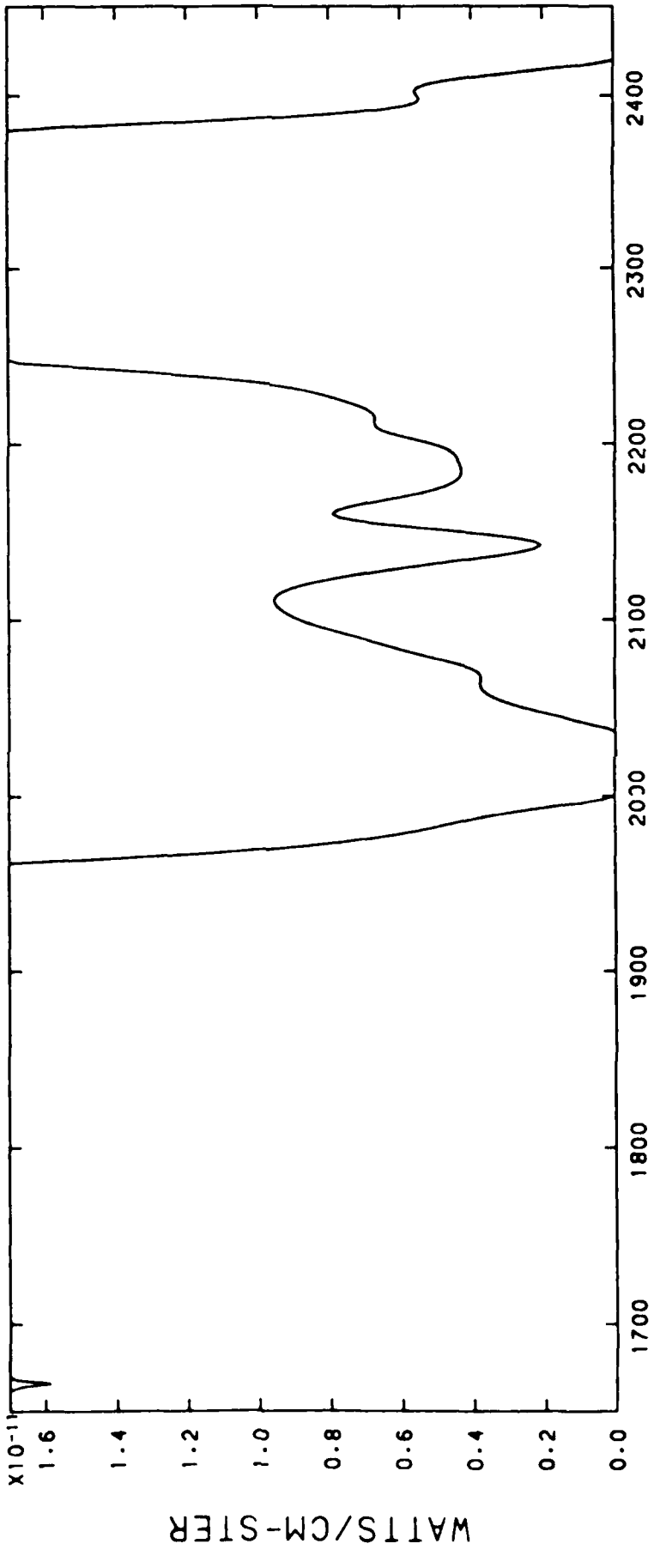
FILE 139, TIME 9:11:28.368, ALT 73.6- 73.2 KM

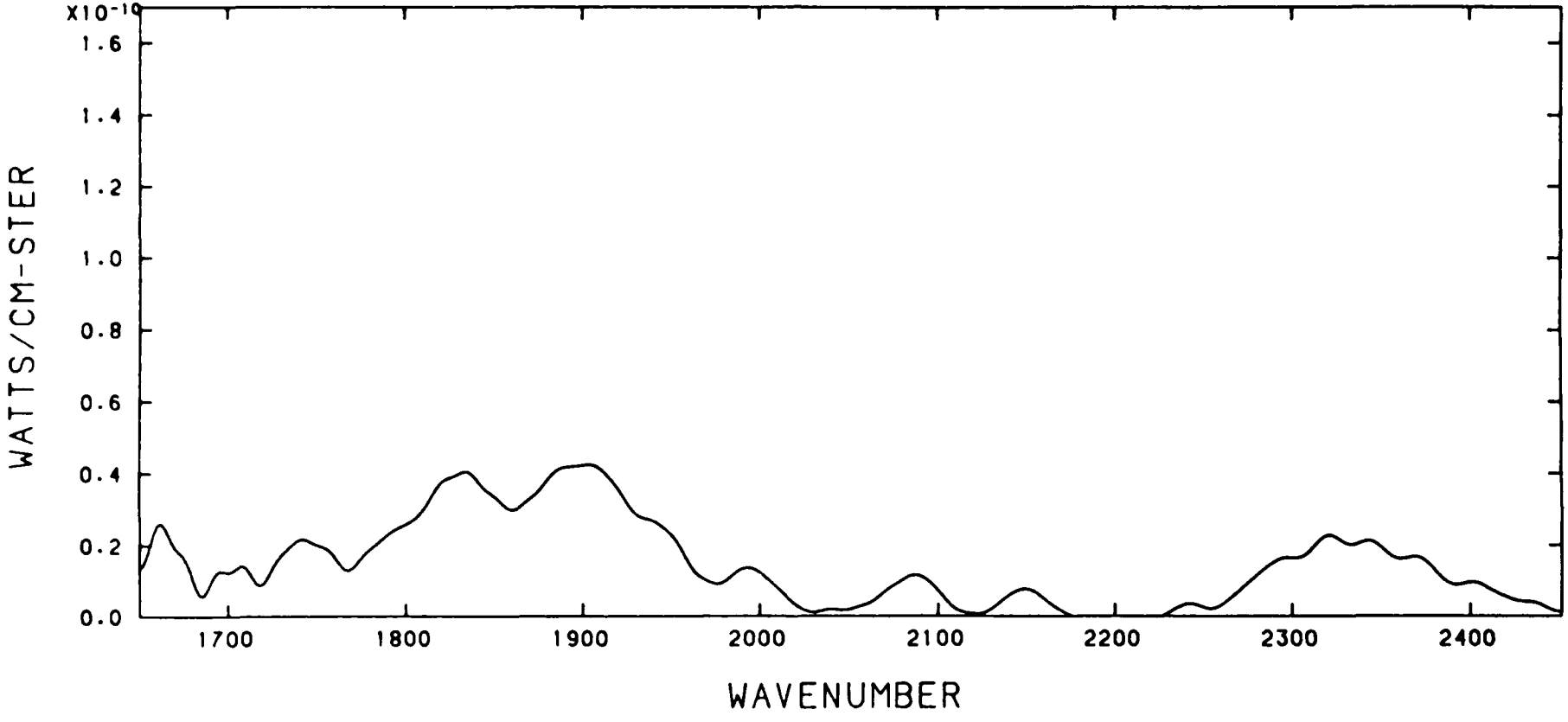
30-NOV-83 09:37



FILE 140, TIME 9:11:31.126, ALT 70.5- 70.1 KM

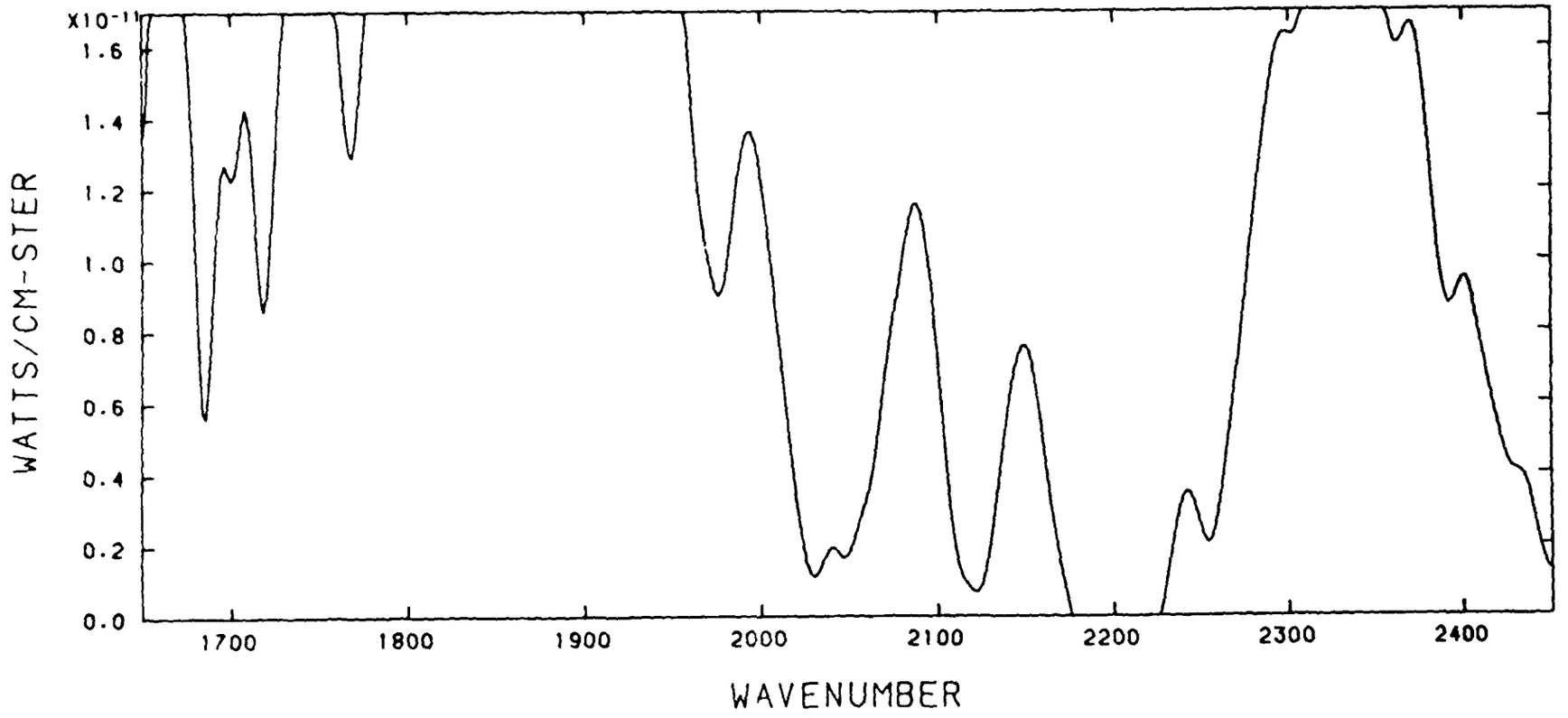
30-NOV-83 09:37


WATTS/CM-STER
X10⁻¹¹
1.6
1.4
1.2
1.0
0.8
0.6
0.4
0.2
0.0
1700
1800
1900
2000
2100
2200
2300
2400
WAVENUMBER
FILE 140, TIME 9:11:31.126, ALT 70.5- 70.1 KM
30-NOV-83 09:37



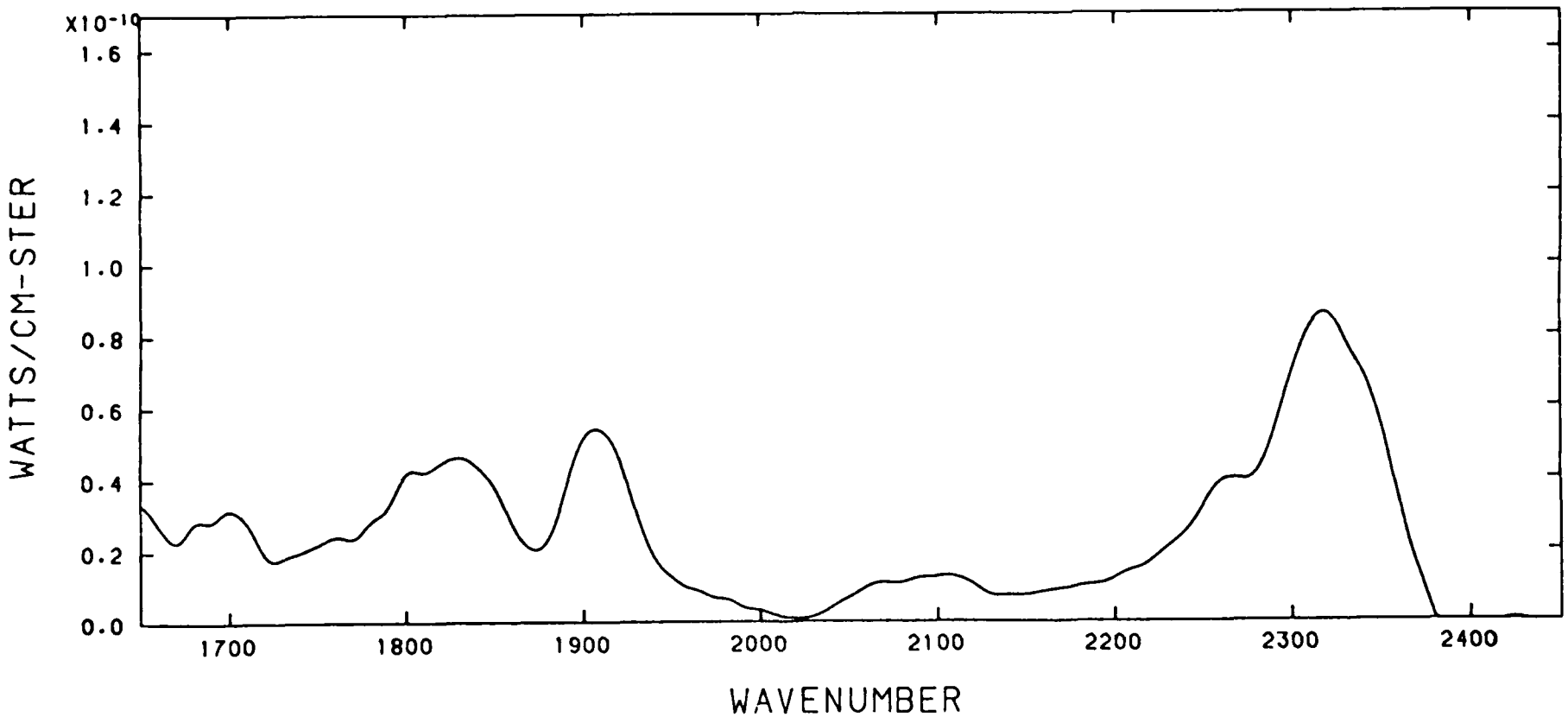
FILE 141, TIME 9:11:31.624, ALT 69.9- 69.5 KM

30-NOV-83 09:37



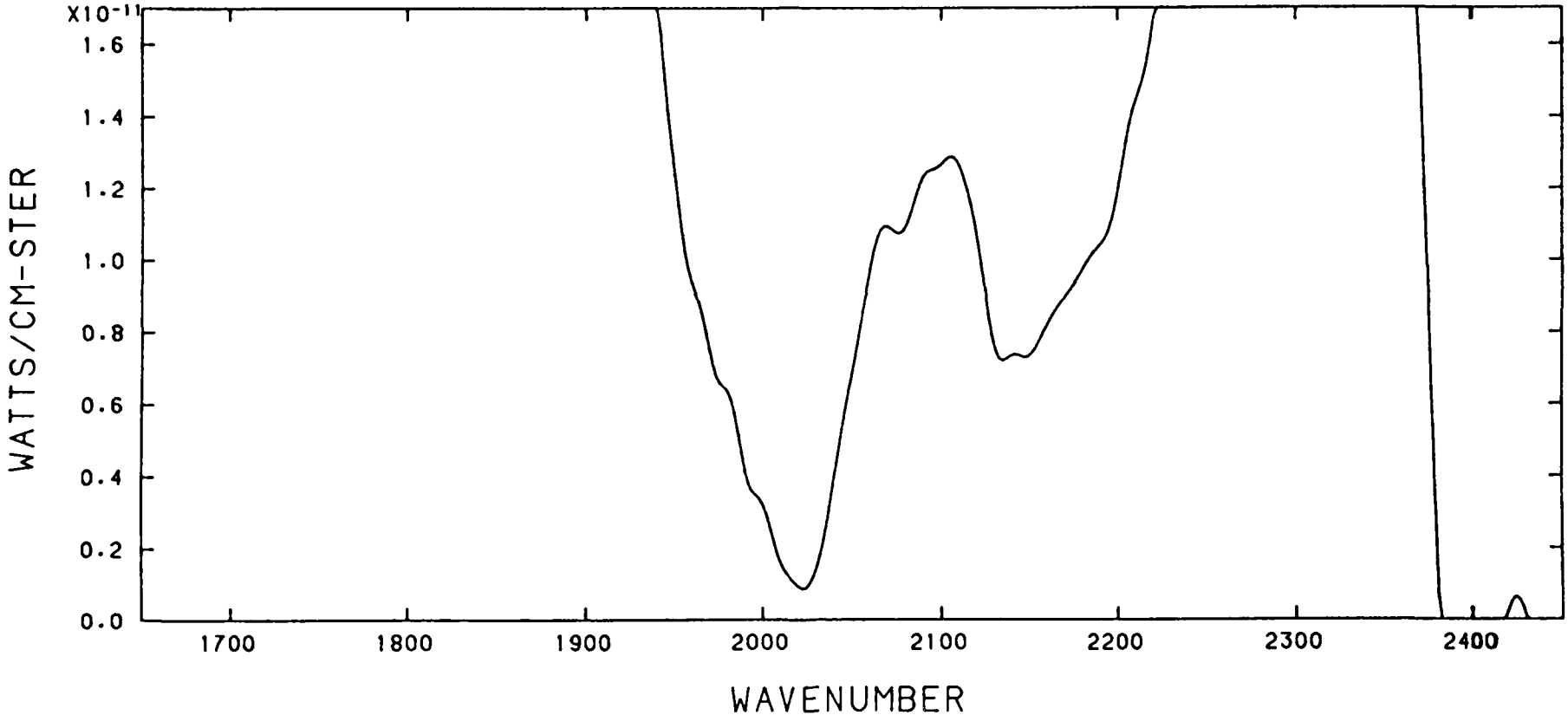
FILE 141, TIME 9:11:31.624, ALT 69.9- 69.5 KM

30-NOV-83 09:37



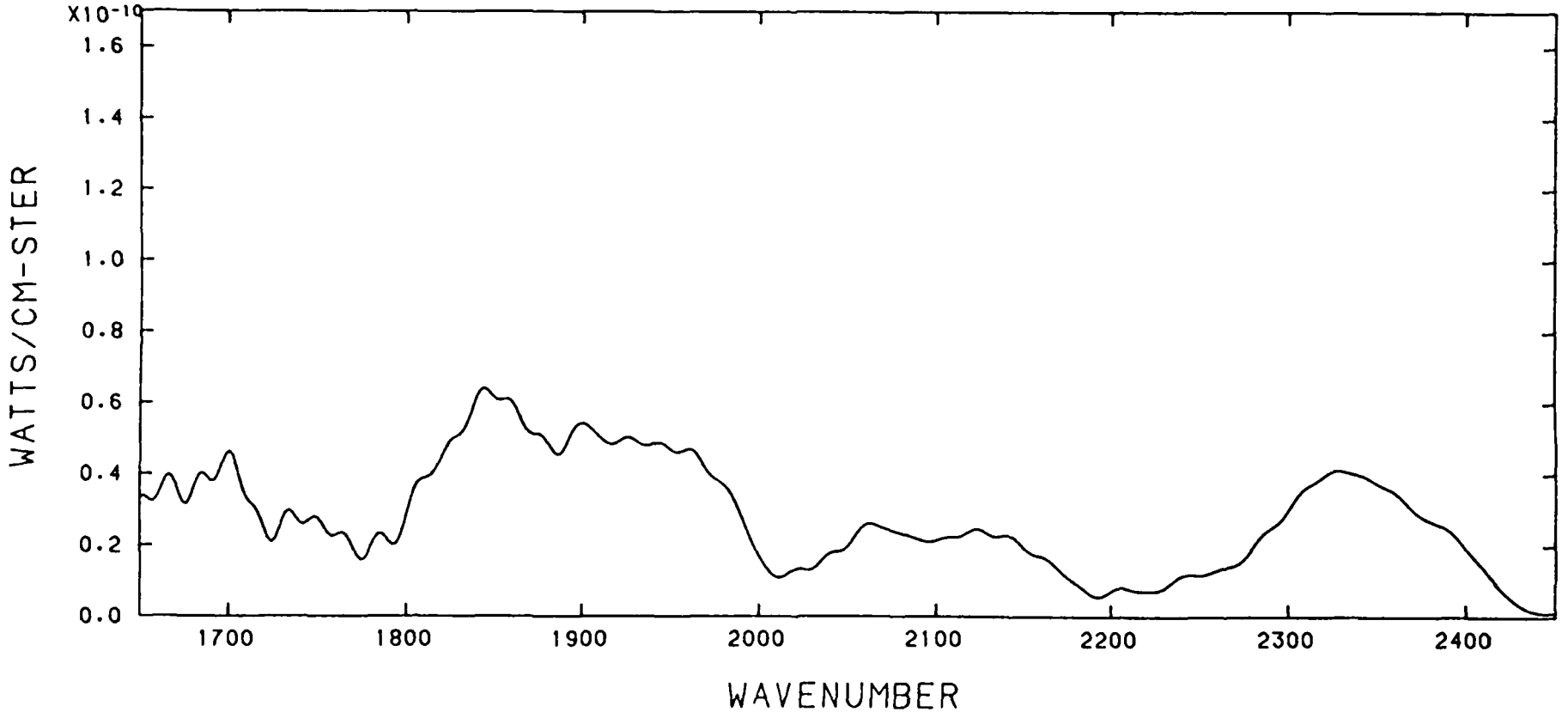
FILE 142, TIME 9:11:34.380, ALT 66.7- 66.3 KM

30-NOV-83 09:37



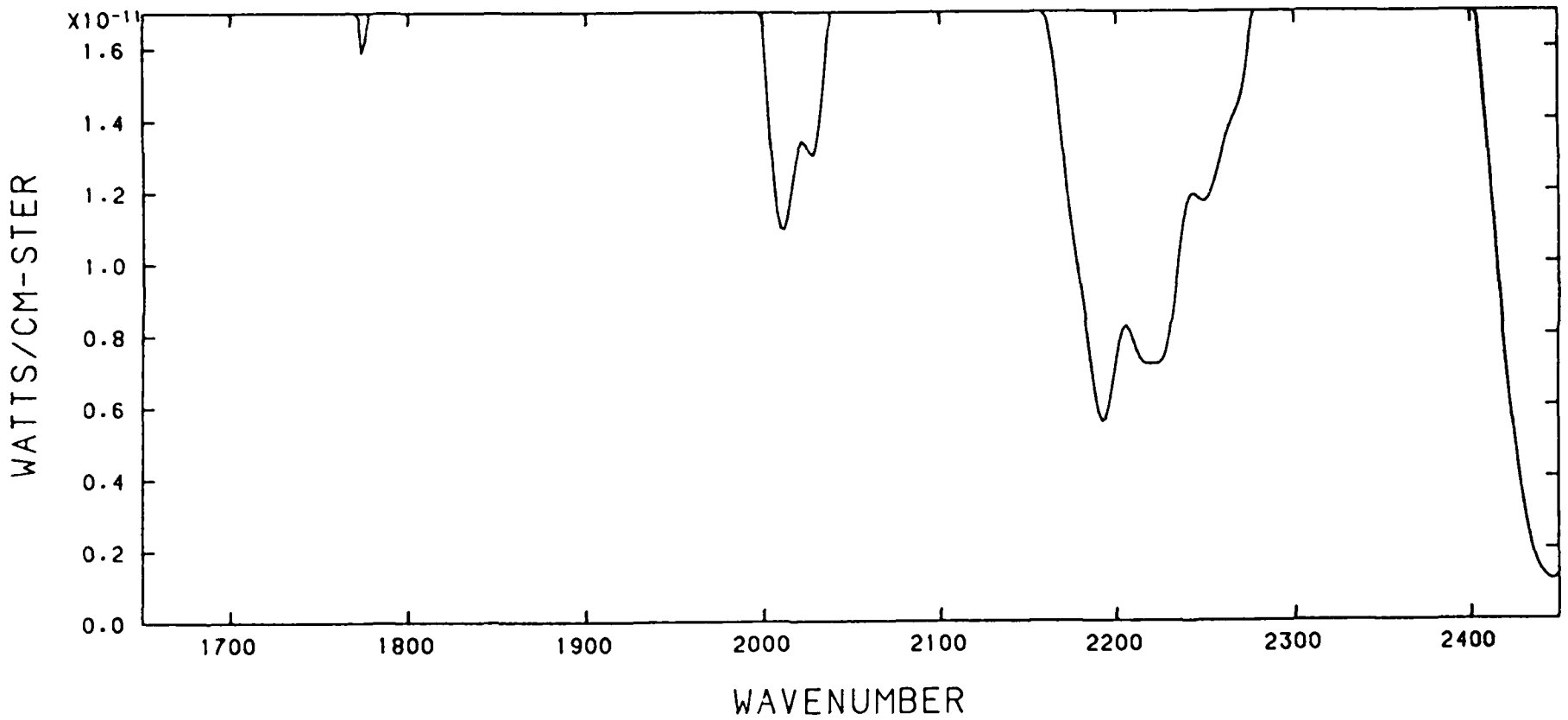
FILE 142, TIME 9:11:34.380, ALT 66.7- 66.3 KM

30-NOV-83 09:37



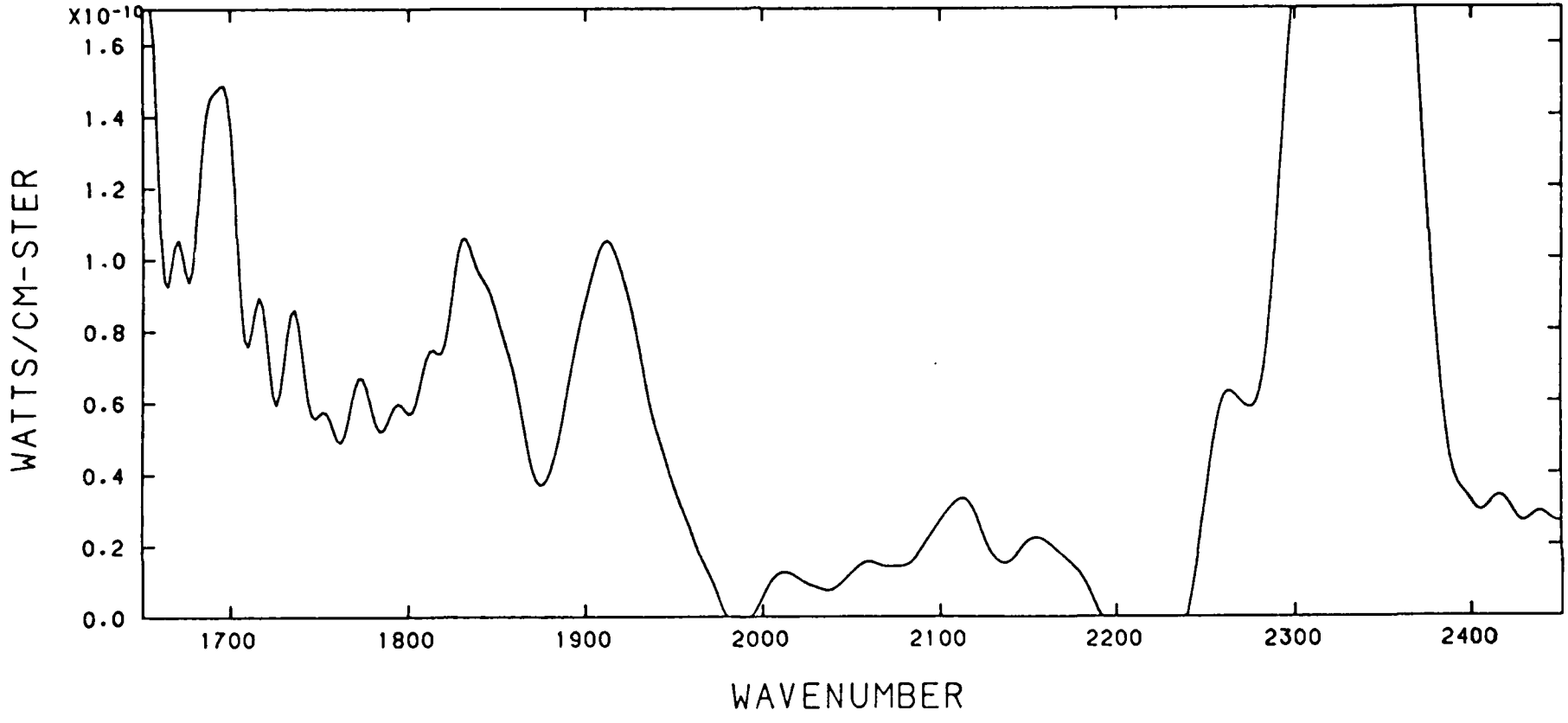
FILE 143, TIME 9:11:34.876, ALT 66.2- 65.8 KM

30-NOV-83 09:37



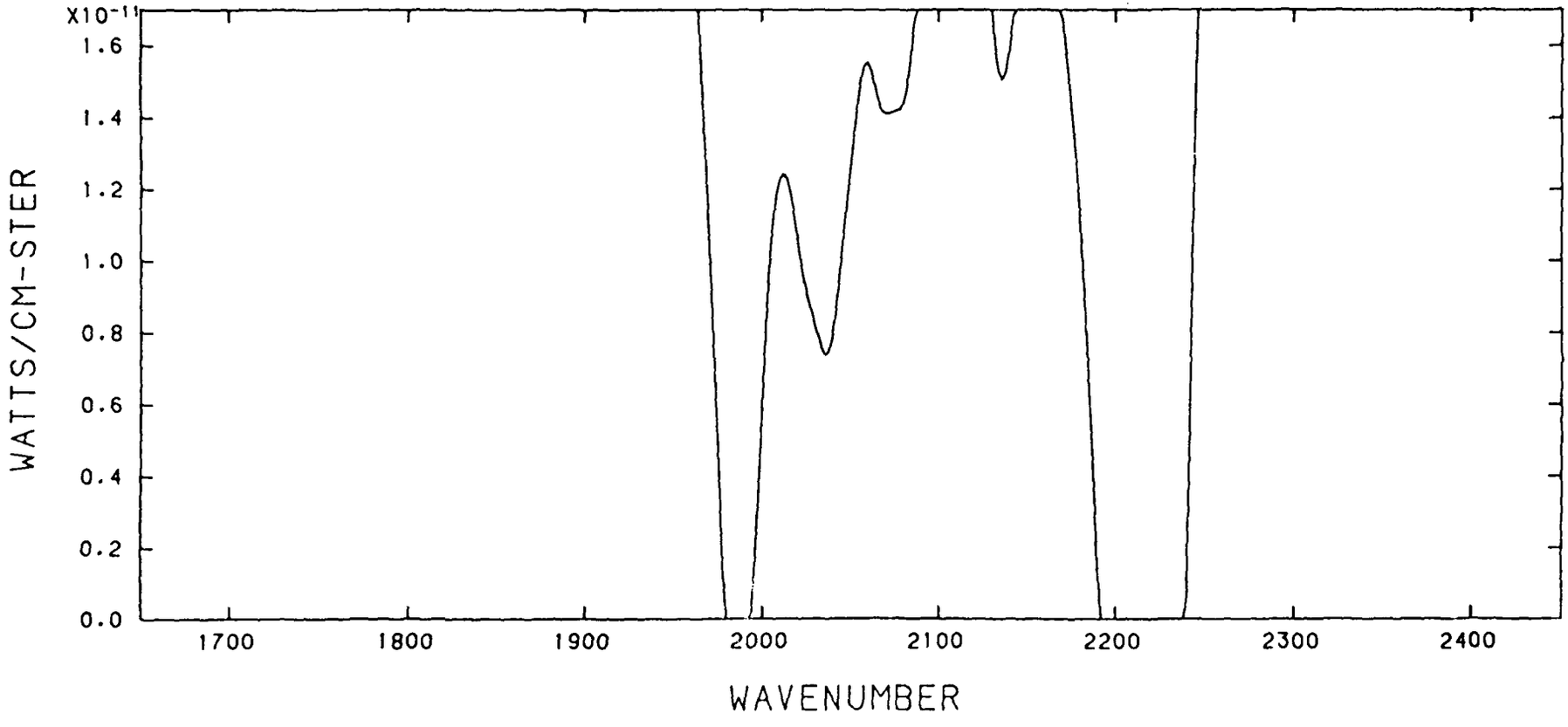
FILE 143, TIME 9:11:34.876, ALT 66.2- 65.8 KM

30-NOV-83 09:37



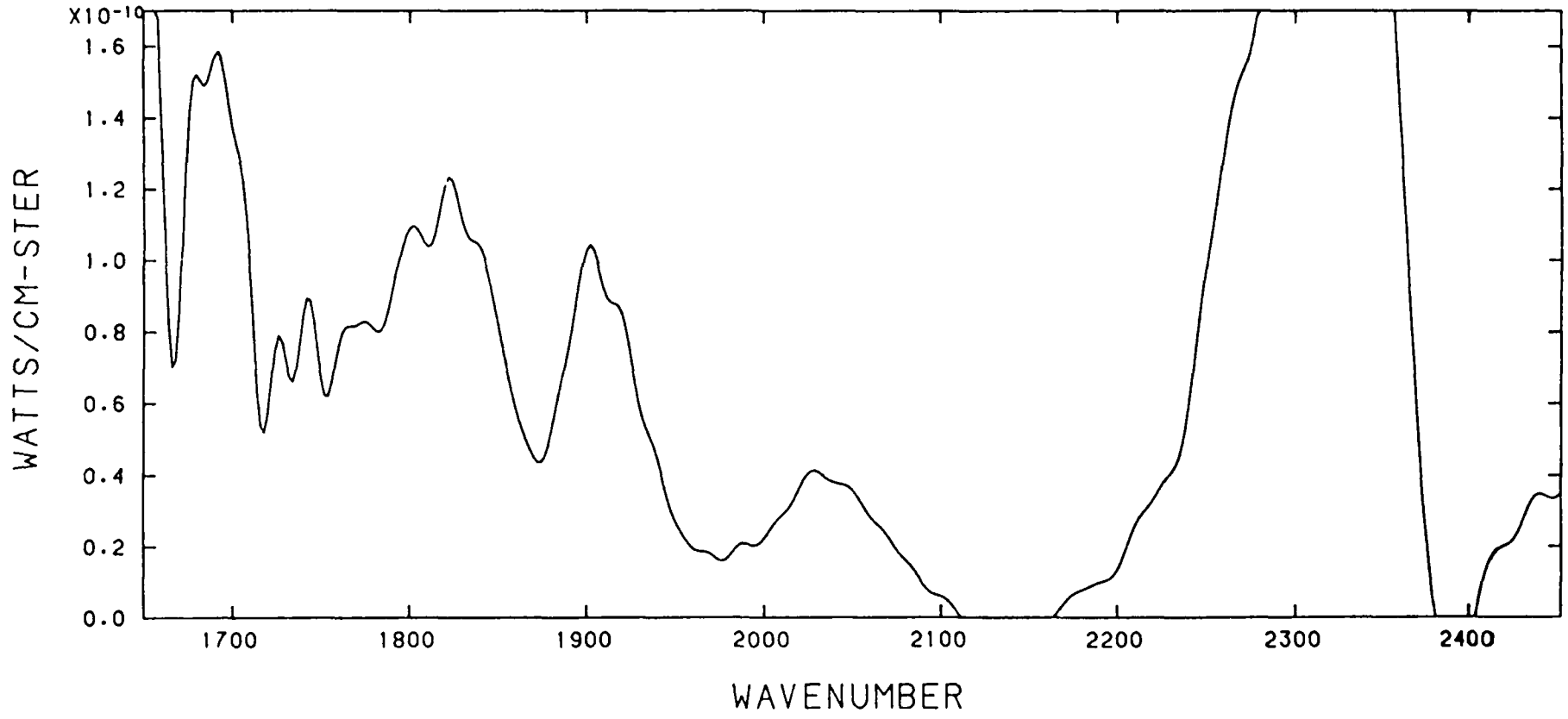
FILE 144, TIME 9:11:37.640, ALT 62.9- 62.5 KM

30-NOV-83 09:38



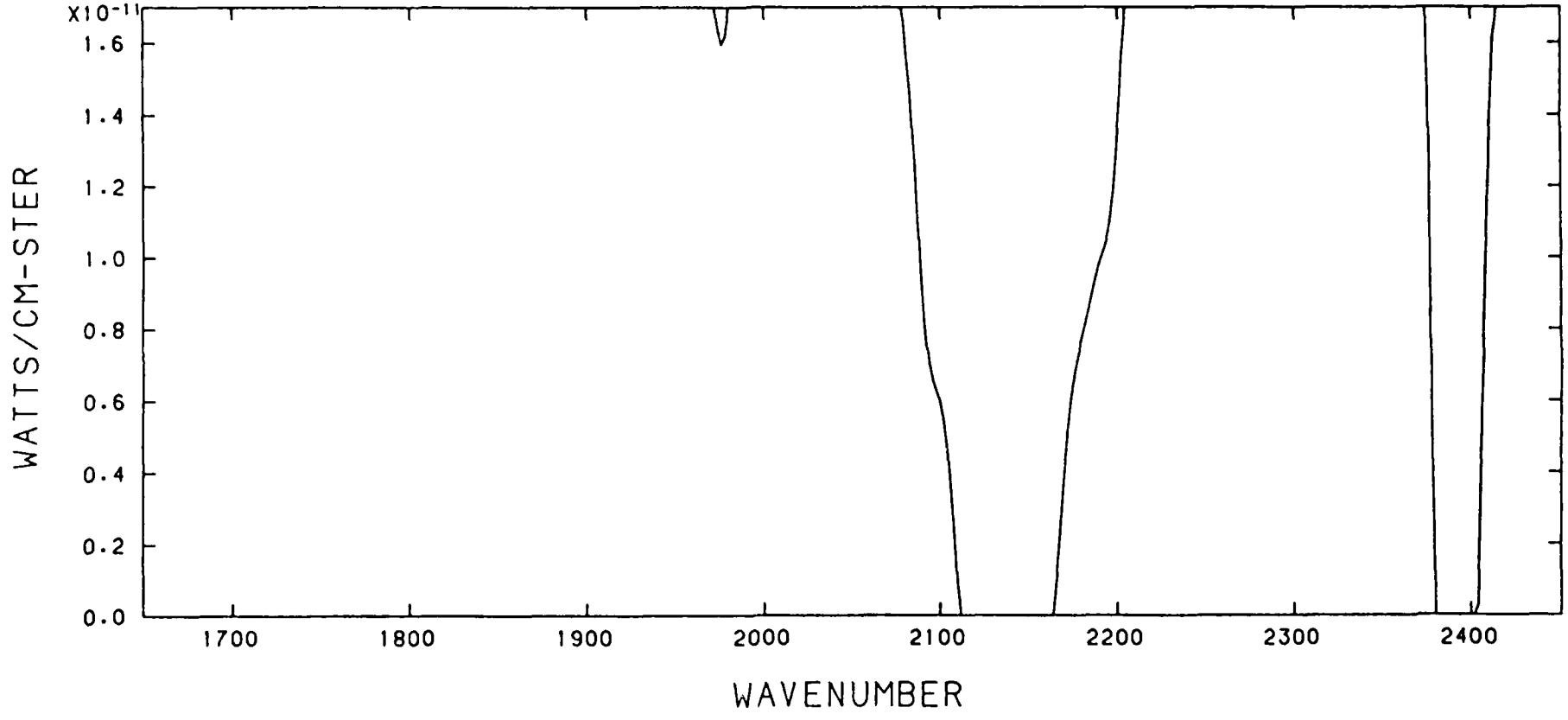
FILE 144, TIME 9:11:37.640, ALT 62.9- 62.5 KM

30-NOV-83 09:38



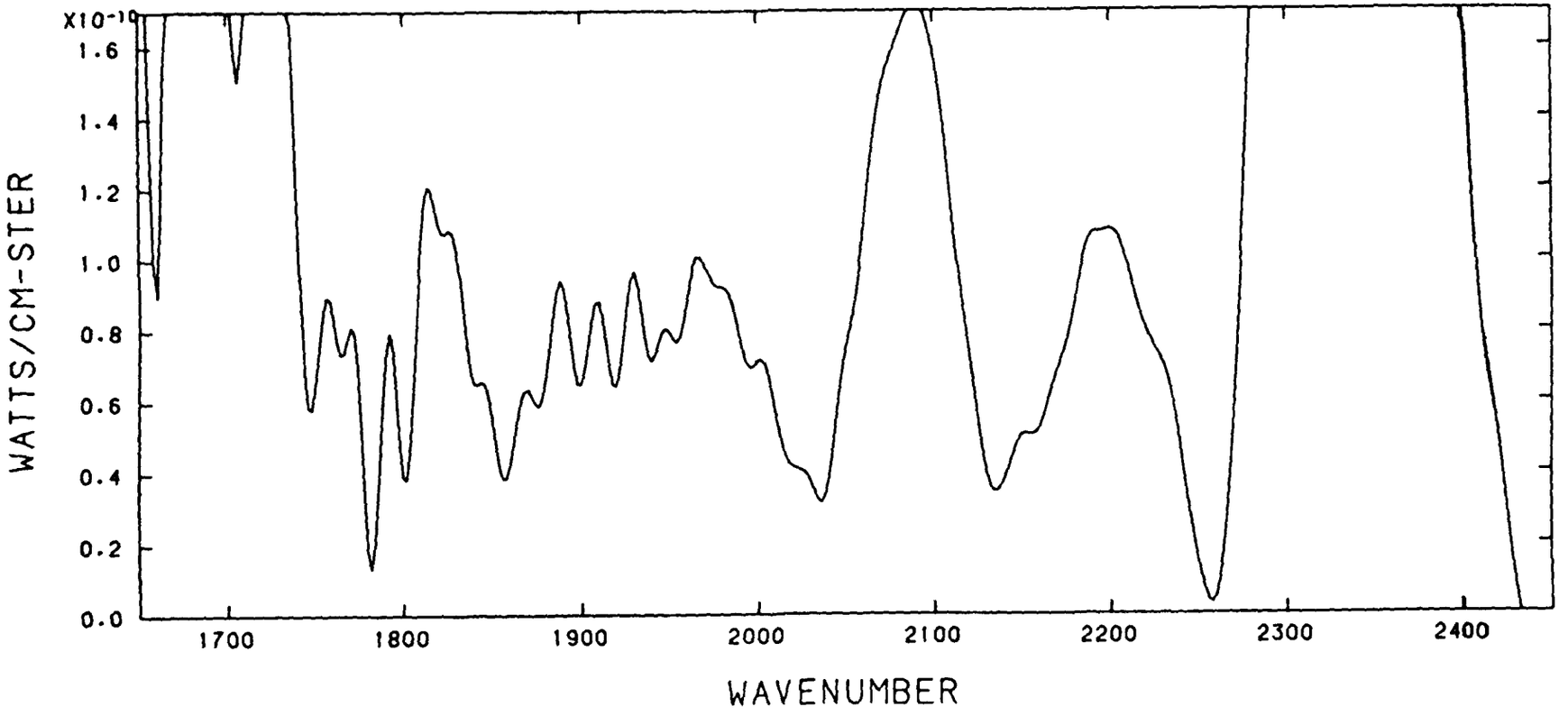
FILE 145, TIME 9:11:38.140, ALT 62.3- 61.9 KM

30-NOV-83 09:38



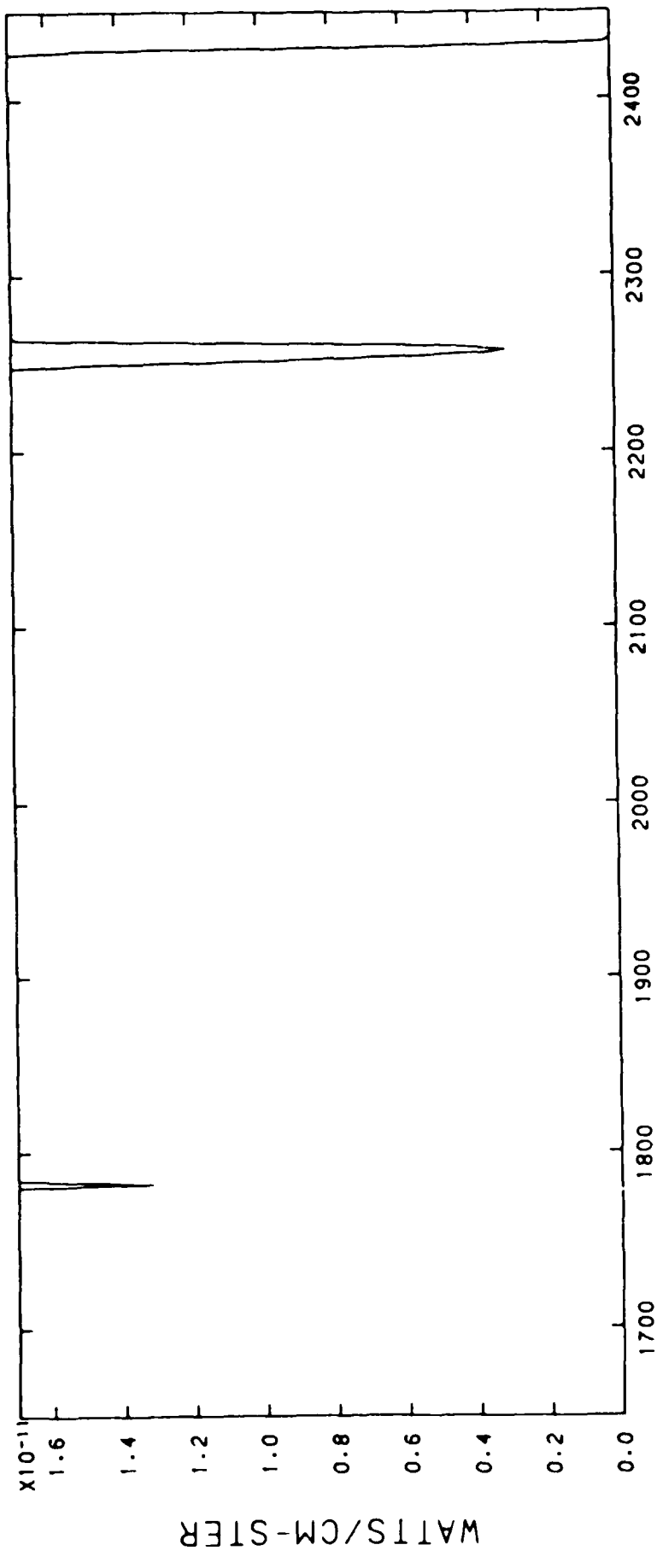
FILE 145, TIME 9:11:38.140, ALT 62.3- 61.9 KM

30-NOV-83 09:38



FILE 146, TIME 9:11:40.910, ALT 58.9- 58.5 KM

30-NOV-83 09:38



FILE 146, TIME 9:11:40.910, ALT 58.9- 58.5 KM

30-NOV-83 09:38 U.S. GOVERNMENT PRINTING OFFICE

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