

ELITE ELECTRONIC ENGINEERING INCORPORATED
1516 CENTRE CIRCLE
DOWNERS GROVE, ILLINOIS 60515-1082

ELITE PROJECT: 30862 DATES TESTED: April 1 through 3, 2002

TEST PERSONNEL: Richard E. King

TEST SPECIFICATION: Federal Communication Commission (FCC) Part 24,

ENGINEERING TEST REPORT NO. 30862-01

MEASUREMENT OF RF INTERFERENCE FROM

A MODEL SYN8486A

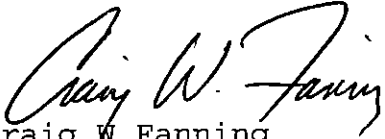
SINGLE CARRIER DUAL BAND RF LINEAR COMPENSATOR

FOR: TRL Technologies
Elgin, IL

PURCHASE ORDER NO: 780-0000000764

Report By: 
Daniel E. Crowder

Witnessed By:
Heip Lam
TRL Technologies

Approved By: 
Craig W. Fanning
NARTE® Certified -
ATL-0188-E; EMC-000296-NT

ADMINISTRATIVE DATA AND SUMMARY OF TESTS

DESCRIPTION OF TEST ITEM: Single Carrier Dual Band RF Linear
Compensator

MODEL NO: SYN8486A

SERIAL NO: 136135

MANUFACTURER: TRL Technologies

APPLICABLE SPECIFICATIONS: FCC Part 24

QUANTITY OF ITEMS TESTED: One (1)

TEST PERFORMED BY: ELITE ELECTRONIC ENGINEERING INCORPORATED
Radio Interference Consultants
Downers Grove, Illinois 60515

DATE RECEIVED: April 1, 2002

DATES TESTED: April 1 through 3, 2002

PERSONNEL (OPERATORS, OBSERVERS, AND CO-ORDINATORS):

CUSTOMER: Heip Lam of TRL Technologies was present.

ELITE ELECTRONIC: Richard E. King; Daniel E. Crowder

ELITE JOB NO.: 30862

ABSTRACT: The model SYN8486A Single Carrier Dual Band RF Linear
Compensator complies with the technical requirements in FCC Part 24.
See test results and data pages for more details.

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TOTAL NUMBER OF PAGES IN THIS DOCUMENT,
(INCLUDING DATA SHEETS): 67

THIS REPORT SHALL NOT BE REPRODUCED, EXCEPT IN FULL, WITHOUT THE
WRITTEN APPROVAL OF ELITE ELECTRONIC ENGINEERING INCORPORATED.

MEASUREMENT OF RF INTERFERENCE FROM

A MODEL SYN8486A

SINGLE CARRIER DUAL BAND RF LINEAR COMPENSATOR

1.0 INTRODUCTION:

1.1 DESCRIPTION OF TEST ITEM: During the period of April 1 through 3, 2002, a series of radio interference measurements were performed on a model SYN8486A Single Carrier Dual Band RF Linear Compensator, serial number 136135, (hereinafter referred to as the test item). The tests were performed for TRL Technologies of Elgin, IL.

The test item is a single carrier RF linear compensator that operates in the PCS bands, 1930 through 1990 and 1850 through 1910. The test item has a rated gain of 15dB for the PCS band.

The test item is designed to operate in the following frequency blocks in the PCS band:

<u>Block</u>	<u>Downlink Frequency (MHz)</u>	<u>Uplink Frequency (MHz)</u>
A	1930-1945	1850-1865
D	1945-1950	1865-1870
B	1950-1965	1870-1885
E	1965-1970	1885-1890
F	1970-1975	1890-1895
C	1975-1990	1895-1910

1.2 PURPOSE: The test series was performed to determine if the test item meets the criteria for a class II permissive change to the technical requirements of the FCC Part 24 for broadband PCS.

1.3 DEVIATIONS, ADDITIONS AND EXCLUSIONS: There were no deviations, additions to, or exclusions from the test specification during this test series.

1.4 APPLICABLE DOCUMENTS: The following documents of the exact issue designated form part of this document to the extent specified herein:

- Federal Communications Commission "Code of Federal Regulations", Title 47, Part 24, dated 1 October 2001
- Federal Communications Commission "Code of Federal Regulations", Title 47, Part 2, dated 1 October 2001
- ANSI C63.4-2001, "American National Standard for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz"

1.5 SUBCONTRACTOR IDENTIFICATION: This series of tests was performed by Elite Electronic Engineering Incorporated, of Downers Grove, Illinois. The laboratory is accredited by the National Institute of Standards and Technology (NIST) under the National Voluntary Laboratory Accreditation Program (NVLAP). NVLAP Lab Code: 100278-0.

1.6 LABORATORY CONDITIONS: The temperature at the time of the test was 22°C and the relative humidity was 38%.

2.0 TEST ITEM SETUP AND OPERATION:

2.1 POWER INPUT: The test item obtained 12VDC from a Tektronix PS280 DC Power Supply through two, 1/2 meter long, unshielded leads.

2.2 GROUNDING: Since the test item was powered with 12VDC from a DC power supply, it was ungrounded during the tests.

2.3 PERIPHERAL EQUIPMENT:The following peripheral equipment was submitted with the test item:

<u>ITEM</u>	<u>DESCRIPTION</u>
HP Signal Generator	M/N E4432B, S/N VS39440973
Ophir Amplifier	M/N GRF5064, S/N 1006
HP Power Meter	M/N 437B, S/N 3110A05097

The output of the signal generator was routed through the amplifier. The output of the amplifier was connected to the test item through a 1 meter long coaxial cable. The power meter was connected to the test item through a 1 meter long coaxial cable.

2.4 MODULATION: The test signal was modulated with a representative type of digital modulation: GSM. The input signal was supplied from an HP M/N E4432B Signal Generator.

All tests were performed with GSM modulated input signal.

2.5 FREQUENCY SELECTION: For test purposes, only the Uplink frequencies were tested because the the test item has an antenna connection to the Uplink side only. Three test frequencies, one at the low edge, one in the middle and one at the high edge, were selected for each frequency block pair. The frequencies were one channel spacing from the low or high edge of the frequency range edge. The specified channel spacings used for each modulation type are shown below:

<u>Modulation</u>	<u>Channel Spacing</u>
GSM	300kHz

The specific test frequencies are designated as follows:

Uplink:

<u>Block</u>	<u>Modulation Type</u>	<u>Low Edge Frequency (MHz)</u>	<u>Middle Frequency (MHz)</u>	<u>High Edge Frequency (MHz)</u>
A-D	GSM	1850.3	1860	1869.7
B-E	GSM	1870.3	1880	1889.7
F-C	GSM	1890.3	1900	1909.7

2.6 RF POWER OUTPUT: The input levels were adjusted to reach the rated output levels shown below:

<u>Modulation</u>	<u>Rated Power (dBm)</u>	<u>Rated Power (Watts)</u>
GSM	27	0.5

3.0 TEST EQUIPMENT:

3.1 TEST EQUIPMENT LIST: A list of the test equipment used can be found on Table I. All equipment was calibrated per the instruction manuals supplied by the manufacturer.

3.2 CALIBRATION TRACEABILITY: Test equipment is maintained and calibrated on a regular basis. All calibrations are traceable to the National Institute of Standards and Technology (NIST).

4.0 REQUIREMENTS, PROCEDURES AND RESULTS:

4.1 RF POWER OUTPUT MEASUREMENTS:

4.1.1 REQUIREMENTS: In accordance with paragraph 24.323, mobile/portable stations are limited to 2 Watts e.i.r.p. peak power and the equipment must employ means to limit the power of the minimum necessary for successful communications.

4.1.2 PROCEDURES: The test item was adjusted for the rated gain. The test item was operated to measure the output for the uplink path.

- (a) The input signal was set to 1860MHz.
- (b) The input signal was GSM modulated.
- (c) The HP 437B Power Meter was connected to the output of the test item and the output of the test item was monitored.
- (d) The amplitude of the input signal was adjusted until the rated output level was measured. The output power level was measured and recorded.
- (e) Steps (b) through (d) were repeated separately with the input frequency set to 1880MHz and 1900MHz.

4.1.3 RESULTS: The output power measurements are presented on data page 16. The power outputs achieved for the uplink path was 0.5 watts (GSM Modulation). The remainder of the tests were performed at these power levels. The power output complies with the FCC requirements.

The EIRP limit does not apply to the power output alone, but the combination of the power output and the antenna. Compliance to the power output will be based on the system configuration. Therefore, the EIRP requirement cannot be directly applied to the test item.

4.2 OCCUPIED BANDWIDTH MEASUREMENTS:

4.2.1 REQUIREMENTS: In accordance with Paragraph 24.238, on any frequency outside the authorized frequency block, the power of any emission shall be attenuated below the transmitter power (P) by at least $43 + 10 \log(P)$ dB. For a rated power level of 0.5W, the emissions outside of the emission bandwidth shall be attenuated at least 40dB below the transmitter power.

In the 1MHz bands immediately outside and adjacent to the frequency range a resolution of at least one percent of the emission bandwidth shall be used. The emission bandwidth is defined as the

width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency where the emissions are 26dB down.

4.2.2 PROCEDURES:

The test was performed using each of the modulation types listed in paragraph 2.2 (GSM).

(a) The input signal was set separately to 1850.03MHz, 1869.97MHz, 1870.03MHz, 1889.97MHz, 1890.03MHz and 1909.97. The input signal level was adjusted to provide the rated level at the test item output. The reference level was recorded.

(b) The input signal was modulated.

(c) A spectrum analyzer was connected to the output of the test item. With a bandwidth of the spectrum analyzer set to 30kHz, the output of the test item was measured and recorded.

(d) The input signal from the signal generator was measured with the spectrum analyzer and recorded over the same frequency range.

4.2.3 RESULTS: The plots of the occupied bandwidth measured with the GSM modulation of the carrier are presented on data pages 17 through 34.

The limits, shown on the plots, are referenced to the power measured from the unmodulated carrier.

As can be seen from the data, the test item output met the occupied bandwidth requirements with the GSM modulation of the carrier. The sideband emissions measured at the test item output were similar to the sideband emissions measured from the input signals.

4.3 SPURIOUS EMISSIONS AT ANTENNA TERMINAL:

4.3.1 REQUIREMENTS: This test determines whether the test item produces excessive spurious emissions.

item produces excessive spurious emissions.

In accordance with Paragraph FCC 24.238, the spurious emissions shall be attenuated below the transmitter power (P) by at least $43 + 10 \log(P)$ dB. FCC requirements apply only to frequencies outside the authorized frequency block. For 0.5W, the spurious emissions shall be attenuated by a minimum of 40 dB. This requirement translates to a limit of -13dBm. The peak power of the emissions shall be measured at the antenna terminal from 30MHz up to the 10th harmonic of the fundamental frequency.

4.3.2 PROCEDURES: In general, this test will measure spurious emissions at the antenna terminals. The test was performed using each of the modulation types listed in paragraph 2.2 (GSM).

(a) The input signal was set to 1860.0MHz. The input signal level was adjusted to provide the rated level at the test item output.

(b) The input signal was modulated.

(c) A spectrum analyzer was connected to the output of the test item. The frequency span was adjusted to cover 30 MHz up to 1 GHz. With a bandwidth of the spectrum analyzer set to 100 kHz, the output of the test item was measured and recorded.

(d) The frequency span was adjusted to cover 1 GHz up to 2 GHz. With a bandwidth of the spectrum analyzer set to 1 MHz, the output of the test item was measured and recorded.

(e) The frequency span was adjusted to cover 2 GHz up to 20 GHz. With a bandwidth of the spectrum analyzer set to 1 MHz, the output of the test item was measured and recorded. This range covers up through the 10th harmonic.

(f) Steps (c) through (e) were repeated on the input signal from the signal generator.

measurements are presented on data pages 35 through 52. As can be seen from the data, the test item did not produce spurious emissions in excess of the -13 dBm limit.

4.4 FIELD STRENGTH OF SPURIOUS EMISSIONS:

4.4.1 PRELIMINARY RADIATED MEASUREMENTS:

4.4.1.1 REQUIREMENTS: Because emission levels in the open field may be masked by interference from sources other than the test item, preliminary radiated measurements are first performed in the low ambient environment of a shielded enclosure. The radiated emissions from the test item were first measured using peak detection. This data was then automatically plotted. The frequencies with significant emission levels were measured in the open field.

4.4.1.2 PROCEDURES: All preliminary tests were performed in a 32ft. x 20ft. x 18ft. hybrid ferrite-tile/anechoic absorber lined test chamber. The walls and ceiling of the shielded chamber are lined with ferrite tiles. Anechoic absorber material is installed over the ferrite tile. The floor of the chamber is used as the ground plane. The chamber complies with ANSI C63.4 1992 for site attenuation.

The shielded enclosure prevents emissions from other sources, such as radio and TV stations from interfering with the measurements. All powerlines and signal lines entering the enclosure pass through filters on the enclosure wall. The powerline filters prevent extraneous signals from entering the enclosure on these leads.

The test was performed using each of the modulation types listed in paragraph 2.2 (GSM).

(a) The preliminary measurements were performed with the test item operating separately with an input signal at 1860.0MHz, 1880.0MHz

and 1900MHz, with GSM modulation. The broadband measuring antennas were positioned at a 3 meter distance from the test item. The frequency range from 30MHz to 18GHz was investigated. The readings were taken with a peak detector function and recorded.

4.4.1.3 RESULTS: The preliminary plots are presented on data pages 53 through 64. Factors for the antennas and cables were added to the data before it was plotted.

This data is only presented for a reference, and is not used as official data. All significant radiated emissions were subsequently measured at an open field test site.

4.4.2 FINAL RADIATED EMISSIONS:

4.4.2.1 REQUIREMENTS: In accordance with paragraph 24.238, on any frequency twice or more than twice the fundamental frequency, the emissions shall be attenuated below the transmitter power (P) by at least $43 + 10 \log(P)$ dB. This requirement translates to a limit of -13dBm. The peak power of the emissions shall be measured from 30MHz up to the 10th harmonic of the fundamental frequency.

4.4.2.2 PROCEDURES: Final open field measurements were performed in a 32ft. x 20ft. x 18ft. hybrid ferrite-tile/anechoic absorber lined test chamber. The walls and ceiling of the shielded chamber are lined with ferrite tiles. Anechoic absorber material is installed over the ferrite tile. The floor of the chamber is used as the ground plane. The chamber complies with ANSI C63.4 1992 for site attenuation.

The final open field emission test procedure is as follows:

- a) The test item was placed on a 0.8 meter high non-conductive stand at a 3 meter test distance from the receive antenna.

- b) The antenna output was terminated in 50 ohms for the tests.
- c) A double ridged waveguide antenna was placed on an adjustable height antenna mast 3 meters from the test item for emission measurements.
- d) Detected emissions were maximized at each frequency by rotating the test item and adjusting the receive antenna height and polarization.
- e) The maximum meter reading was recorded. Measurement BW was 1 MHz and Video of 3MHz. Peak reading were recorded. No averaging methods or corrections were applied.
- f) Measurements were performed with the input signal modulated with GSM.
- g) Measurements were performed separately at each frequency used during the preliminary measurements.

The equivalent power into a dipole antenna was determined from the field intensity levels measured at 3 meters using the substitution method. To determine the emission power another tuned dipole antenna or double ridged waveguide antenna was set in place of test item and connected to a calibrated signal generator. The output of the signal generator was adjusted to match the received level at the spectrum analyzer. The signal level was recorded. The reading was corrected to compensate for cable loss, as required, and when the ridged waveguide antenna was used increased by the difference in gain between the dipole and the waveguide antenna.

4.4.2.3 RESULTS OF OPEN FIELD RADIATED TESTThe final open field radiated levels are presented on data pages 65 through 67. The radiated emissions were measured through the 10th harmonic. All emissions measured from the test item were within the specification limits.

4.5 FREQUENCY STABILITY:

4.5.1 REQUIREMENTS:This requirement does not apply to the test item because it has no frequency conversion.

4.5 FREQUENCY STABILITY:

4.5.1 REQUIREMENTS: This requirement does not apply to the test item because it has no frequency conversion.

5.0 CONCLUSION:

It was found that the TRL Technologies model SYN8486A Single Carrier Dual Band RF Linear Compensator, complies with the RF Power Output, the Occupied Bandwidth, the Spurious Emissions at Antenna Terminal and the Field Strength of Spurious Emissions requirements of the FCC Part 24. The Frequency Stability requirements were deemed to be not applicable.

6.0 CERTIFICATION:

Elite Electronic Engineering Incorporated certifies that the information contained in this report was obtained under conditions which meet or exceed those specified in the test specification.

The data presented in this test report pertains only to the test item at the test date as operated by TRL Technologies personnel. Any electrical or mechanical modification made to the test item subsequent to the specified test date will serve to invalidate the data and void this certification.

7.0 ENDORSEMENT DISCLAIMER:

This report must not be used to claim product endorsement by NVLAP or any agency of the US Government.

TABLE I: TEST EQUIPMENT LIST

ELITE ELECTRONIC ENG. INC.

Page: 1

Eq ID	Equipment Description	Manufacturer	Model No.	Serial No.	Frequency Range	Cal Date	Cal Inv	Due Date
Equipment Type: ACCESSORIES, MISCELLANEOUS								
XZG2	ATTENUATOR/SWITCH DRIVER	HEWLETT PACKARD	11713A	2223A01751	---		N/A	
Equipment Type: AMPLIFIERS								
APK2	PREAMPLIFIER	AGILENT TECHNOL	8449B	3008A01595	1-26.5GHZ	05/07/01	12	05/07/02
Equipment Type: ANTENNAS								
NTA0	BILOG ANTENNA	CHASE EMC LTD.	BILOG CBL611	2057	0.03-2GHZ	05/09/01	12	05/09/02
NW10	RIDGED WAVE GUIDE	AEL	H1498	153	2-18GHZ	09/18/01	12	09/18/02
NW11	RIDGED WAVE GUIDE	AEL	H1498	154	2-18GHZ	09/18/01	12	09/18/02
Equipment Type: ATTENUATORS								
T2D0	20DB, 25W ATTENUATOR (DCC-	WEINSCHEL	46-20-43	AV5813	DC-18GHZ	01/14/02	12	01/14/03
T2D9	20DB, 25W ATTENUATOR	WEINSCHEL	46-20-34	BH5445	DC-18HGZ	11/29/01	12	11/29/02
Equipment Type: CONTROLLERS								
CDD2	COMPUTER	HEWLETT PACKARD	D4171A#ABA	US61654645	---		N/A	
CDG5	COMPUTER	HEWLETT PACKARD	D7949T	US9160519	---		N/A	
Equipment Type: PRINTERS AND PLOTTERS								
HRE1	LASER JET 5P	HEWLETT PACKARD	C3150A	USHB061052	---		N/A	
HRG0	LASERJET 2100XI	HEWLETT PACKARD	C4170A	USCD047806	---		N/A	
Equipment Type: RECEIVERS								
RAC0	SPECTRUM ANALYZER	HEWLETT PACKARD	85660B	2449A01117	100HZ-22GHZ	02/20/02	12	02/20/03
RACA	RF PRESELECTOR	HEWLETT PACKARD	85685A	2926A00980	20HZ-2GHZ	02/21/02	12	02/21/03
RAF1	QUASISPEAK ADAPTER	HEWLETT PACKARD	85650A	2043A00271	0.01-1000MHZ	02/21/02	12	02/21/03
Equipment Type: SIGNAL GENERATORS								
GBN5	SIGNAL GENERATOR	ROHDE & SCHWARZ	SMY 02	DE13542	0.009-2008MHZ	03/28/02	12	03/28/03
GDJ0	SYNTHESIZED GENERATOR	HEWLETT PACKARD	8672A	2221A02477	2-18GHZ	02/19/02	12	02/19/03

Cal. Interval: Listed in Months I/O: Initial Only N/A: Not Applicable

Note 1: For the purpose of this test, the equipment was calibrated over the specified frequency range, pulse rate, or modulation prior to the test or monitored by a calibrated instrument.



ETR 30862-01
DATA SHEET

MANUFACTURER : TRL TECHNOLOGIES
MODEL : SYN8486A
S/N : NONE ASSIGNED
SPECIFICATION : FCC-24 RF POWER OUTPUT
DATE : APRIL 2, 2002

FREQUENCY (MHz)	POWER READING	
	dBm	WATTS
1860.0 GSM Modulation	27	0.5
1880.0 GSM Modulation	27	0.5
1990.0 GSM Modulation	27	0.5

CHECKED BY:

Daniel E. Crowder

16.0 E67

ELITE ELECTRONIC ENGINEERING CO

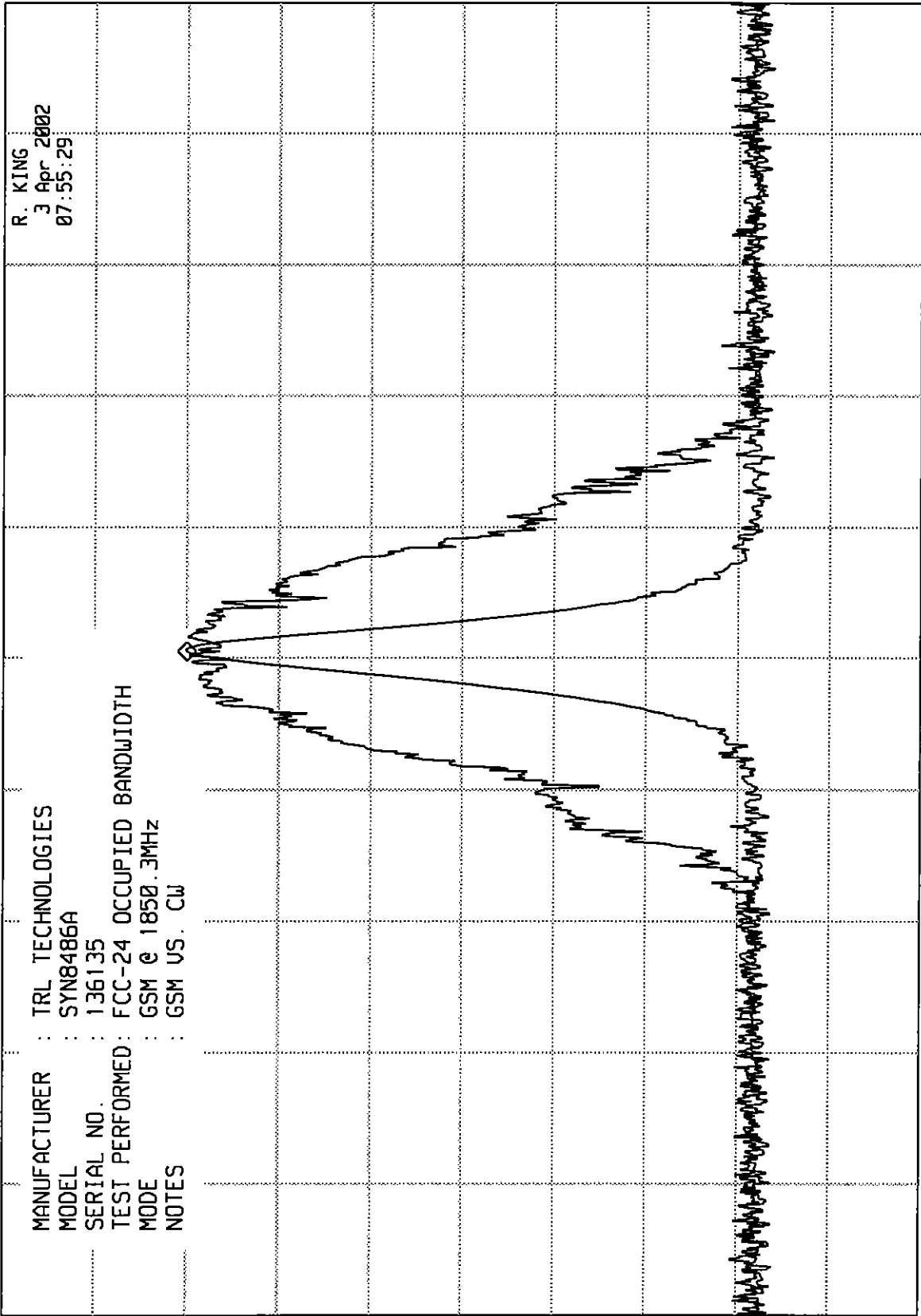
MKR 1.850 308 GHz
-13.00 dBm

REF 7.0 dBm

ATTEN 20 dB + 40 dB Ext

hp

10 dB/



SPAN 2.00 MHz
SWP 20.0 msec

VBW 300 kHz

CENTER 1.850 30 GHz
RES BW 30 kHz (i)

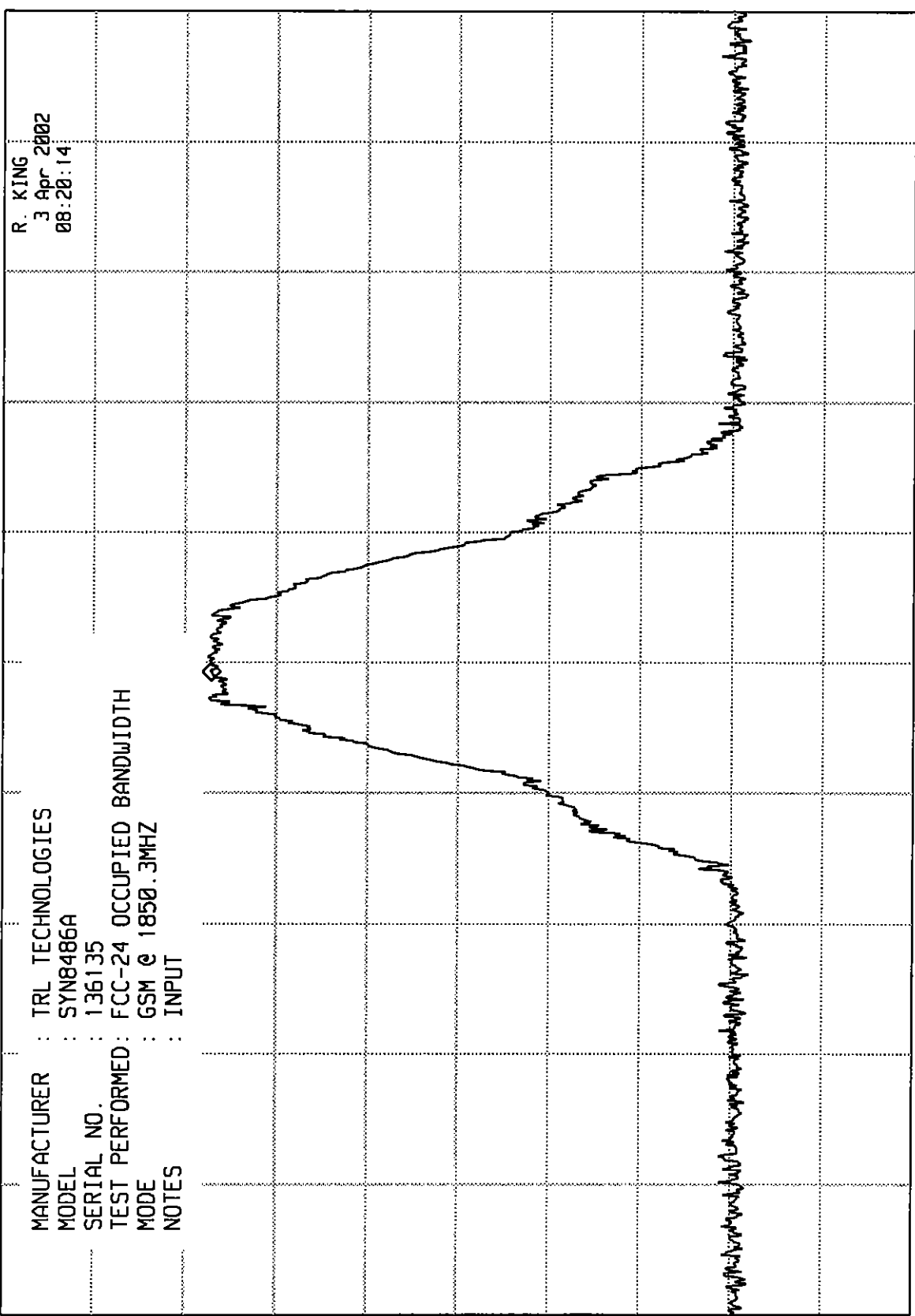
ELITE ELECTRONIC ENGINEERING CO

MKR 1.850 284 GHz
-15.90 dBm

REF 7.0 dBm

ATTEN 20 dB +40 dB EXT

MANUFACTURER : TRL TECHNOLOGIES
MODEL : SYN8486A
SERIAL NO. : 136135
TEST PERFORMED : FCC-24 OCCUPIED BANDWIDTH
MODE : GSM @ 1850.3MHZ
NOTES : INPUT



R. KING
3 Apr 2002
08:20:14

10 dB/
hp

SPAN 2.00 MHz
SWP 20.0 msec

UBW 300 kHz

CENTER 1.850 30 GHz
RES BW 30 kHz(i)

ELITE ELECTRONIC ENGINEERING CO

MKR ^ 292 kHz
-0.10 dB

hp

REF 7.0 dBm

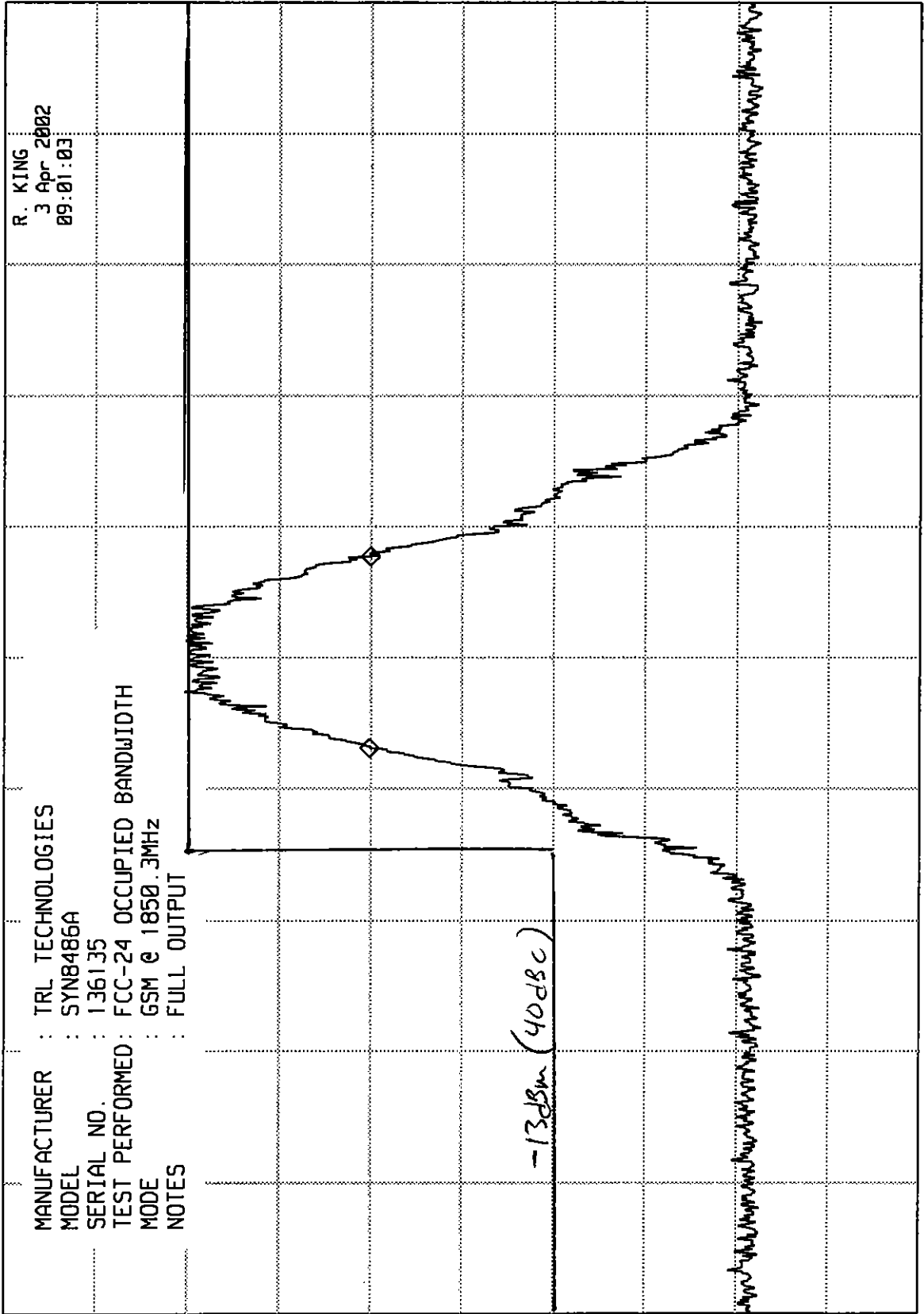
ATTEN 20 dB + 40 dB EXT

10 dB/

MANUFACTURER : TRL TECHNOLOGIES
MODEL : SYN8486A
SERIAL NO. : 136135
TEST PERFORMED : FCC-24 OCCUPIED BANDWIDTH
MODE : GSM @ 1850.3MHz
NOTES : FULL OUTPUT

R. KING
3 Apr 2002
09:01:03

DL
-33.0
dBm



CENTER 1.850 30 GHz
RES BW 30 kHz (i)

UBW 300 kHz

SPAN 2.00 MHz
SWP 20.0 msec

ELITE ELECTRONIC ENGINEERING CO

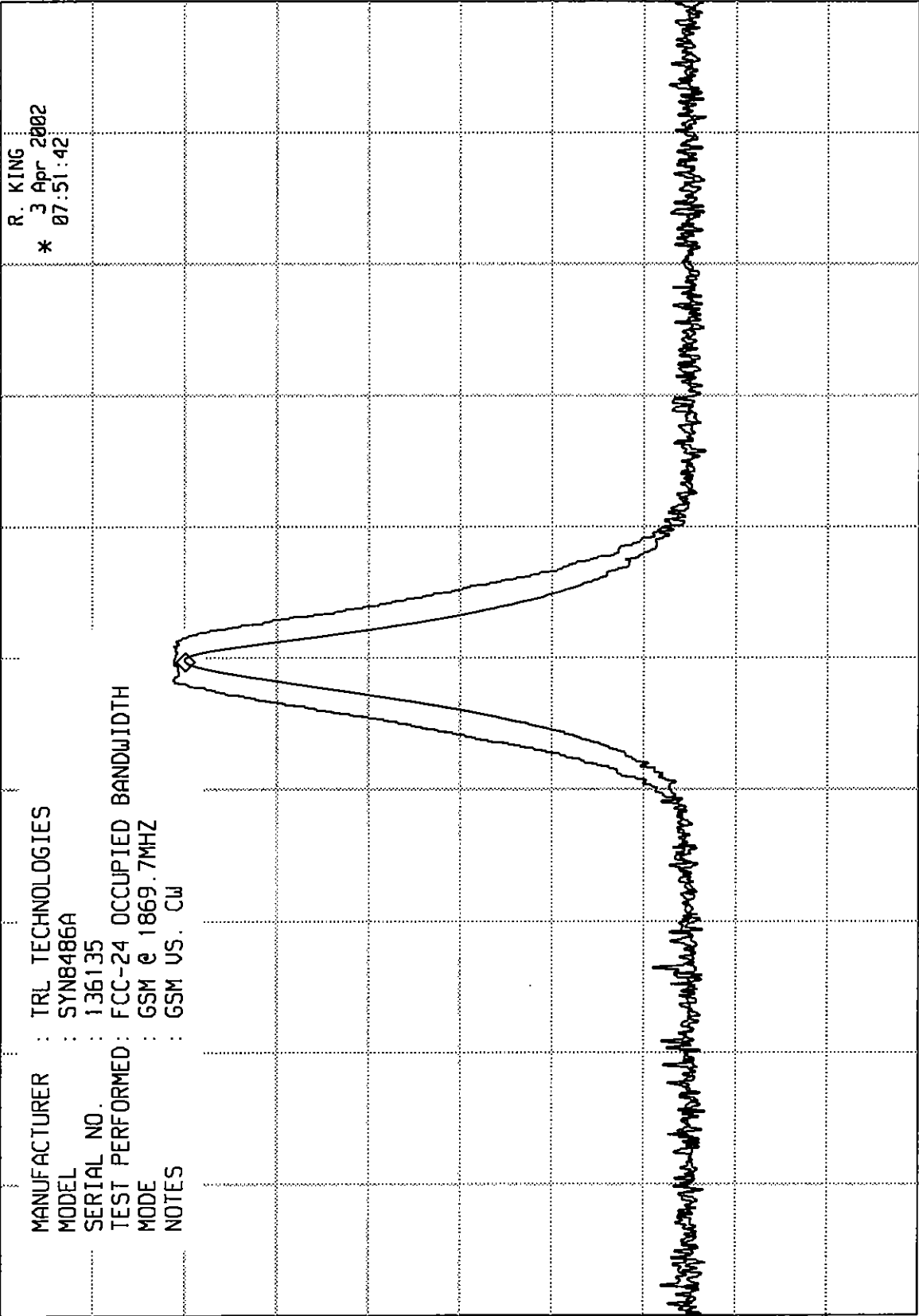
MKR 1.869 680 GHz
-13.10 dBm

hp

REF 7.0 dBm

ATTEN 20 dB + 40 dB EXT

10 dB/



SPAN 5.00 MHz
SWP 20.0 msec

UBW 1 MHz

CENTER 1.869 70 GHz
RES BW 100 kHz(i)

ELITE ELECTRONIC ENGINEERING CO

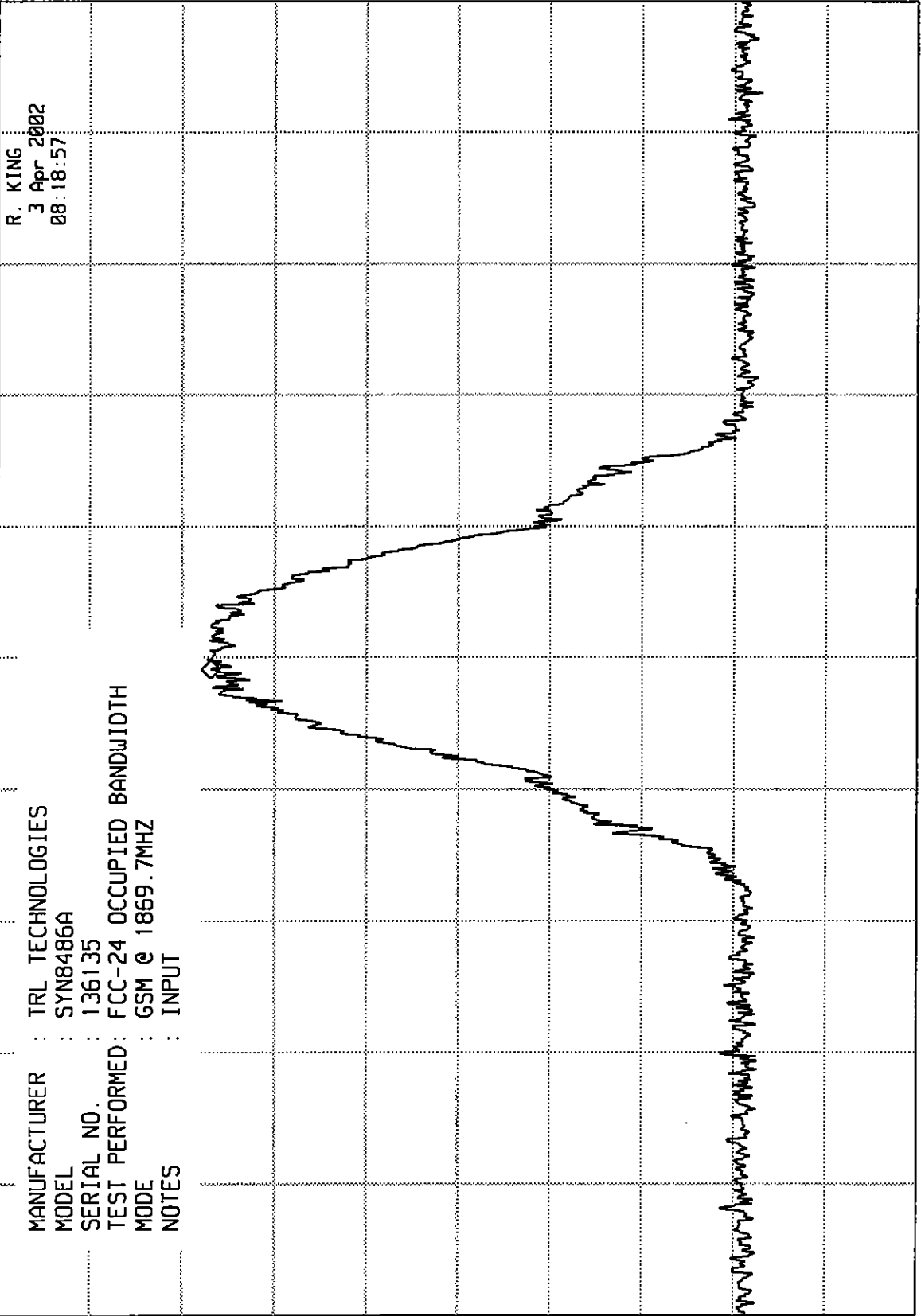
MKR 1.869 680 GHz
-16.10 dBm

hp

REF 7.0 dBm

ATTEN 20 dB + 40 dB *EXT*

10 dB/



SPAN 2.00 MHz
SWP 20.0 msec

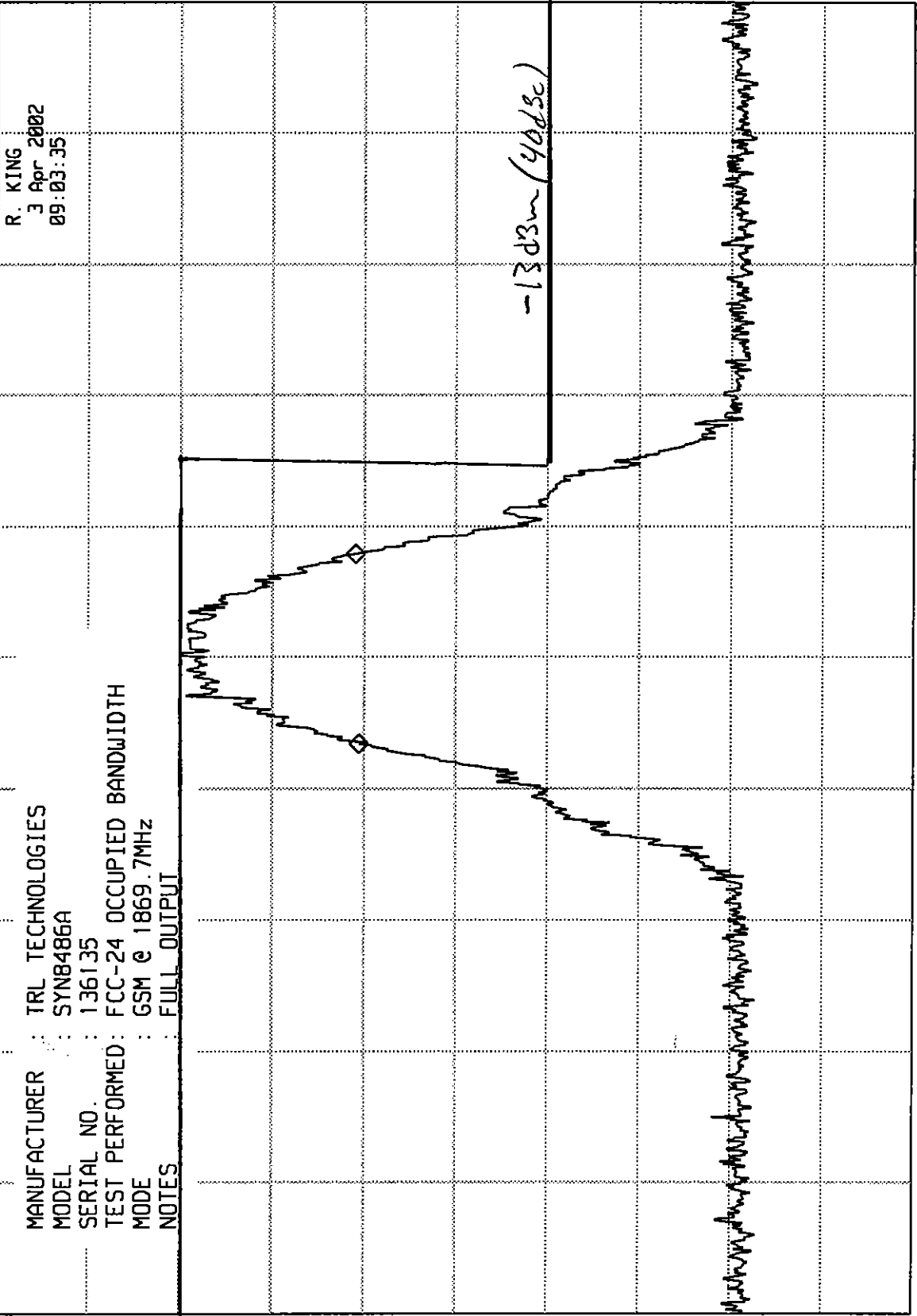
VBW 300 kHz

CENTER 1.869 70 GHz
RES BW 30 kHz(i)

ELITE ELECTRONIC ENGINEERING CO

MKR ^ 290 kHz
0.40 dB

REF 7.0 dBm ATTEN 20 dB + 40 dB EXT



hp

10 dB/

DL -33.0 dBm

CENTER 1.869 70 GHz
 RES BW 30 kHz(i)
 UBW 300 kHz
 SPAN 2.00 MHz
 SWP 20.0 msec

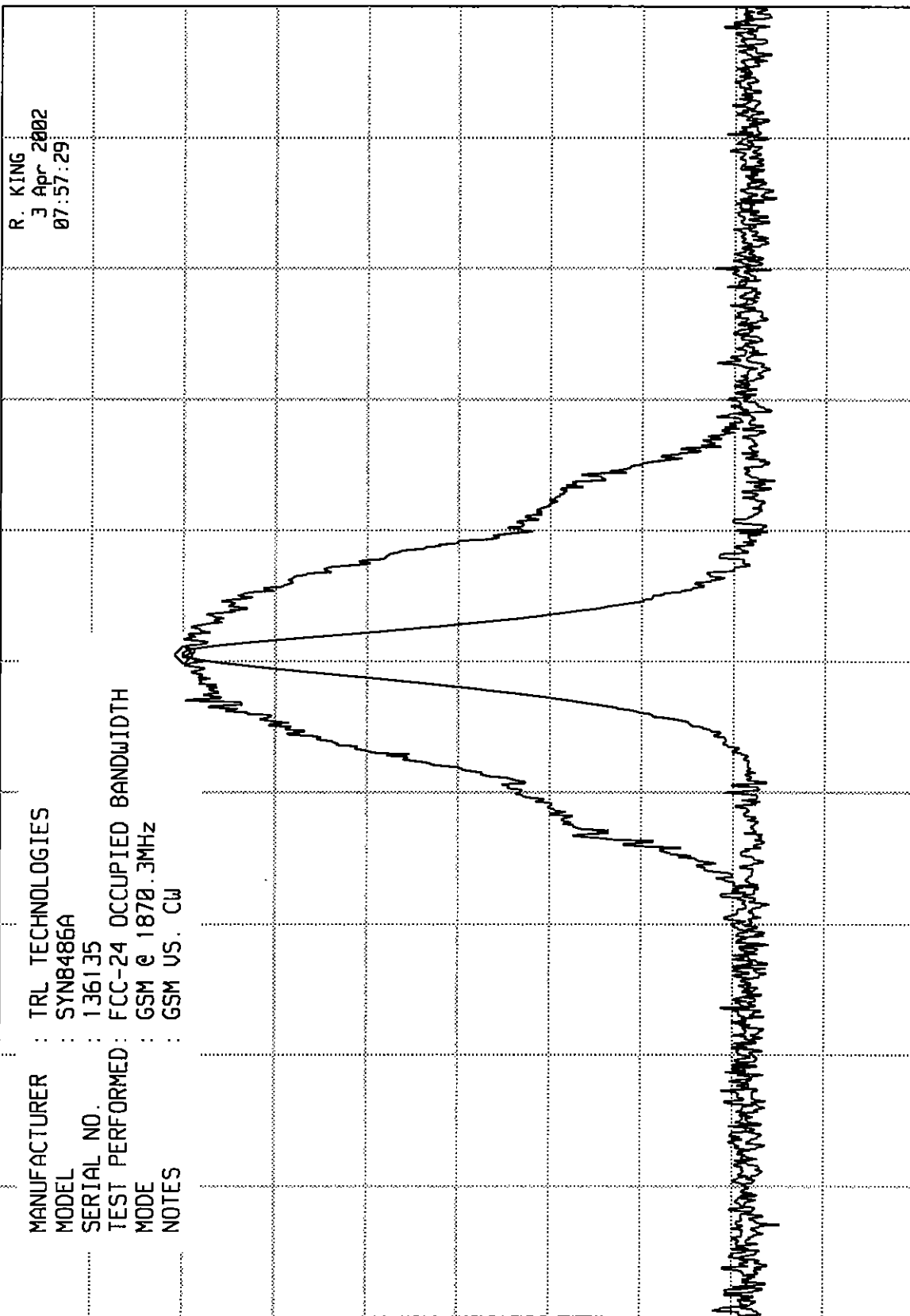
ELITE ELECTRONIC ENGINEERING CO

MKR 1.870 308 GHz
-13.00 dBm

hp REF 7.0 dBm

ATTEN 20 dB +49 dB EXT

10 dB/



SPAN 2.00 MHz
SWP 20.0 msec

VBW 300 kHz

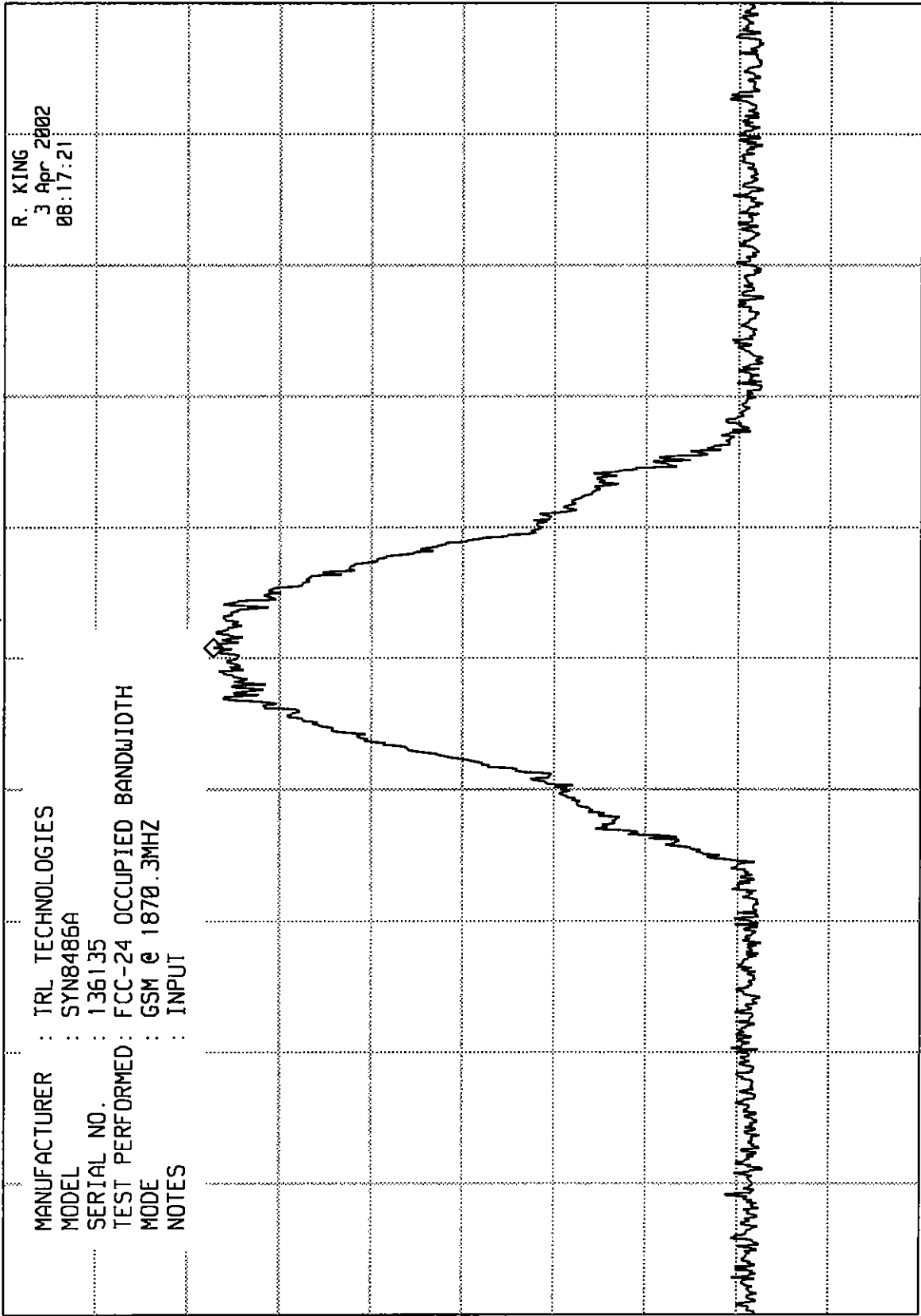
CENTER 1.870 30 GHz
RES BW 30 kHz (i)

ELITE ELECTRONIC ENGINEERING CO

MKR 1.870 314 GHz
-15.80 dBm

REF 7.0 dBm
ATTEN 20 dB 440 dB Ext

hp
10 dB/



MANUFACTURER : IRL TECHNOLOGIES
 MODEL : SYN8486A
 SERIAL NO. : 136135
 TEST PERFORMED : FCC-24 OCCUPIED BANDWIDTH
 MODE : GSM @ 1870.3MHZ
 NOTES : INPUT

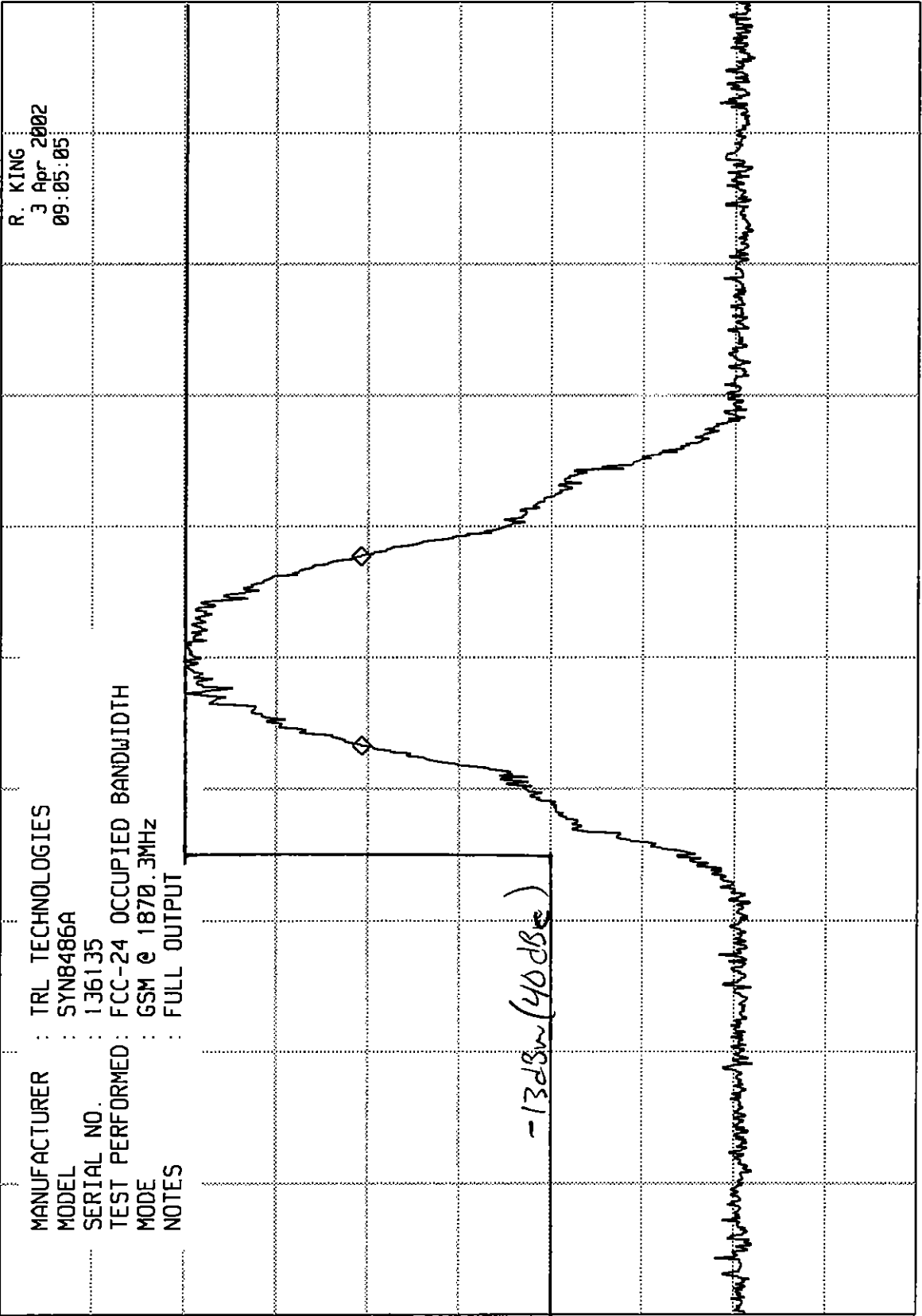
R. KING
 3 Apr 2002
 08:17:21

CENTER 1.870 30 GHz
 RES BW 30 kHz (i)
 SPAN 2.00 MHz
 SWP 20.0 msec
 VBW 300 kHz

ELITE ELECTRONIC ENGINEERING CO

MKR ^ 288 kHz
0.10 dB

REF 7.0 dBm
ATTEN 20 dB + 40 dB Ext



R. KING
3 Apr 2002
09:05:05

MANUFACTURER : TRL TECHNOLOGIES
 MODEL : SYN8486A
 SERIAL NO. : 136135
 TEST PERFORMED : FCC-24 OCCUPIED BANDWIDTH
 MODE : GSM @ 1870.3MHz
 NOTES : FULL OUTPUT

hp

10 dB/

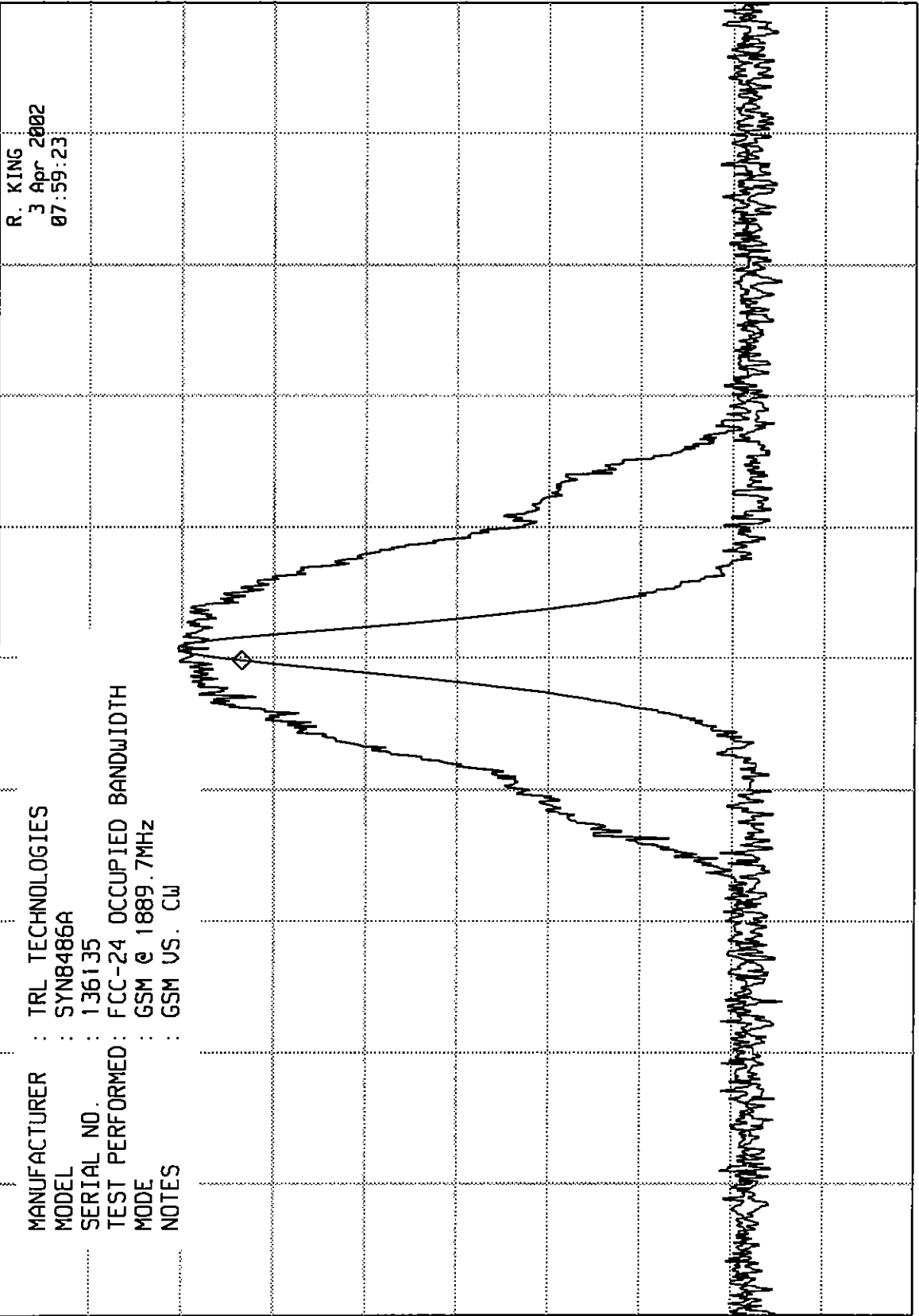
DL -33.0 dBm

CENTER 1.870 30 GHz
 RES BW 30 kHz (i)
 UBW 300 kHz
 SPAN 2.00 MHz
 SWP 20.0 msec

ELITE ELECTRONIC ENGINEERING CO

MKR 1.889 694 GHz
-19.50 dBm

REF 7.0 dBm
ATTEN 20 dB +40 dB 5x



hp

10 dB/

CENTER 1.889 70 GHz
 RES BW 30 kHz(i)
 UBW 300 kHz
 SPAN 2.00 MHz
 SWP 20.0 msec

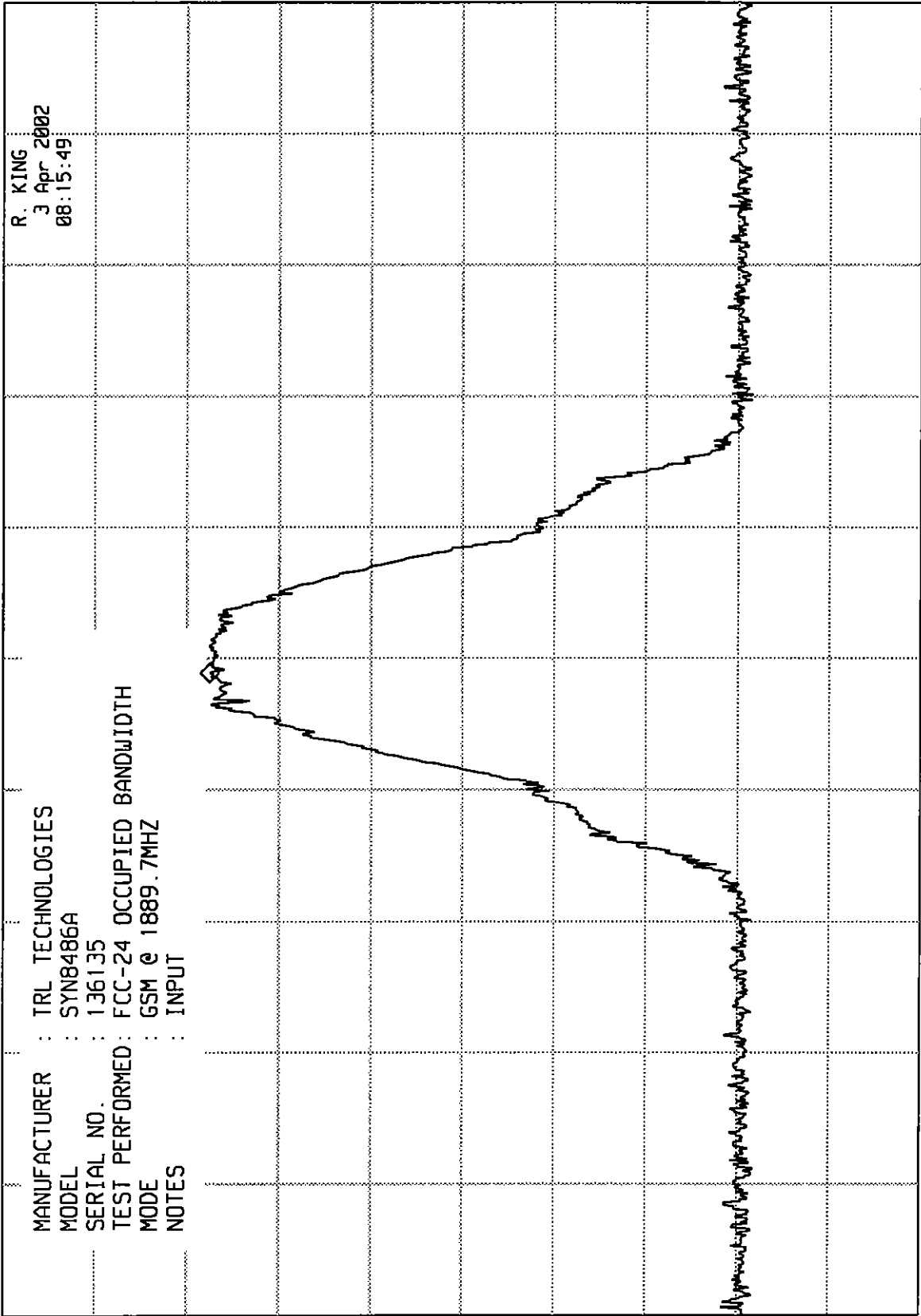
ELITE ELECTRONIC ENGINEERING CO

MKR 1.889 690 GHz
-15.50 dBm

REF 7.0 dBm
ATTEN 20 dB + 40 dB

hp

10 dB/



MANUFACTURER : IRL TECHNOLOGIES
 MODEL : SYN8486A
 SERIAL NO. : 136135
 TEST PERFORMED : FCC-24 OCCUPIED BANDWIDTH
 MODE : GSM @ 1889.7MHZ
 NOTES : INPUT

R. KING
 3 Apr 2002
 08:15:49

SPAN 2.00 MHz
SWP 20.0 msec

VBW 300 kHz

CENTER 1.889 71 GHz
RES BW 30 kHz(i)

ELITE ELECTRONIC ENGINEERING CO

MKR ^ 290 kHz
-0.60 dB

hp

REF 7.0 dBm

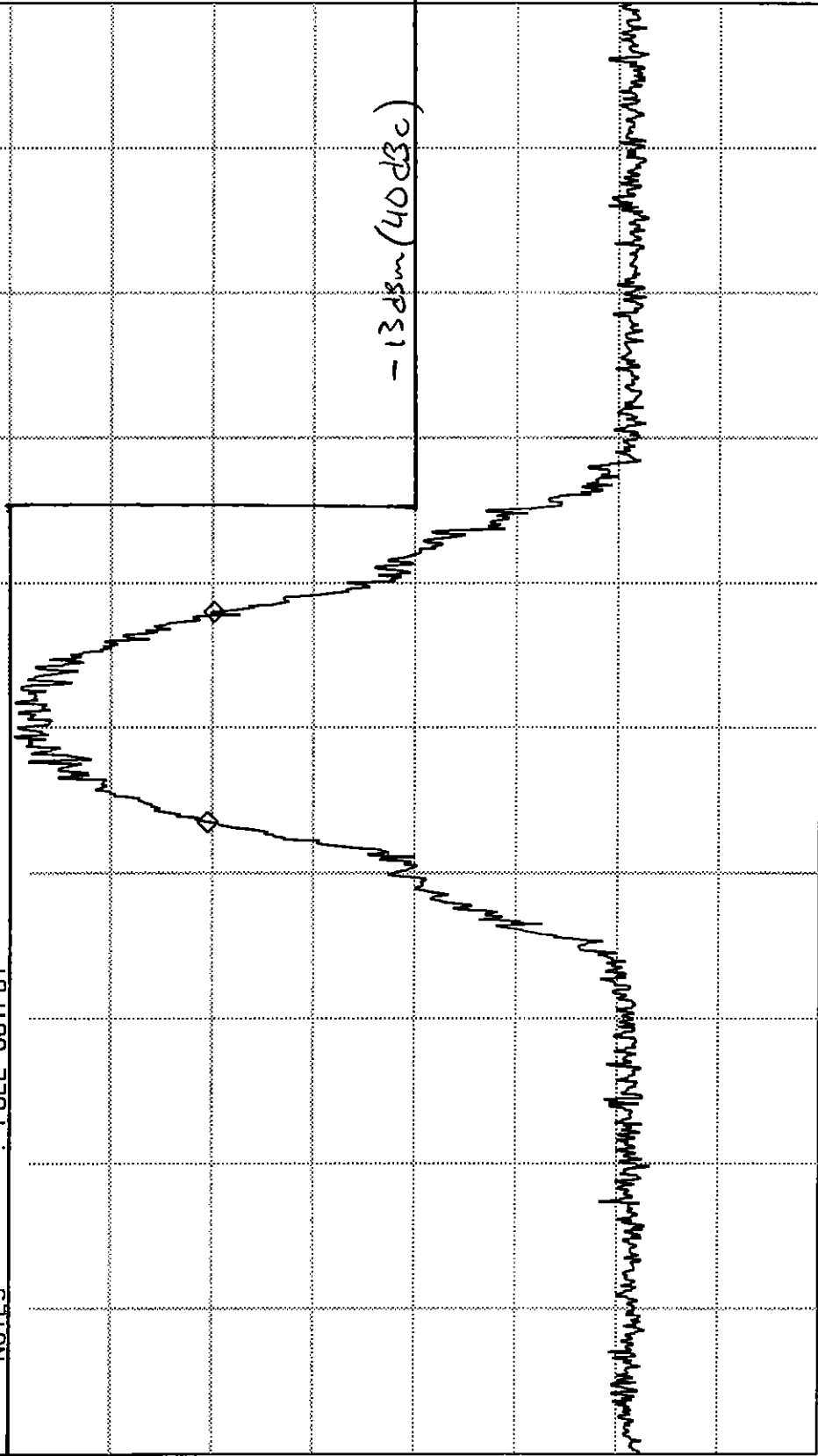
ATTEN 20 dB + 40dB Ex 7

10 dB/

R. KING
3 Apr 2002
09:07:10

MANUFACTURER : TRL TECHNOLOGIES
 MODEL : SYN8486A
 SERIAL NO. : 136135
 TEST PERFORMED : FCC-24 OCCUPIED BANDWIDTH
 MODE : GSM @ 1889.7MHz
 NOTES : FULL OUTPUT

DL -33.0 dBm



SPAN 2.00 MHz
SWP 20.0 msec

VBW 300 kHz

CENTER 1.889 70 GHz
RES BW 30 kHz(i)

DL

ELITE ELECTRONIC ENGINEERING CO

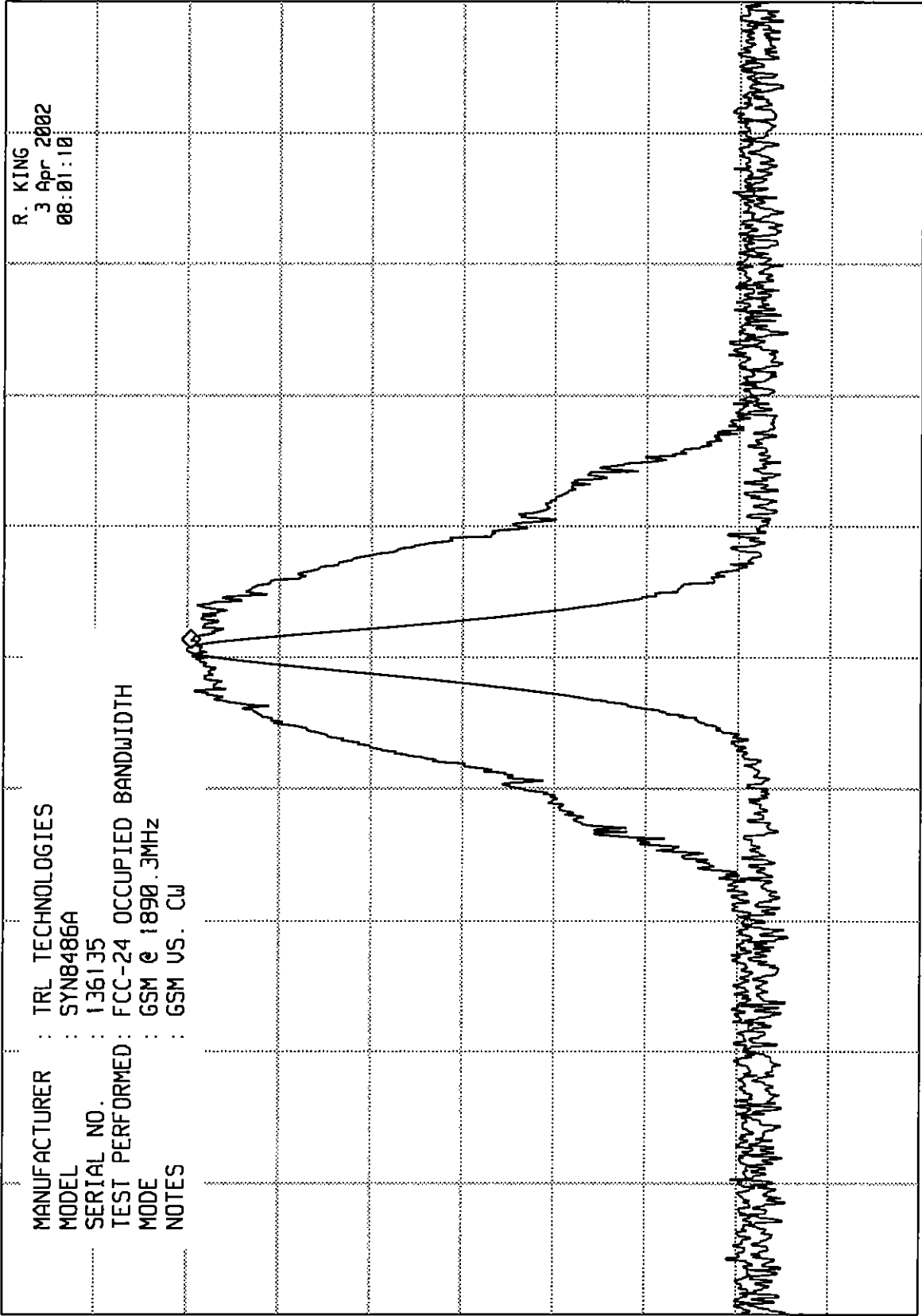
MKR 1.890 326 GHz
-13.40 dBm

REF 7.0 dBm

ATTEN 20 dB + 40 dB XT

MANUFACTURER : TRL TECHNOLOGIES
MODEL : SYN8486A
SERIAL NO. : 136135
TEST PERFORMED : FCC-24 OCCUPIED BANDWIDTH
MODE : GSM @ 1890.3MHz
NOTES : GSM US. CW

R. KING
3 Apr 2002
08:01:10



hp

10 dB/

CENTER 1.890 30 GHz
RES BW 30 kHz(i)
UBW 300 kHz
SPAN 2.00 MHz
SWP 20.0 msec

ELITE ELECTRONIC ENGINEERING CO

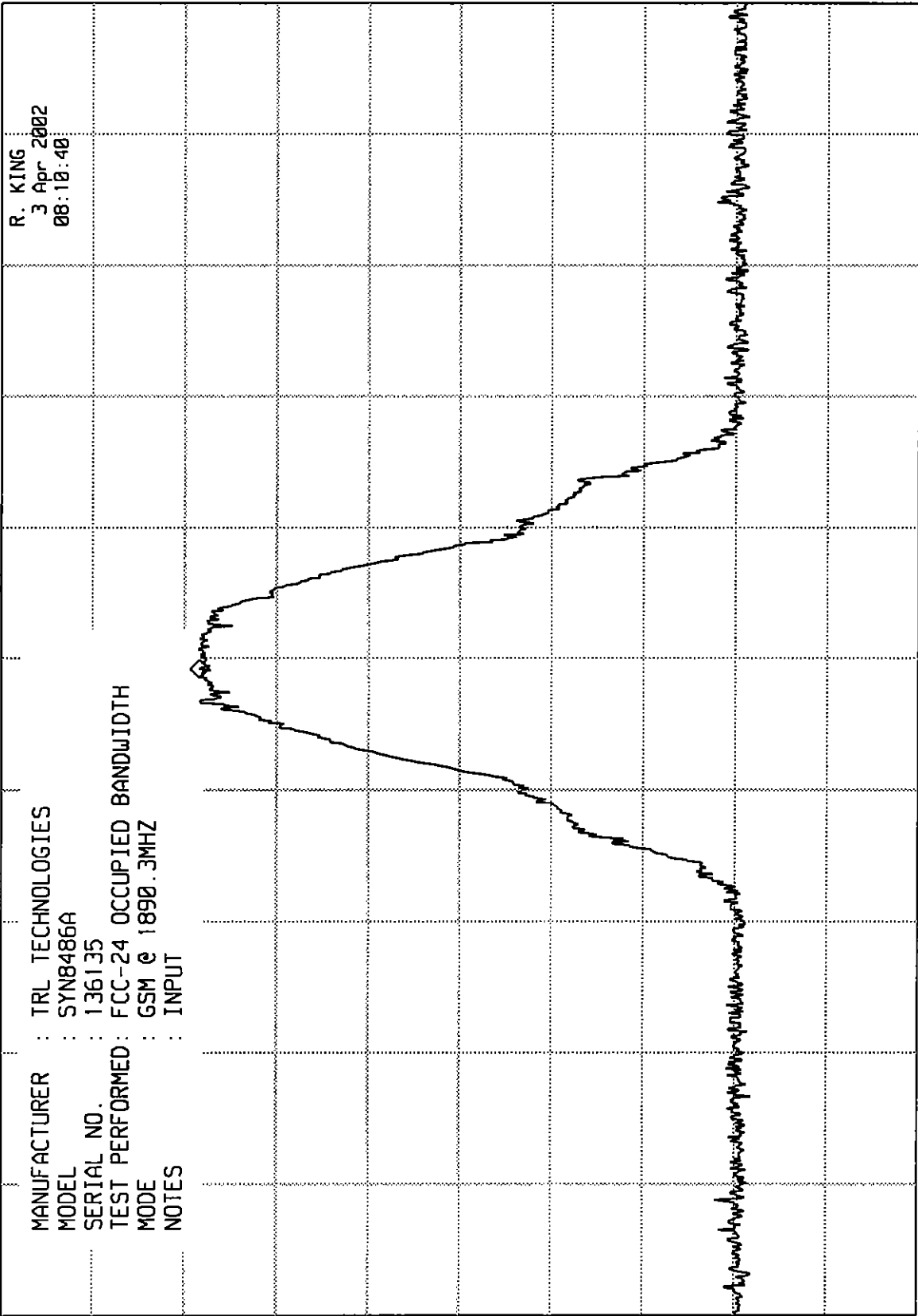
MKR 1.890 292 GHz
-14.60 dBm

REF 7.0 dBm

ATTEN 20 dB +40 dB Ext

hp

10 dB/



SPAN 2.00 MHz
SWP 20.0 msec

VBW 300 kHz

CENTER 1.890 31 GHz
RES BW 30 kHz (i)

ELITE ELECTRONIC ENGINEERING CO

MKR ^ 282 kHz
0.40 dB

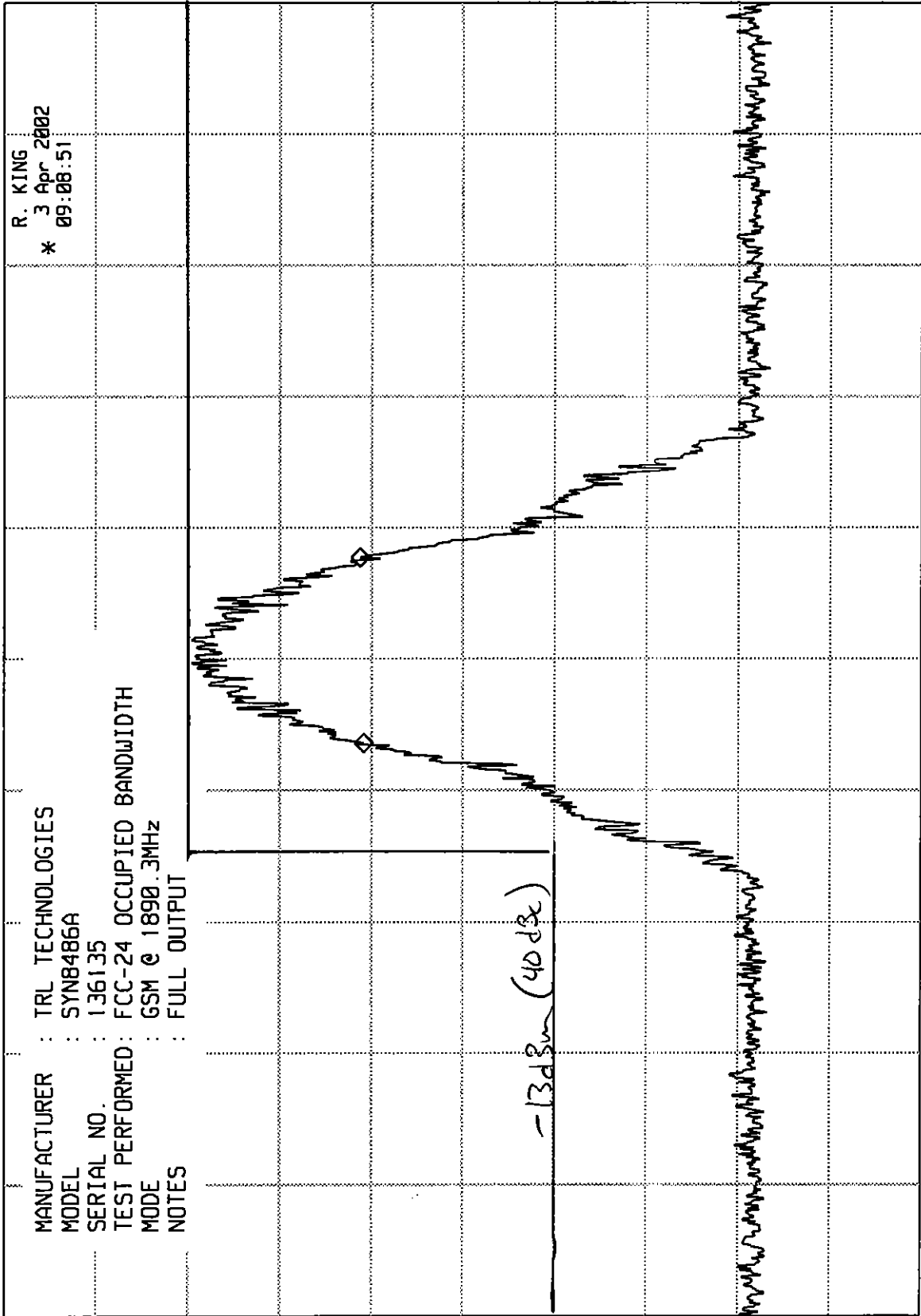
REF 7.0 dBm
ATTEN 20 dB + 40 dB EXT

MANUFACTURER : TRL TECHNOLOGIES
MODEL : SYN8486A
SERIAL NO. : 136135
TEST PERFORMED : FCC-24 OCCUPIED BANDWIDTH
MODE : GSM @ 1890.3MHz
NOTES : FULL OUTPUT

R. KING
* 3 Apr 2002
09:08:51

hp 10 dB/

DL -33.0 dBm



CENTER 1.890 GHz
RES BW 30 kHz (i)
SPAN 2.00 MHz
SWP 20.0 msec
VBW 300 kHz

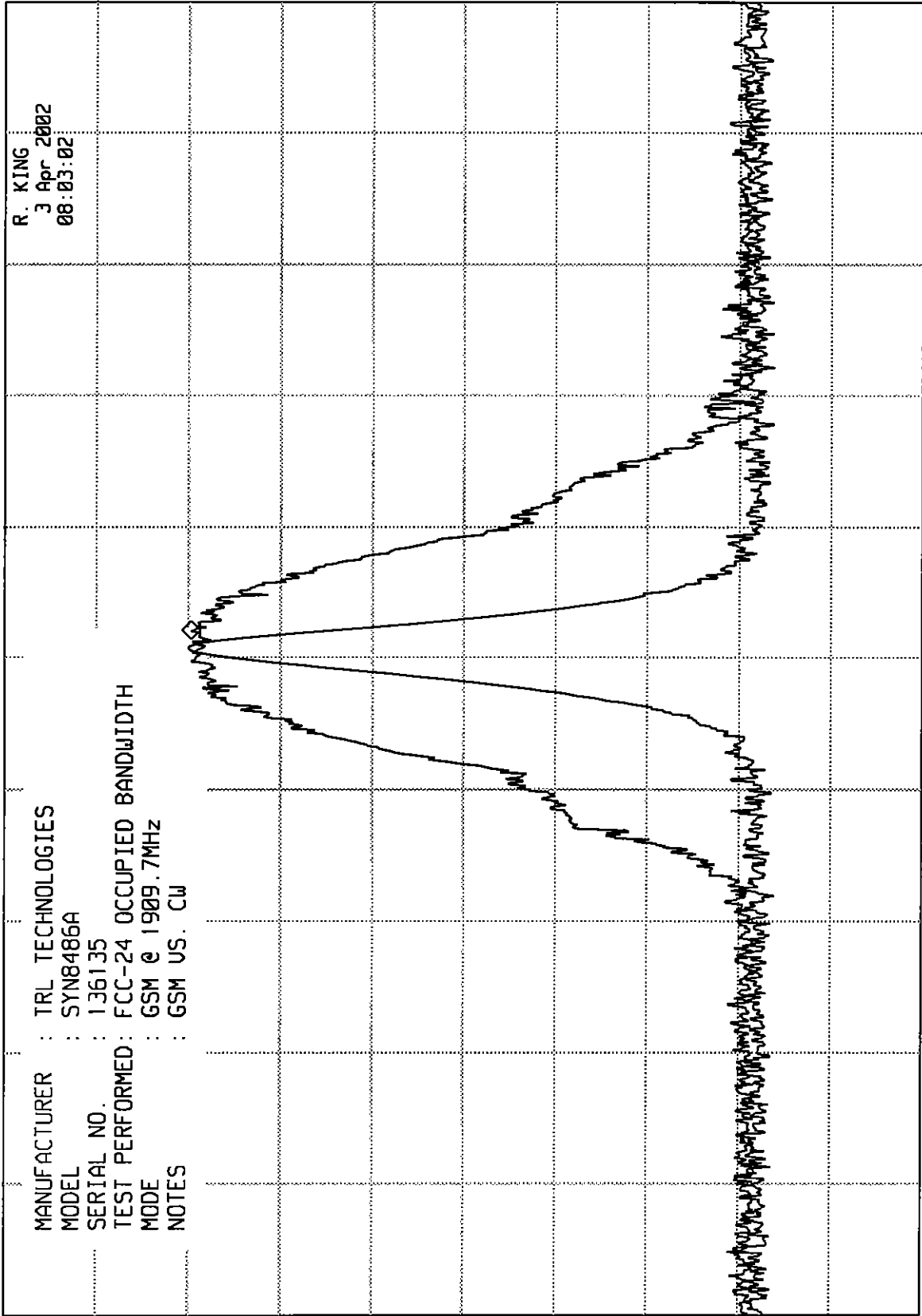
ELITE ELECTRONIC ENGINEERING CO

MKR 1.909 740 GHz
-13.30 dBm

REF 7.0 dBm
ATTEN 20 dB + 40 dB

hp

10 dB/



SPAN 2.00 MHz
SWP 20.0 msec

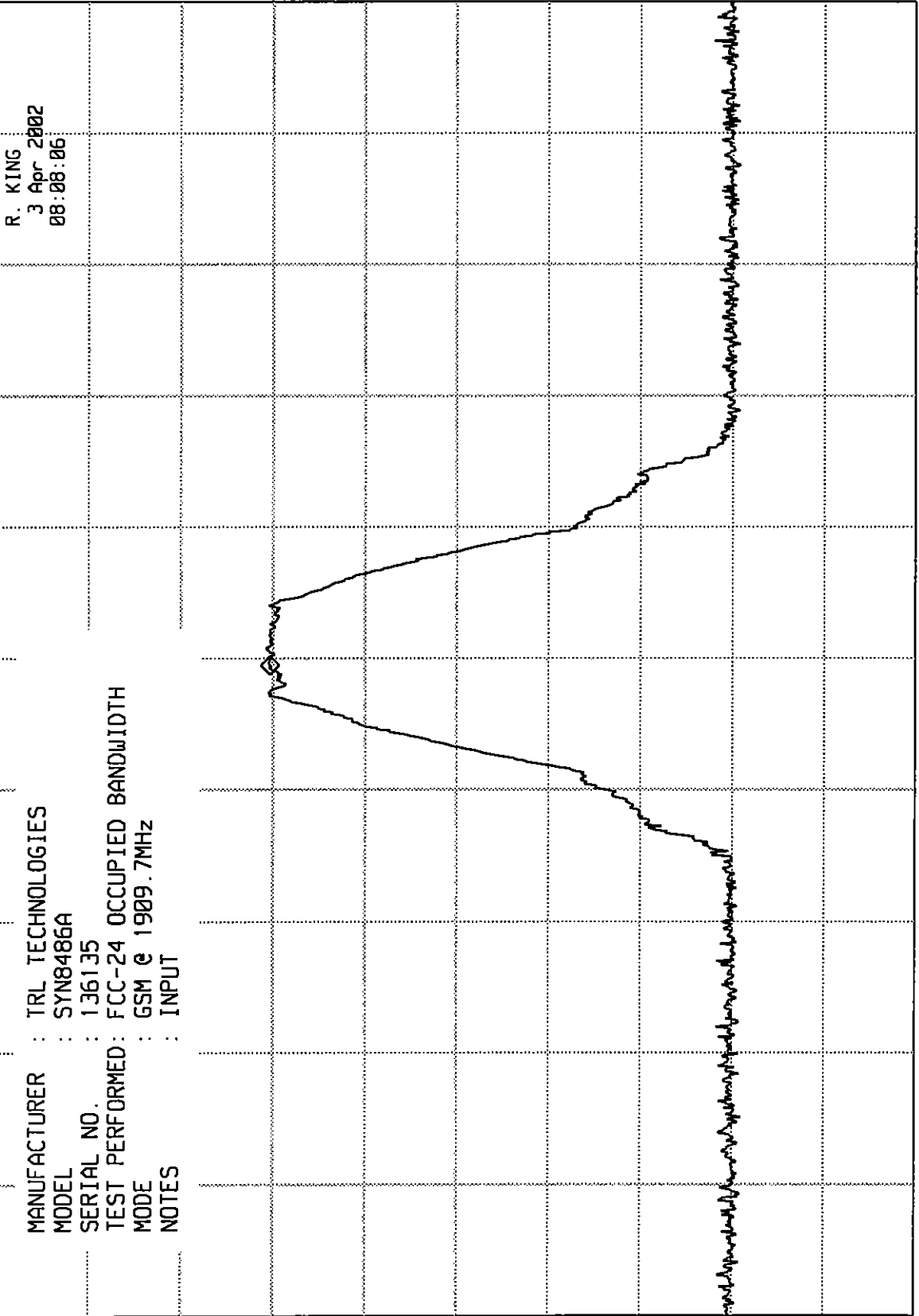
VBW 300 kHz

CENTER 1.909 70 GHz
RES BW 30 kHz (i)

ELITE ELECTRONIC ENGINEERING CO

MKR 1.909 688 GHz
-22.70 dBm

REF 7.0 dBm ATTEN 20 dB 440 dB 50x



hp 10 dB/

CENTER 1.909 70 GHz
RES BW 30 kHz (i) VBW 300 kHz SPAN 2.00 MHz
SWP 20.0 msec

ELITE ELECTRONIC ENGINEERING CO

MKR ^ 288 kHz
0.30 dB

ATTEN 20 dB + 40 dB EXT

REF 7.0 dBm

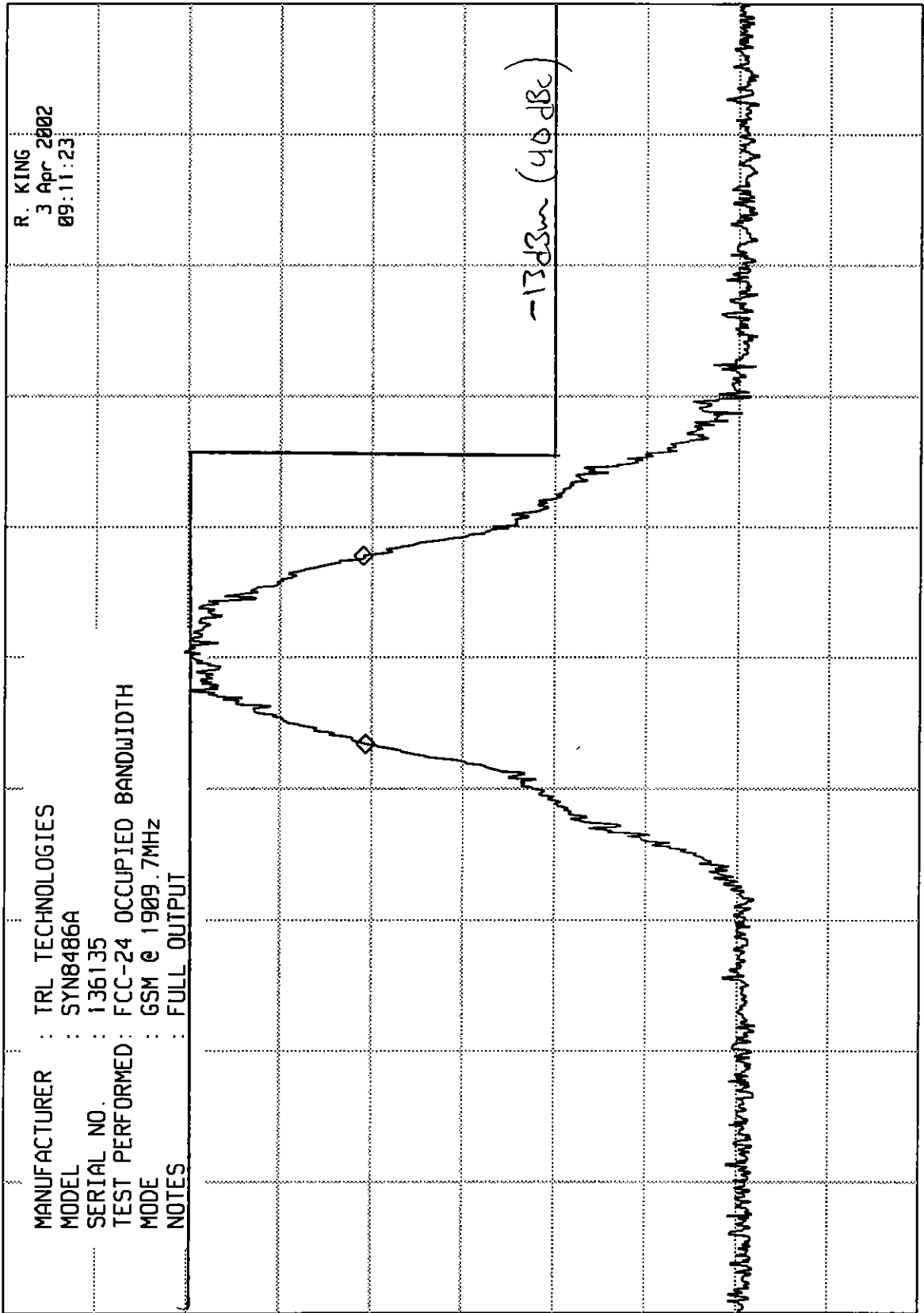
hp

10 dB/

MANUFACTURER : TRL TECHNOLOGIES
MODEL : SYN8486A
SERIAL NO. : 136135
TEST PERFORMED : FCC-24 OCCUPIED BANDWIDTH
MODE : GSM @ 1909.7MHz
NOTES : FULL OUTPUT

R. KING
3 Apr 2002
09:11:23

DL -33.0 dBm



SPAN 2.00 MHz
SWP 20.0 msec

UBW 300 kHz

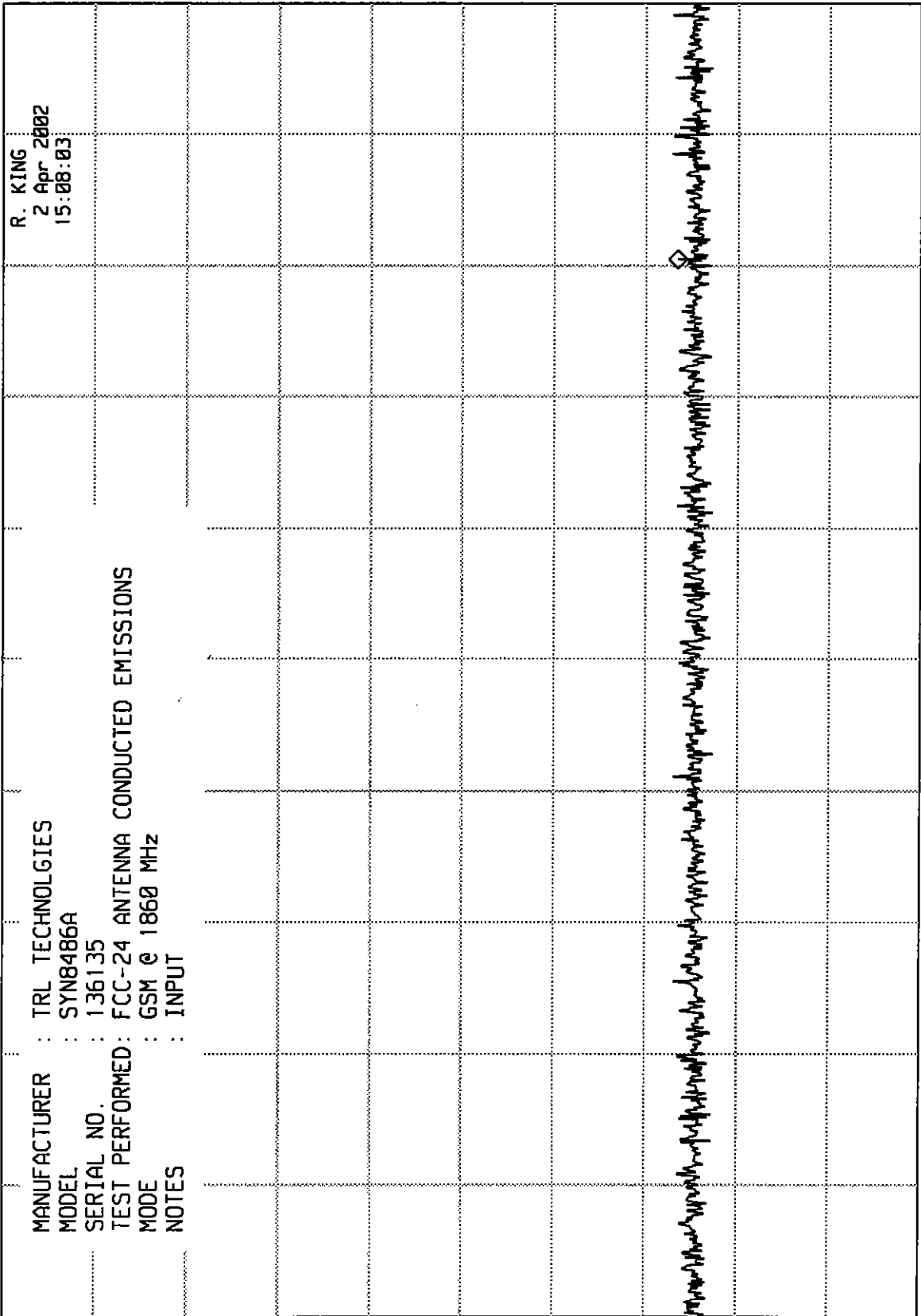
CENTER 1.909 70 GHz
RES BW 30 kHz(i)

DL

ELITE ELECTRONIC ENGINEERING CO

MKR 809.9 MHz
-66.50 dBm

REF 7.0 dBm ATTEN 20 dB + 40 dB *Ext*



MANUFACTURER : TRL TECHNOLOGIES
 MODEL : SYN8486A
 SERIAL NO. : 136135
 TEST PERFORMED : FCC-24 ANTENNA CONDUCTED EMISSIONS
 MODE : GSM @ 1860 MHz
 NOTES : INPUT

R. KING
2 Apr 2002
15:08:03

hp

10 dB/

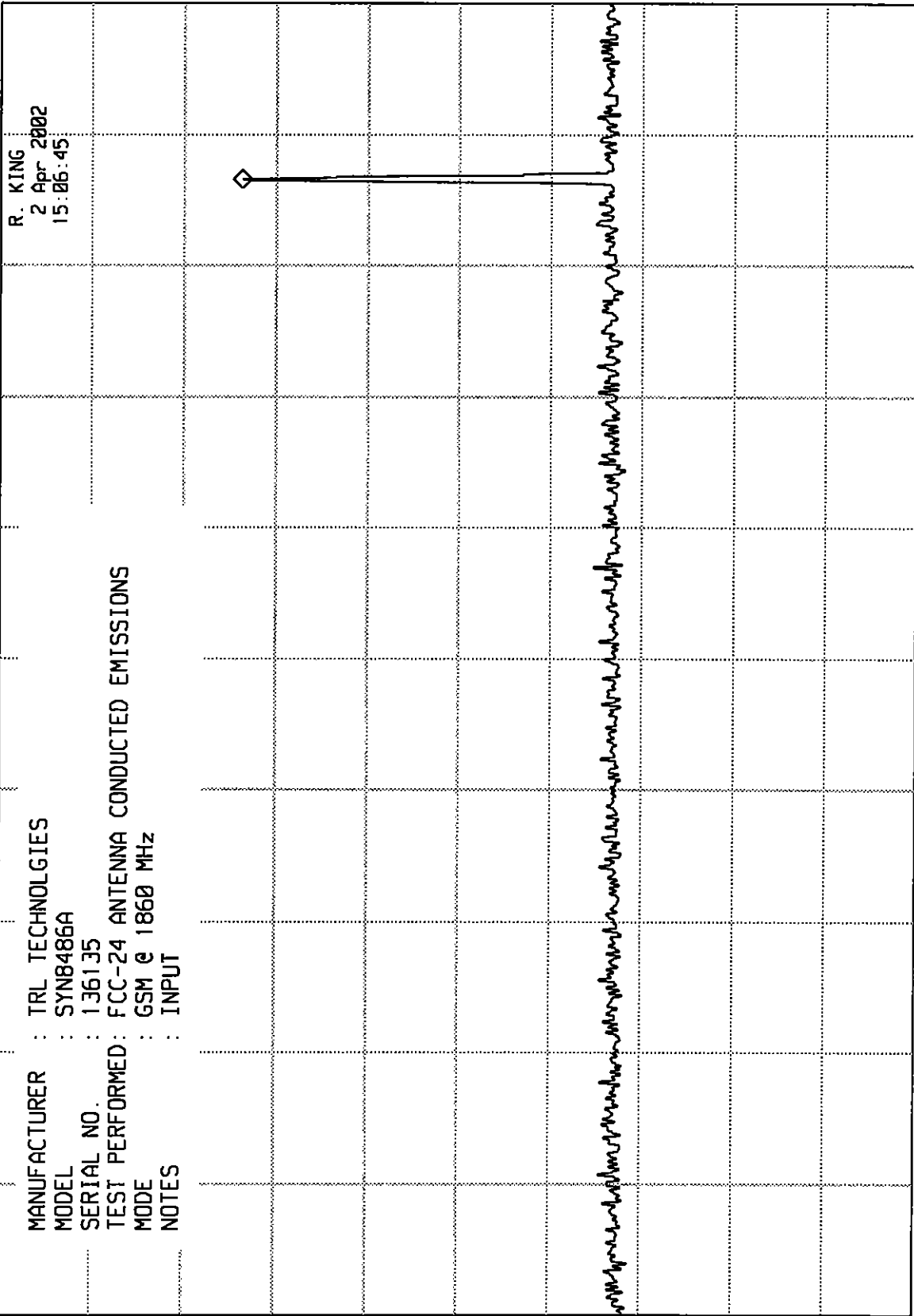
DL -53.0
dBm

START 30 MHz RES BW 100 kHz (i) VBW 300 kHz STOP 1.000 GHz
 SWP 728 msec

ELITE ELECTRONIC ENGINEERING CO

MKR 1.865 GHz
-19.30 dBm

REF 7.0 dBm ATTEN 20 dB + 40 dB EXT



hp

10 dB/

DL -53.0 dBm

START 1.00 GHz RES BW 1 MHz(i) VBW 3 MHz STOP 2.00 GHz
 SWP 25.0 msec

ELITE ELECTRONIC ENGINEERING CO

MKR 19.78 GHz
-41.10 dBm

REF 7.0 dBm

ATTEN 20 dB +20 dB EXT

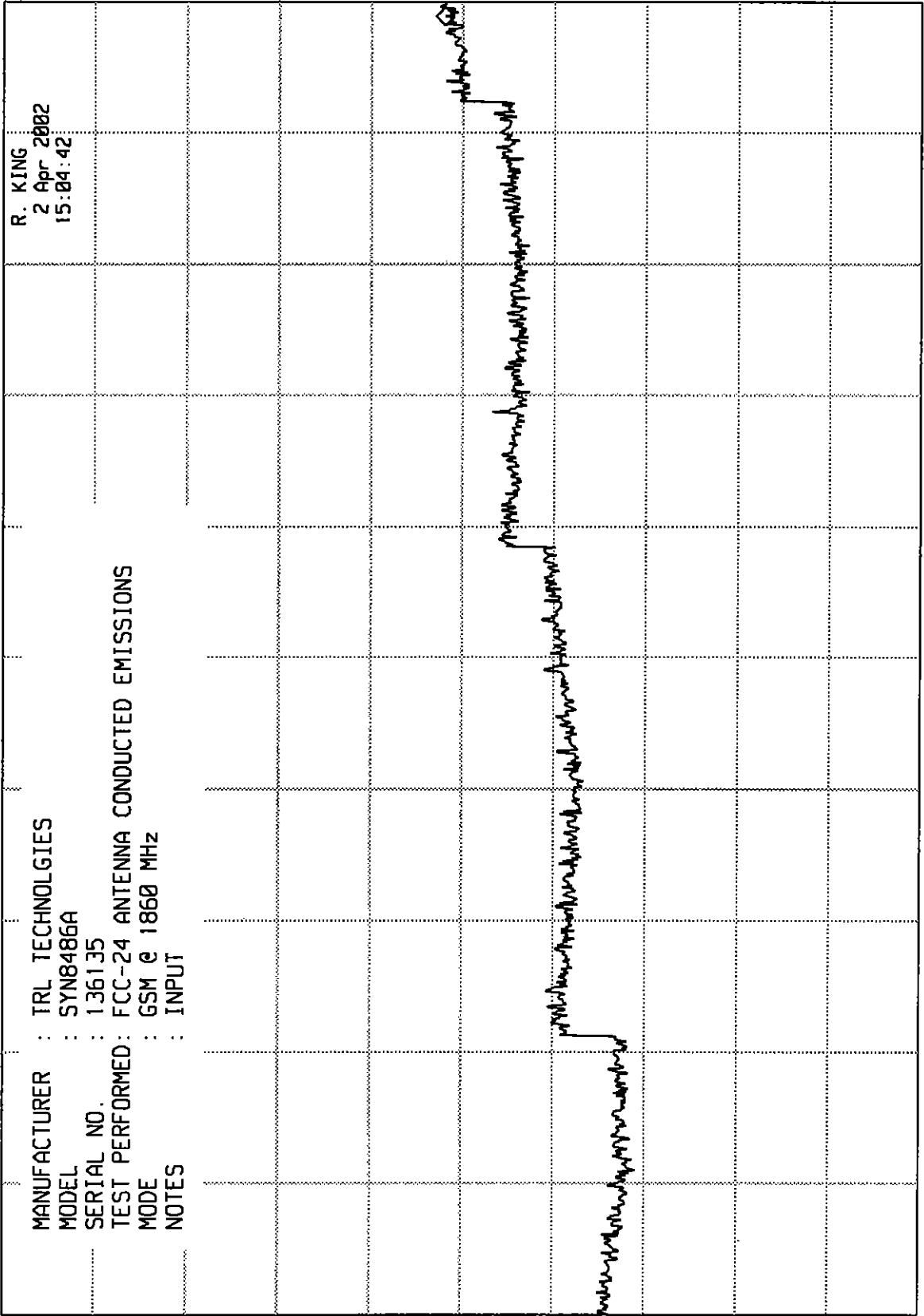
hp

10 dB/

MANUFACTURER : TRL TECHNOLOGIES
MODEL : SYN8486A
SERIAL NO. : 136135
TEST PERFORMED : FCC-24 ANTENNA CONDUCTED EMISSIONS
MODE : GSM @ 1860 MHz
NOTES : INPUT

R. KING
2 Apr 2002
15:04:42

DL -33.0 dBm



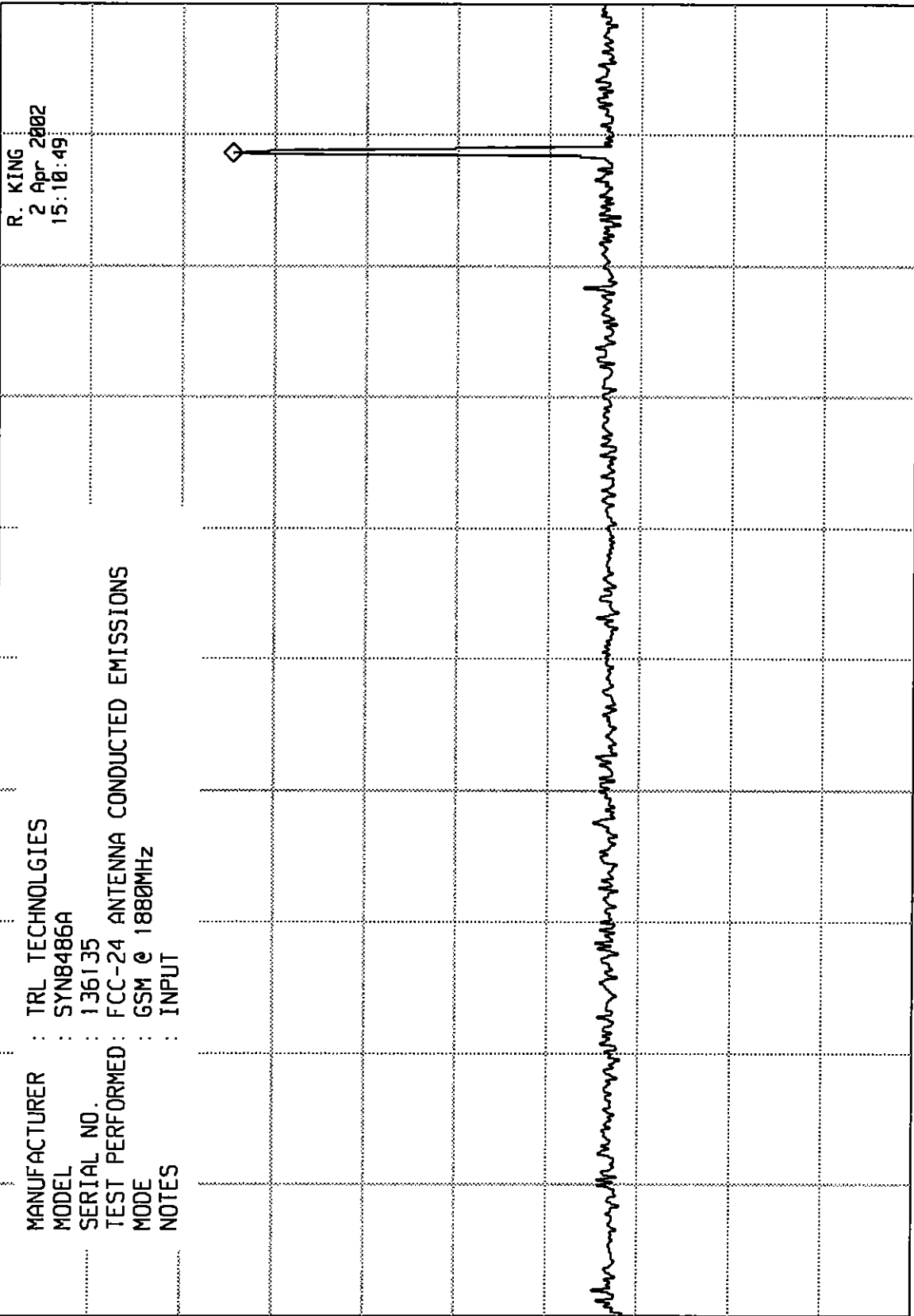
START 2.0 GHz RES BW 1 MHz (i) STOP 20.0 GHz
VBW 3 MHz SWP 450 msec

ELITE ELECTRONIC ENGINEERING CO

MKR 1.885 GHz
-18.40 dBm

ATTEN 20 dB + 40 dB EXT.

REF 7.0 dBm



MANUFACTURER : TRL TECHNOLOGIES
 MODEL : SYN8486A
 SERIAL NO. : 136135
 TEST PERFORMED : FCC-24 ANTENNA CONDUCTED EMISSIONS
 MODE : GSM @ 1880MHz
 NOTES : INPUT

R. KING
 2 Apr 2002
 15:10:49

hp

10 dB/

DL -53.0 dBm

START 1.00 GHz
 RES BW 1 MHz(i)
 UBW 3 MHz
 STOP 2.00 GHz
 SWP 25.0 msec

ELITE ELECTRONIC ENGINEERING CO

MKR 19.73 GHz
-41.20 dBm

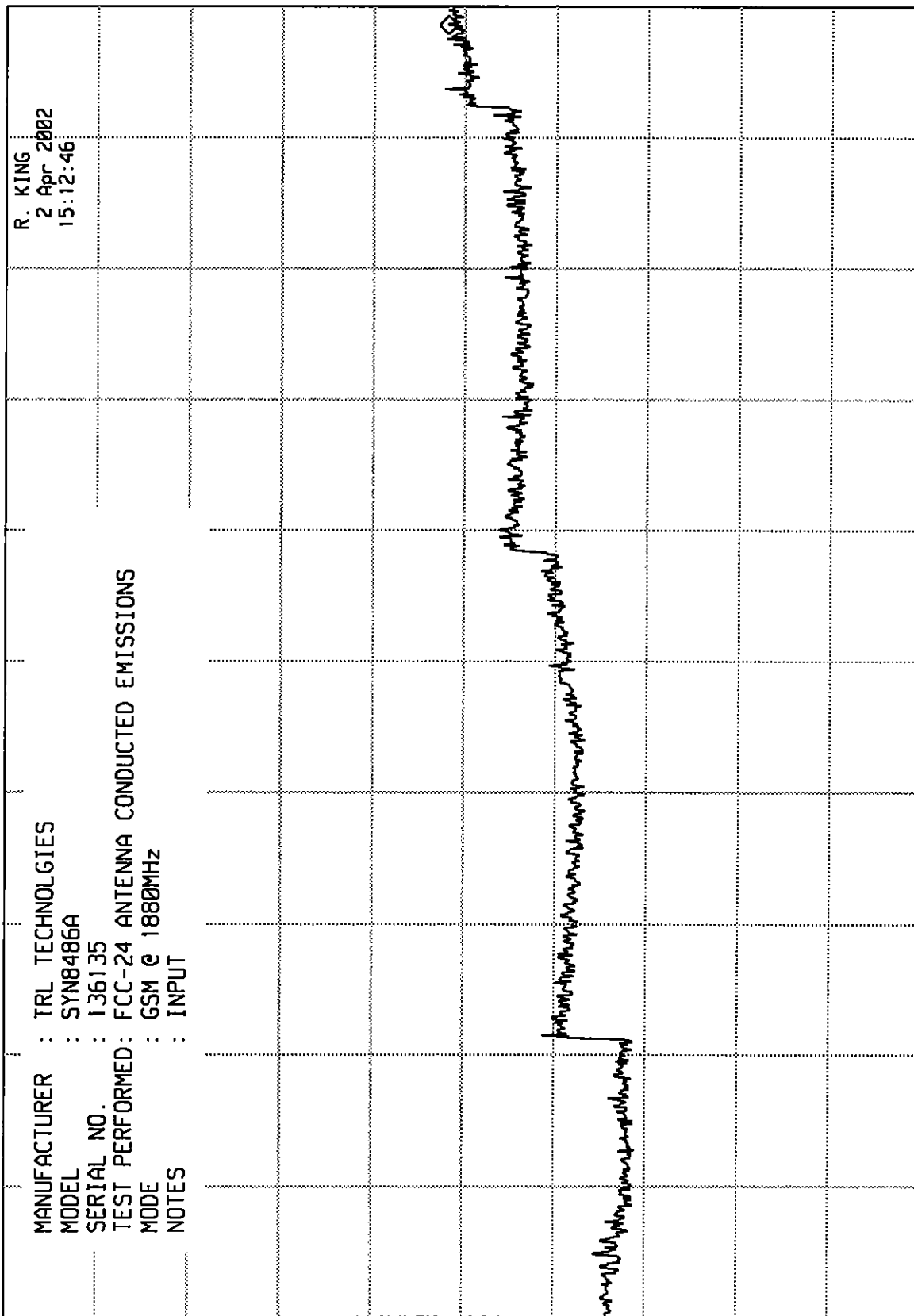
REF 7.0 dBm
ATTEN 20 dB + 20 dB EXT.

hp

10 dB/

MANUFACTURER : TRL TECHNOLOGIES
MODEL : SYN8486A
SERIAL NO. : 136135
TEST PERFORMED : FCC-24 ANTENNA CONDUCTED EMISSIONS
MODE : GSM @ 1880MHz
NOTES : INPUT

R. KING
2 Apr 2002
15:12:46



DL -33.0 dBm

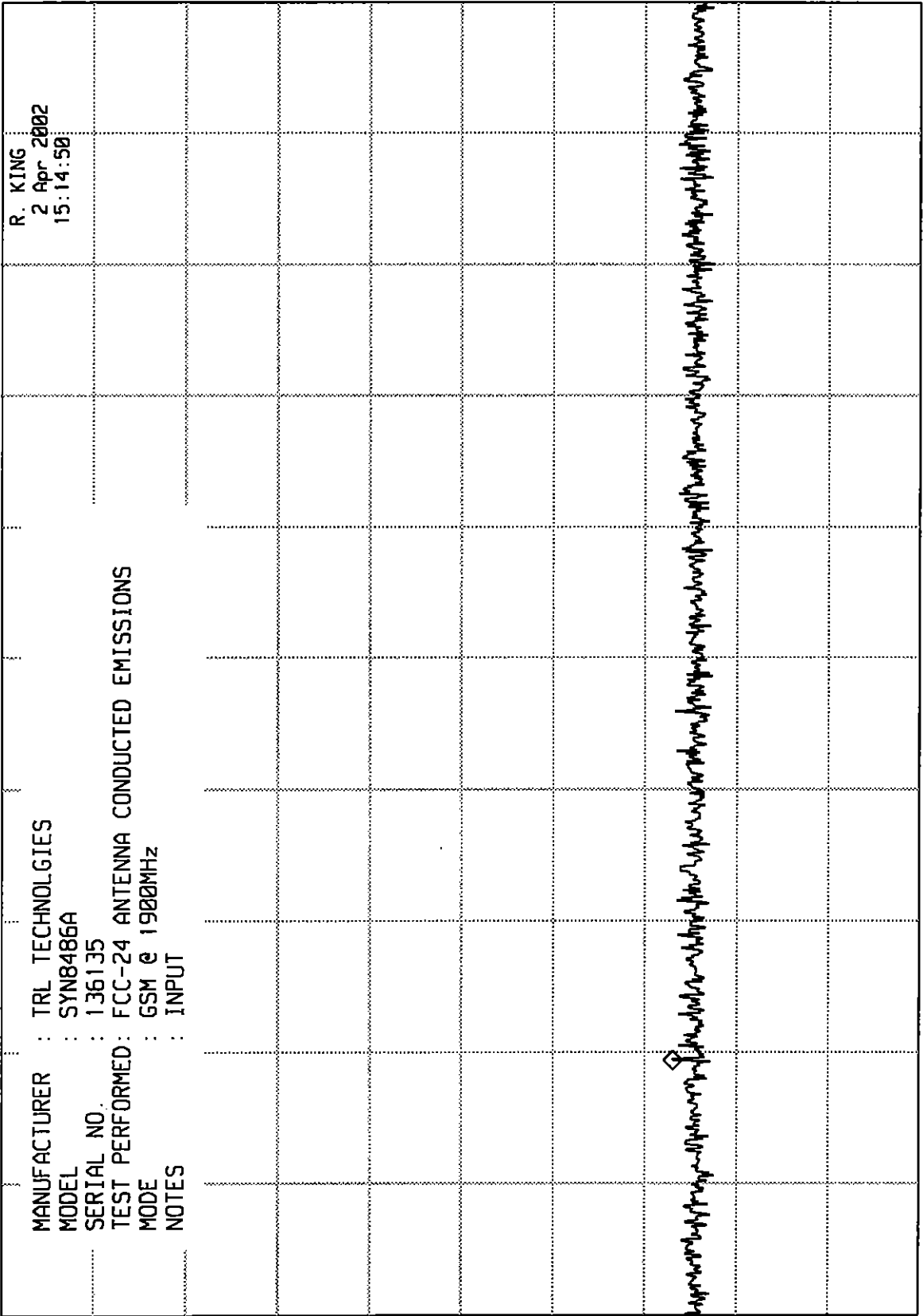
START 2.0 GHz
RES BW 1 MHz (i)
STOP 20.0 GHz
UBW 3 MHz
SWP 450 msec

ELITE ELECTRONIC ENGINEERING CO

MKR 217.2 MHz
-66.10 dBm

REF 7.0 dBm ATTEN 20 dB + 40 dB EXT.

hp



MANUFACTURER : TRL TECHNOLOGIES
 MODEL : SYN8486A
 SERIAL NO. : 136135
 TEST PERFORMED: FCC-24 ANTENNA CONDUCTED EMISSIONS
 MODE : GSM @ 1900MHz
 NOTES : INPUT

R. KING
 2 Apr 2002
 15:14:50

10 dB/

DL -53.0 dBm

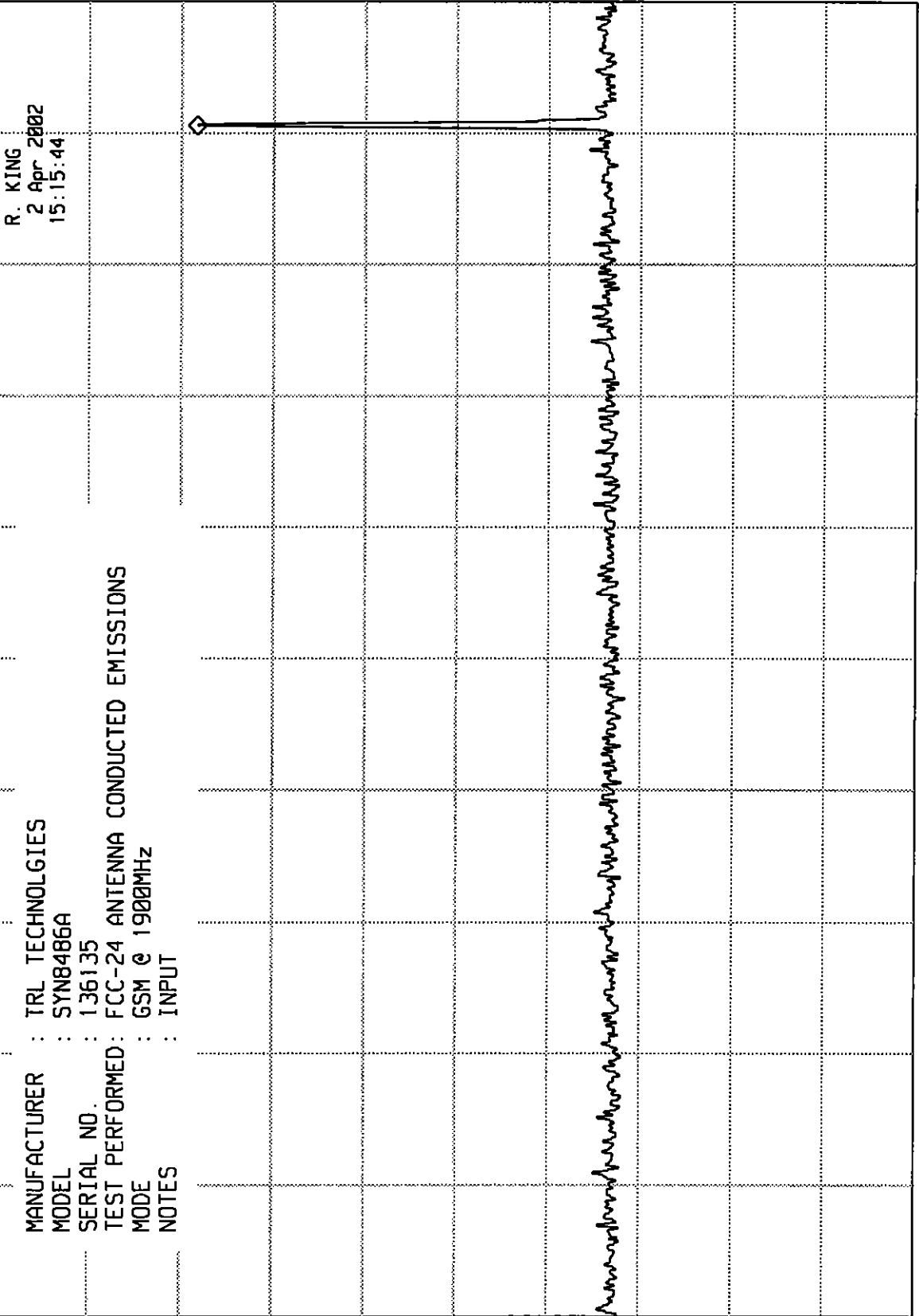
START 30 MHz RES BW 100 kHz(i) VBW 300 kHz STOP 1.000 GHz
 SWP 728 msec

ELITE ELECTRONIC ENGINEERING CO

MKR 1.905 GHz
-14.70 dBm

REF 7.0 dBm
ATTEN 20 dB + 40 dB EXT.

MANUFACTURER : TRL TECHNOLOGIES
MODEL : SYN8486A
SERIAL NO. : 136135
TEST PERFORMED : FCC-24 ANTENNA CONDUCTED EMISSIONS
MODE : GSM @ 1900MHz
NOTES : INPUT



hp

10 dB/

DL -53.0
dBm

START 1.00 GHz
RES BW 1 MHz(i)
UBW 3 MHz
STOP 2.00 GHz
SWP 25.0 msec

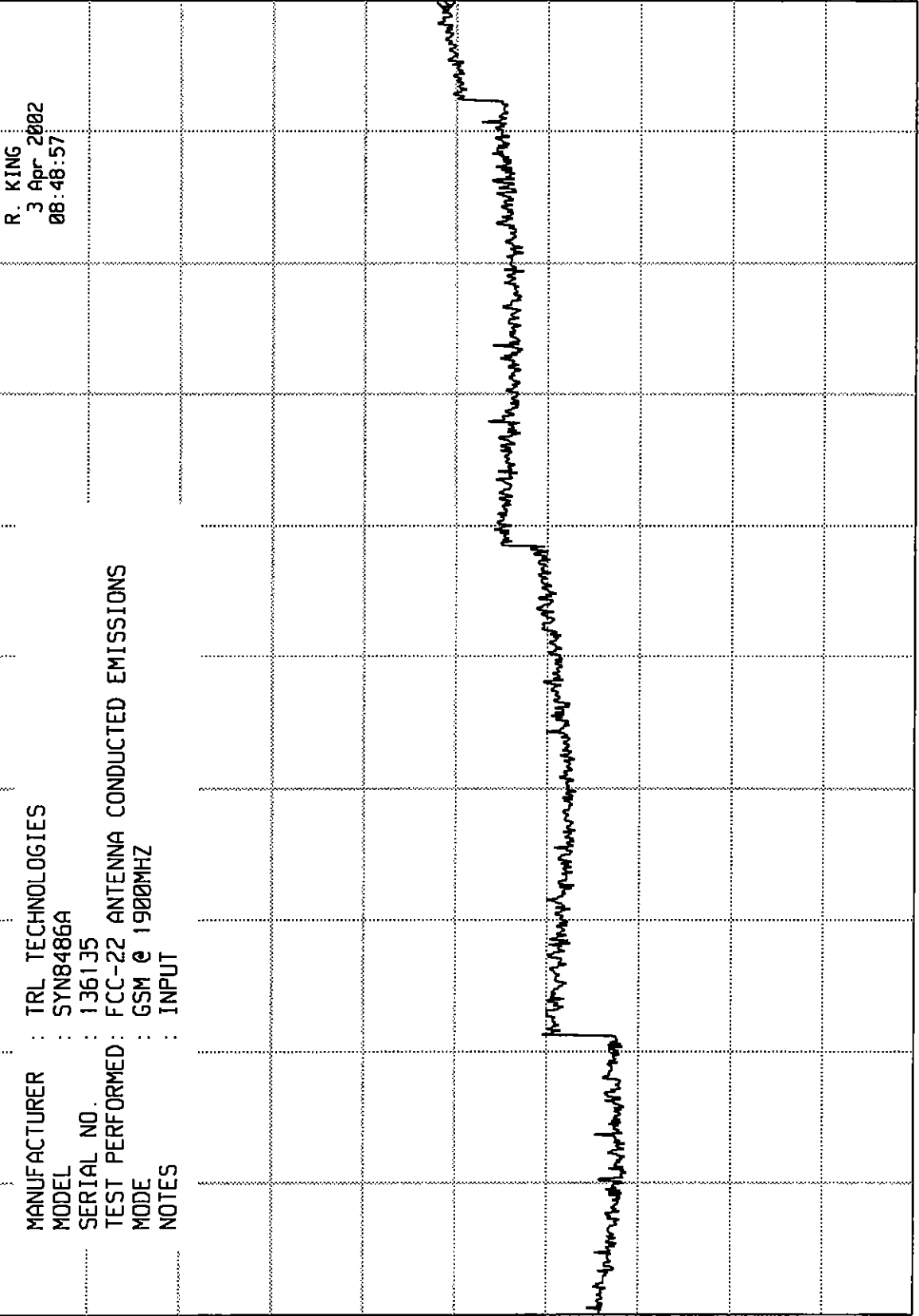
ELITE ELECTRONIC ENGINEERING CO

MKR 19.96 GHz
-41.80 dBm

REF 7.0 dBm ATTEN 20 dB + 20 dB EXT

hp

10 dB/



DL -33.0 dBm

START 2.0 GHz RES BW 1 MHz (i) VBW 3 MHz STOP 20.0 GHz
SWP 450 msec

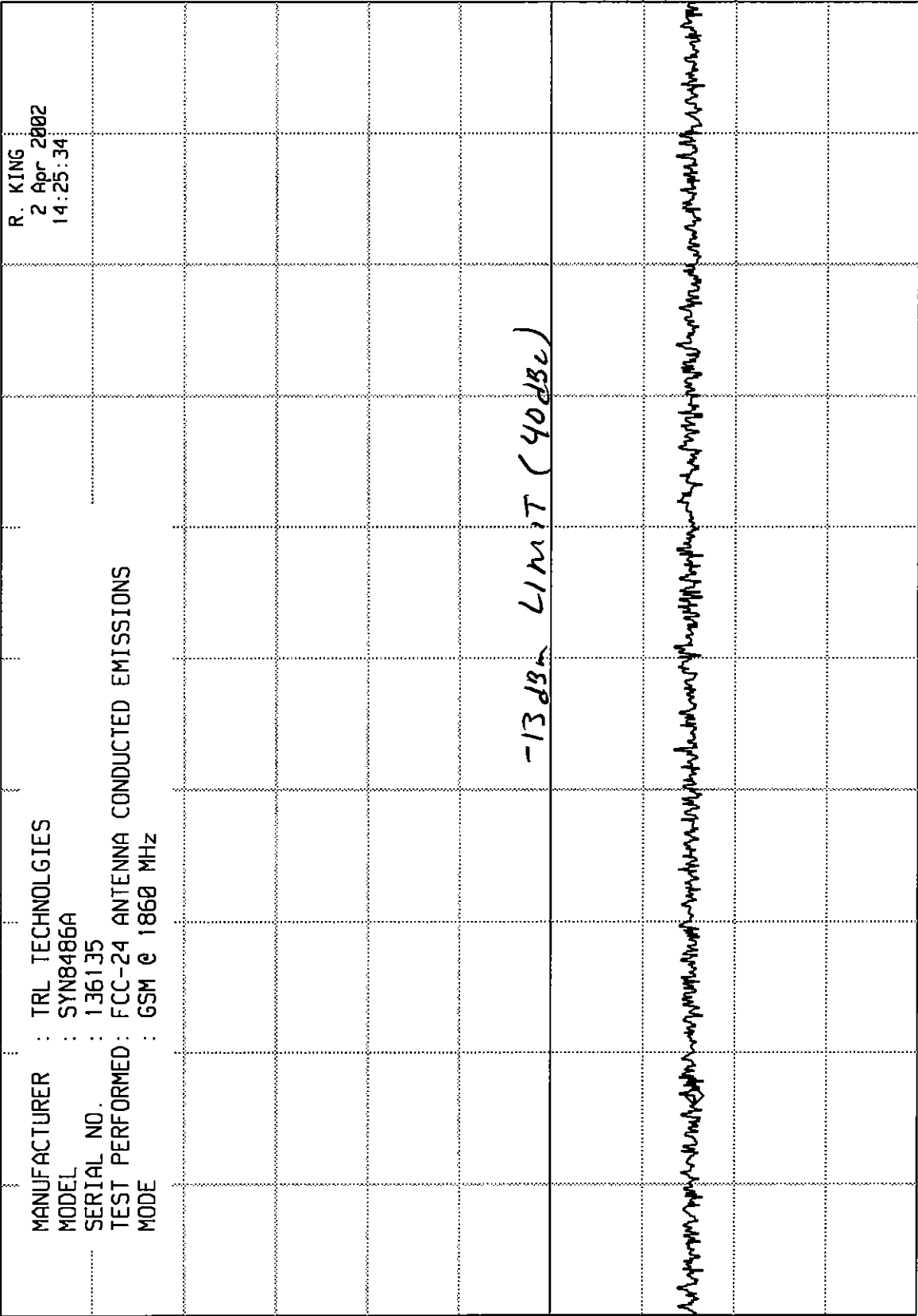
ELITE ELECTRONIC ENGINEERING CO

MKR 191.0 MHz
-68.70 dBm

REF 7.0 dBm ATTEN 20 dB + 40 dB Ext.

hp

10 dB/



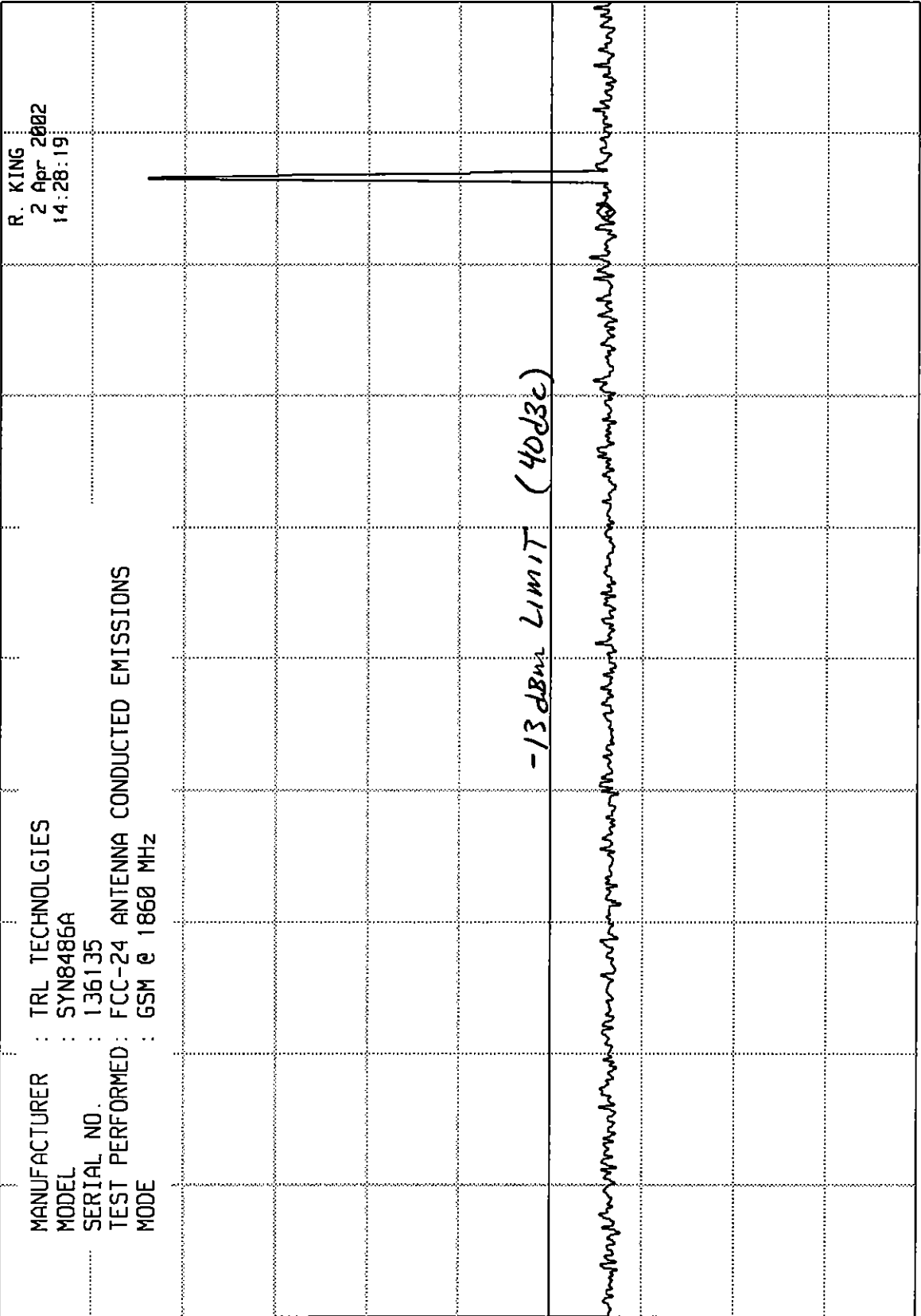
DL -53.0 dBm

START 30 MHz RES BW 100 kHz(i) VBW 300 kHz STOP 1.000 GHz
SWP 728 msec

ELITE ELECTRONIC ENGINEERING CO

MKR 1.839 GHz
-58.90 dBm

REF 7.0 dBm ATTN 20 dB + 40 dB EXT



hp

10 dB/

DL -53.0 dBm

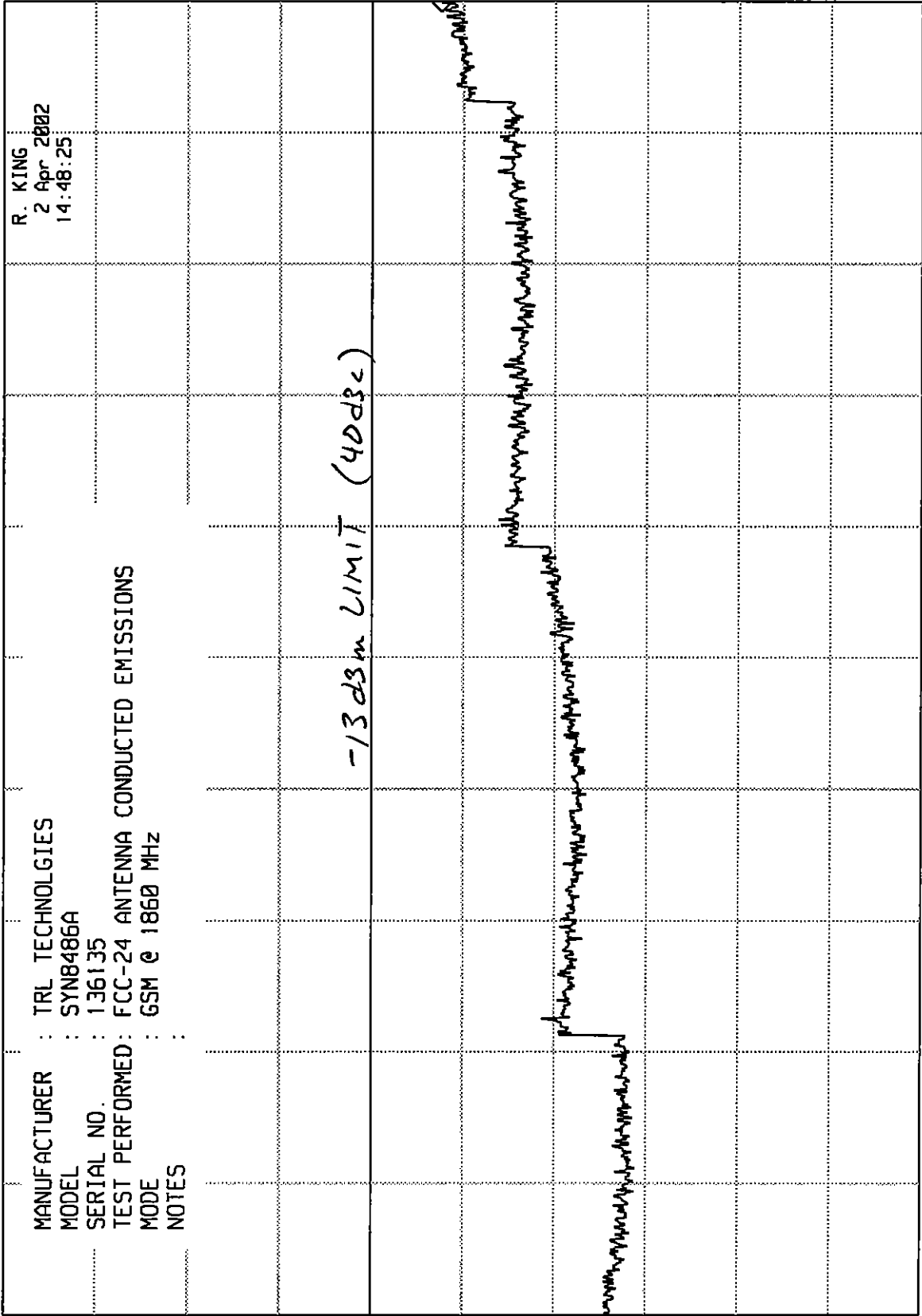
START 1.00 GHz RES BW 1 MHz(i) UBW 3 MHz STOP 2.00 GHz
SWP 25.0 msec

ELITE ELECTRONIC ENGINEERING CO

MKR 19.96 GHz
-40.60 dBm

REF 7.0 dBm ATTEN 20 dB + 20 dB EXT

hp
10 dB/



DL
-33.0
dBm

START 2.0 GHz RES BW 1 MHz (i) VBW 3 MHz STOP 20.0 GHz
SWP 450 msec

ELITE ELECTRONIC ENGINEERING CO

MKR 191.0 MHz
-67.50 dBm

REF 7.0 dBm ATTN 20 dB + 40 ~~dB~~xt

MANUFACTURER : TRL TECHNOLOGIES	R. KING 2 Apr 2002 14:34:27
MODEL : SYN8486A	
SERIAL NO. : 136135	
TEST PERFORMED : FCC-24 ANTENNA CONDUCTED EMISSIONS	
MODE : GSM @ 1880 MHz	
NOTES :	
-13 dBm LIMIT (40 dBc)	
<i>[Handwritten notes and signature]</i>	

hp

10 dB/

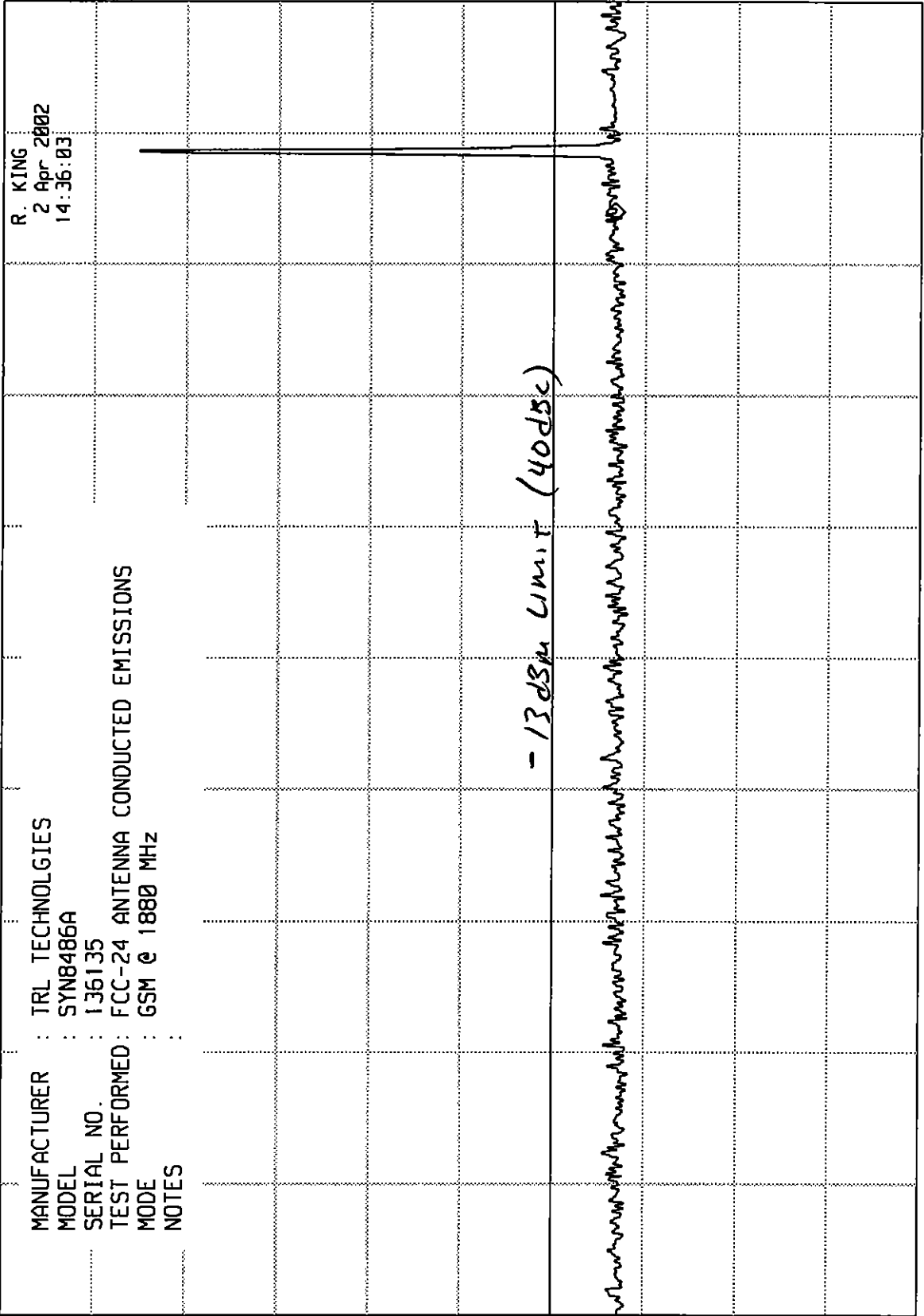
DL -53.0 dBm

START 30 MHz RES BW 100 kHz(i) UBW 300 kHz STOP 1.000 GHz
SWP 728 msec

ELITE ELECTRONIC ENGINEERING CO

MKR 1.839 GHz
-59.70 dBm

REF 7.0 dBm ATTN 20 dB + 40 dB EXT



hp

10 dB/

DL -53.0
dBm

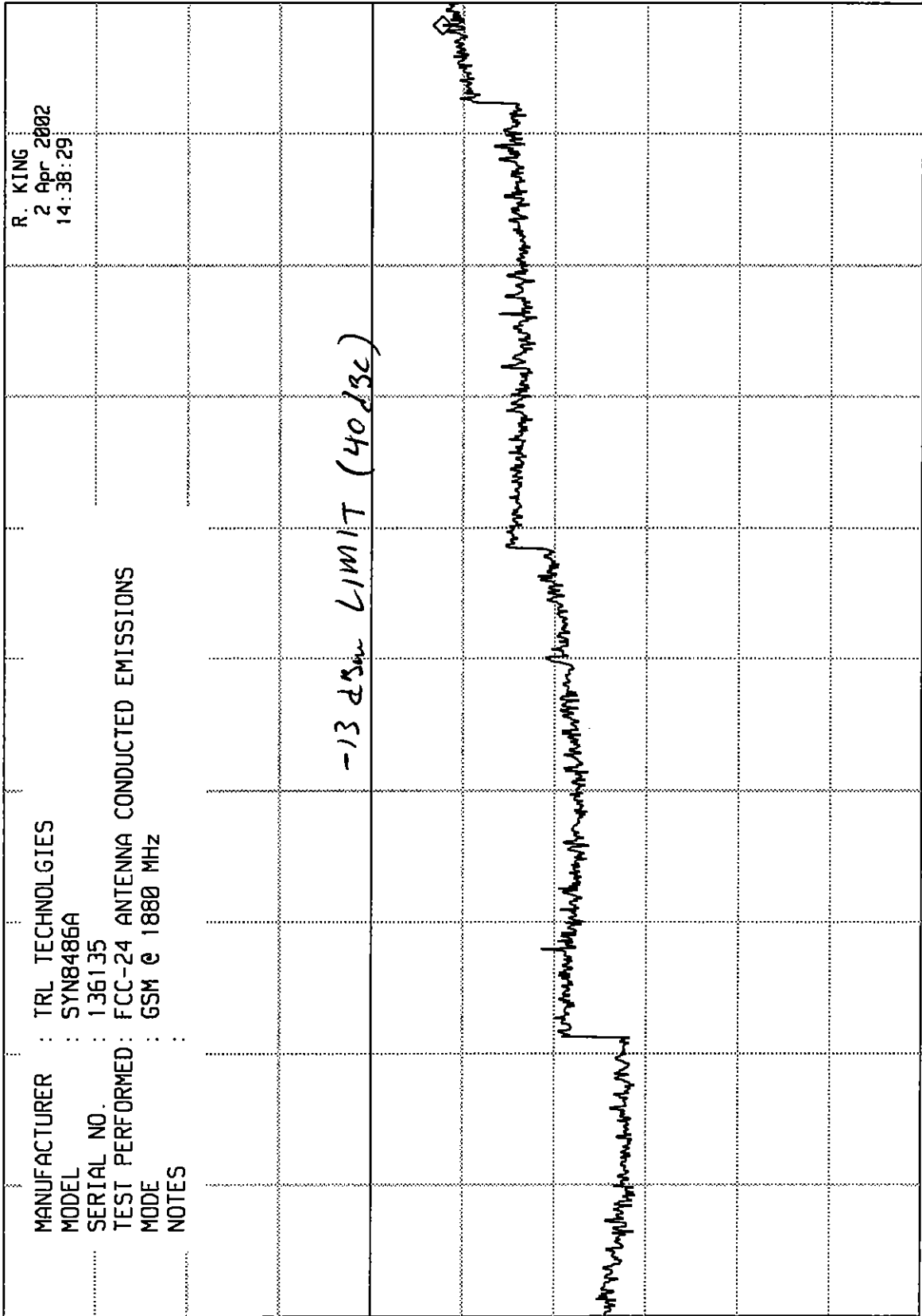
START 1.00 GHz RES BW 1 MHz (i) UBW 3 MHz STOP 2.00 GHz
SWP 25.0 msec

ELITE ELECTRONIC ENGINEERING CO

MKR 19.68 GHz
-40.70 dBm

REF 7.0 dBm ATTN 20 dB + 20 dB Ext

hp
10 dB/



R. KING
2 Apr 2002
14:38:29

MANUFACTURER : TRL TECHNOLOGIES
MODEL : SYN8486A
SERIAL NO. : 136135
TEST PERFORMED : FCC-24 ANTENNA CONDUCTED EMISSIONS
MODE : GSM @ 1880 MHz
NOTES :

DL
-33.0
dBm

START 2.0 GHz RES BW 1 MHz (i) VBW 3 MHz STOP 20.0 GHz
SWP 450 msec

ELITE ELECTRONIC ENGINEERING CO

MKR 1.839 GHz
-59.10 dBm

hp

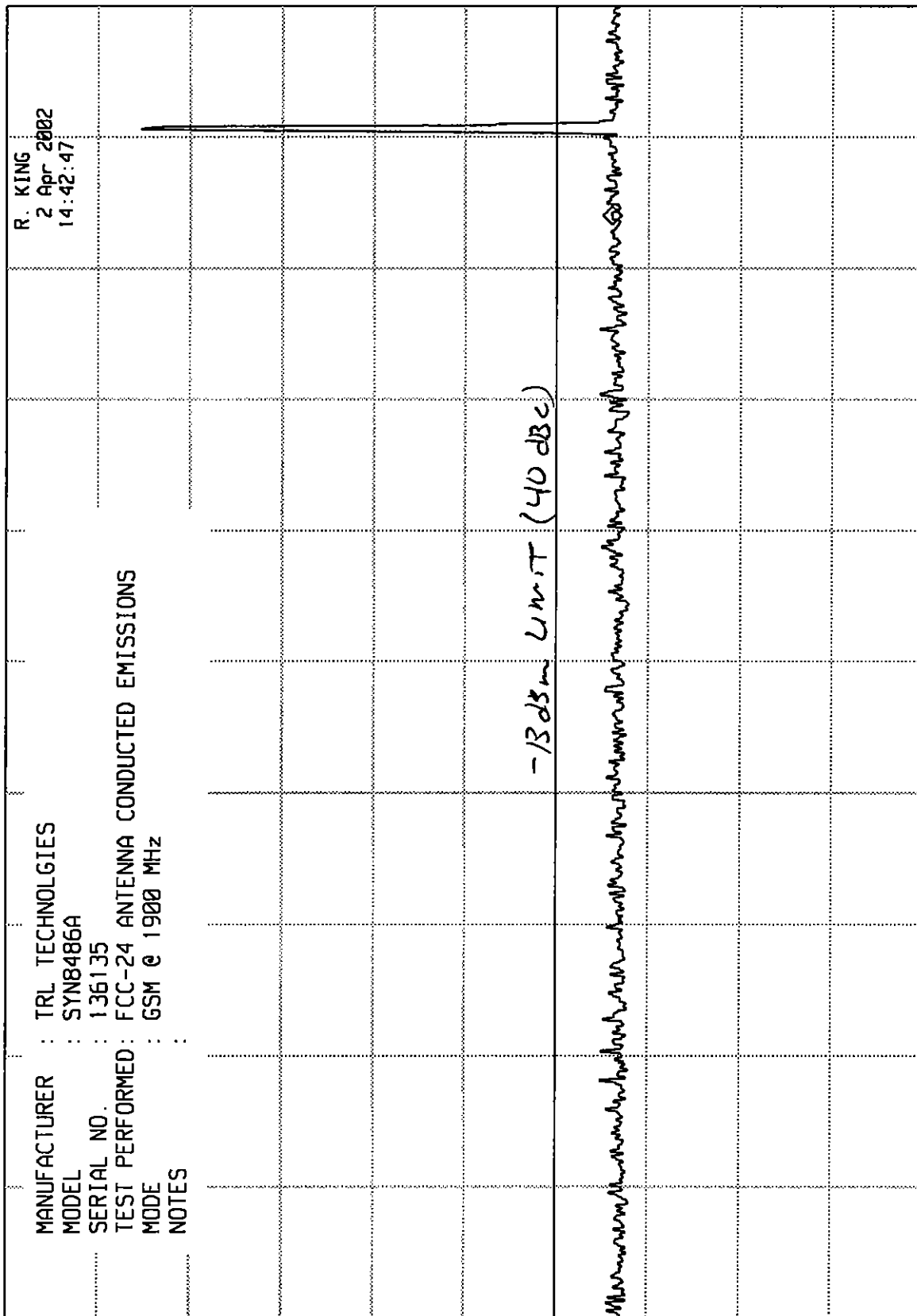
REF 7.0 dBm ATTEN 20 dB +40 dB Ext

10 dB/

MANUFACTURER : TRL TECHNOLOGIES
MODEL : SYN8486A
SERIAL NO. : 136135
TEST PERFORMED : FCC-24 ANTENNA CONDUCTED EMISSIONS
MODE : GSM @ 1900 MHz
NOTES :

R. KING
2 Apr 2002
14:42:47

DL -53.0 dBm



START 1.00 GHz RES BW 1 MHz(i) STOP 2.00 GHz SWP 25.0 msec

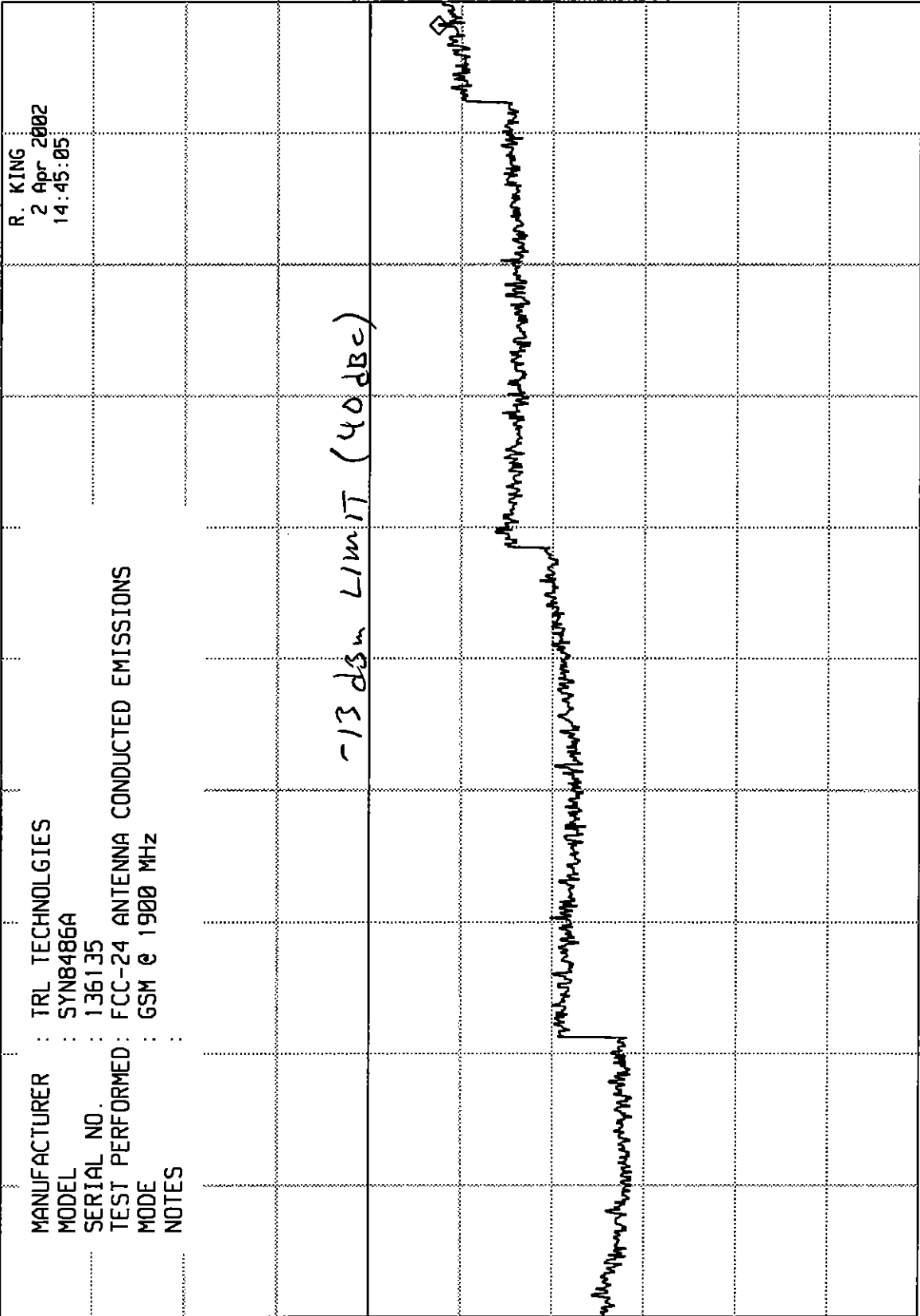
VBW 3 MHz

ELITE ELECTRONIC ENGINEERING CO

MKR 19.66 GHz
-40.50 dBm

REF 7.0 dBm ATTEN 20 dB + 2e d3 Ext

hp
10 dB/



DL
-33.0
dBm

START 2.0 GHz RES BW 1 MHz (i) VBW 3 MHz STOP 20.0 GHz
SWP 450 msec

ELITE ELECTRONIC ENGINEERING Co.

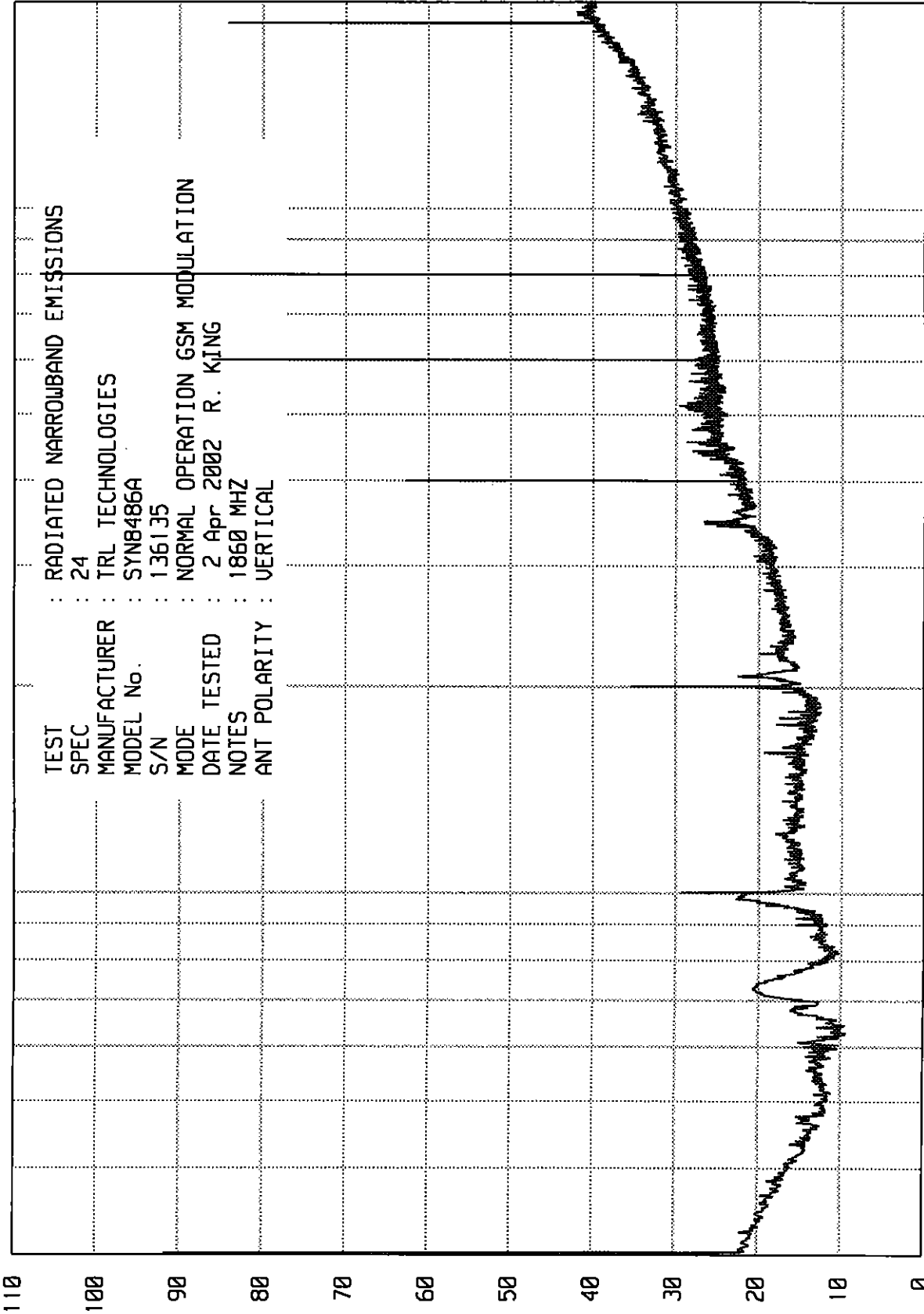
Downers Grove, Ill. 60515

UNTV_EM_RUN RUN 7

JKAB 11/26/01

EEE

TEST : RADIATED NARROWBAND EMISSIONS
 SPEC : 24
 MANUFACTURER : TRL TECHNOLOGIES
 MODEL No. : SYN8486A
 S/N : 136135
 MODE : NORMAL OPERATION GSM MODULATION
 DATE TESTED : 2 Apr 2002 R. KING
 NOTES : 1860 MHZ
 ANT POLARITY : VERTICAL



RADIATED NARROWBAND EMISSIONS - dBu/m

Page 53 of 67

STOP = 2000

1000

FREQUENCY - MHz

100

START = 30

ELITE ELECTRONIC ENGINEERING Co.

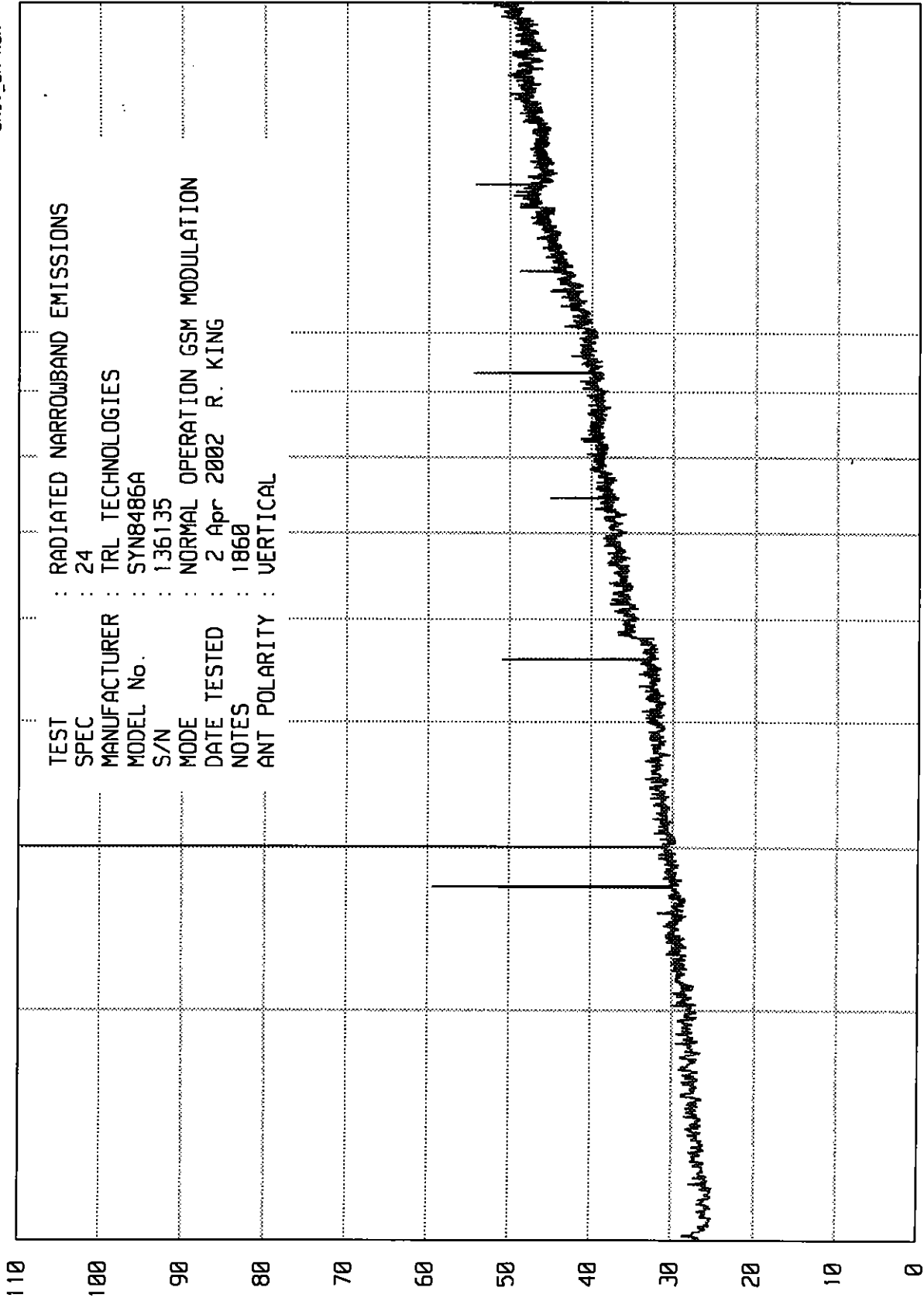
Downers Grove, Ill. 60515

UNIU_EM RUN RUN 6

WJKB 11/26/01

EE

TEST : RADIATED NARROWBAND EMISSIONS
 SPEC : 24
 MANUFACTURER : TRL TECHNOLOGIES
 MODEL No. : SYN8486A
 S/N : 136135
 MODE : NORMAL OPERATION GSM MODULATION
 DATE TESTED : 2 Apr 2002 R. KING
 NOTES : 1860
 ANT POLARITY : VERTICAL



RADIATED NARROWBAND EMISSIONS - dBu/m

Page 54 of 65

STOP = 18000

10000

FREQUENCY - MHz

START = 2000

ELITE ELECTRONIC ENGINEERING Co.

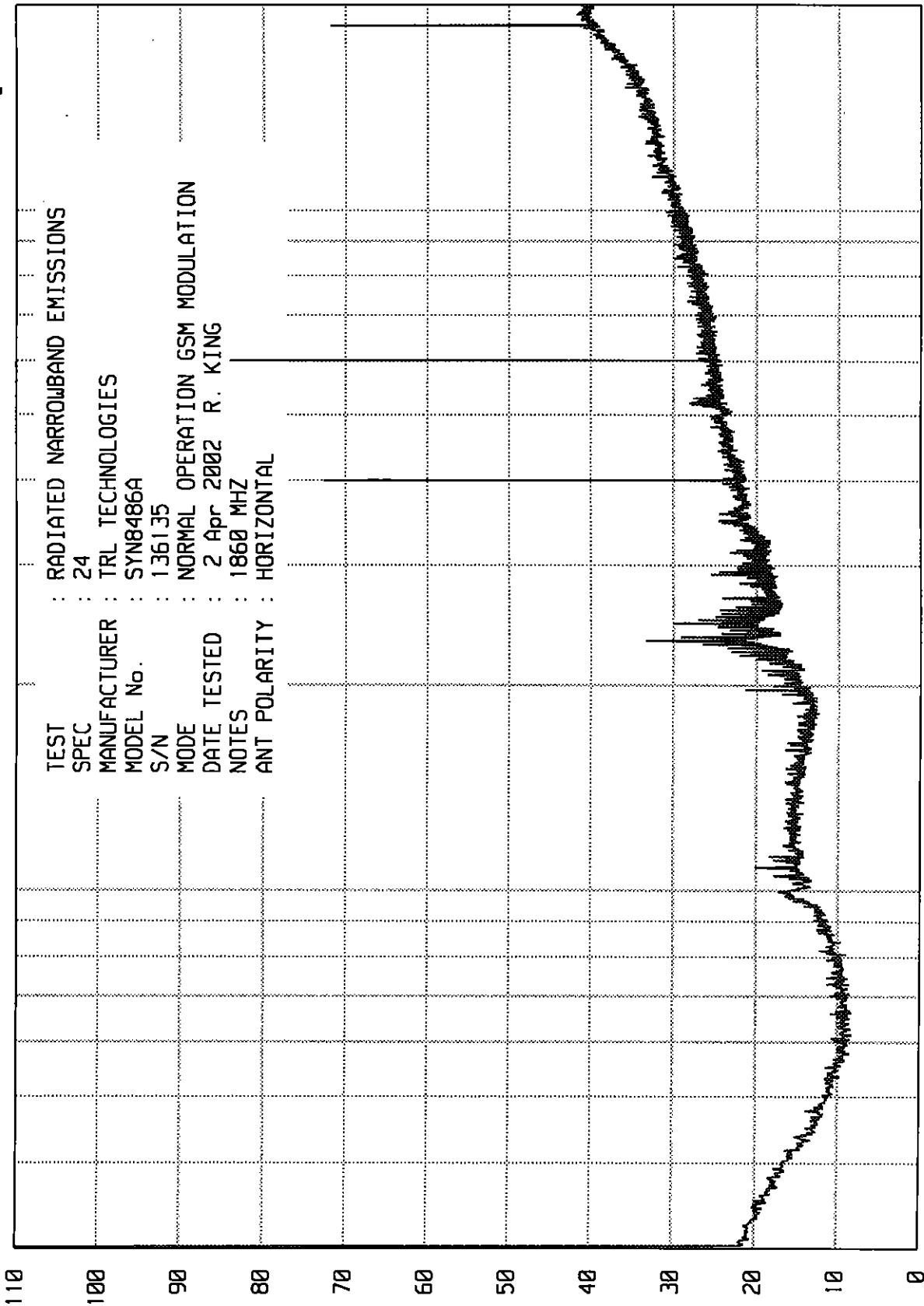
Downers Grove, Ill. 60515

UNIU_EM RUN RUN 7

UJKAB 11/26/01

EEE

TEST : RADIATED NARROWBAND EMISSIONS
 SPEC : 24
 MANUFACTURER : TRL TECHNOLOGIES
 MODEL No. : SYN8486A
 S/N : 136135
 MODE : NORMAL OPERATION GSM MODULATION
 DATE TESTED : 2 Apr 2002 R. KING
 NOTES : 1860 MHZ
 ANT POLARITY : HORIZONTAL



STOP = 2000

1000

FREQUENCY - MHz

100

START = 30

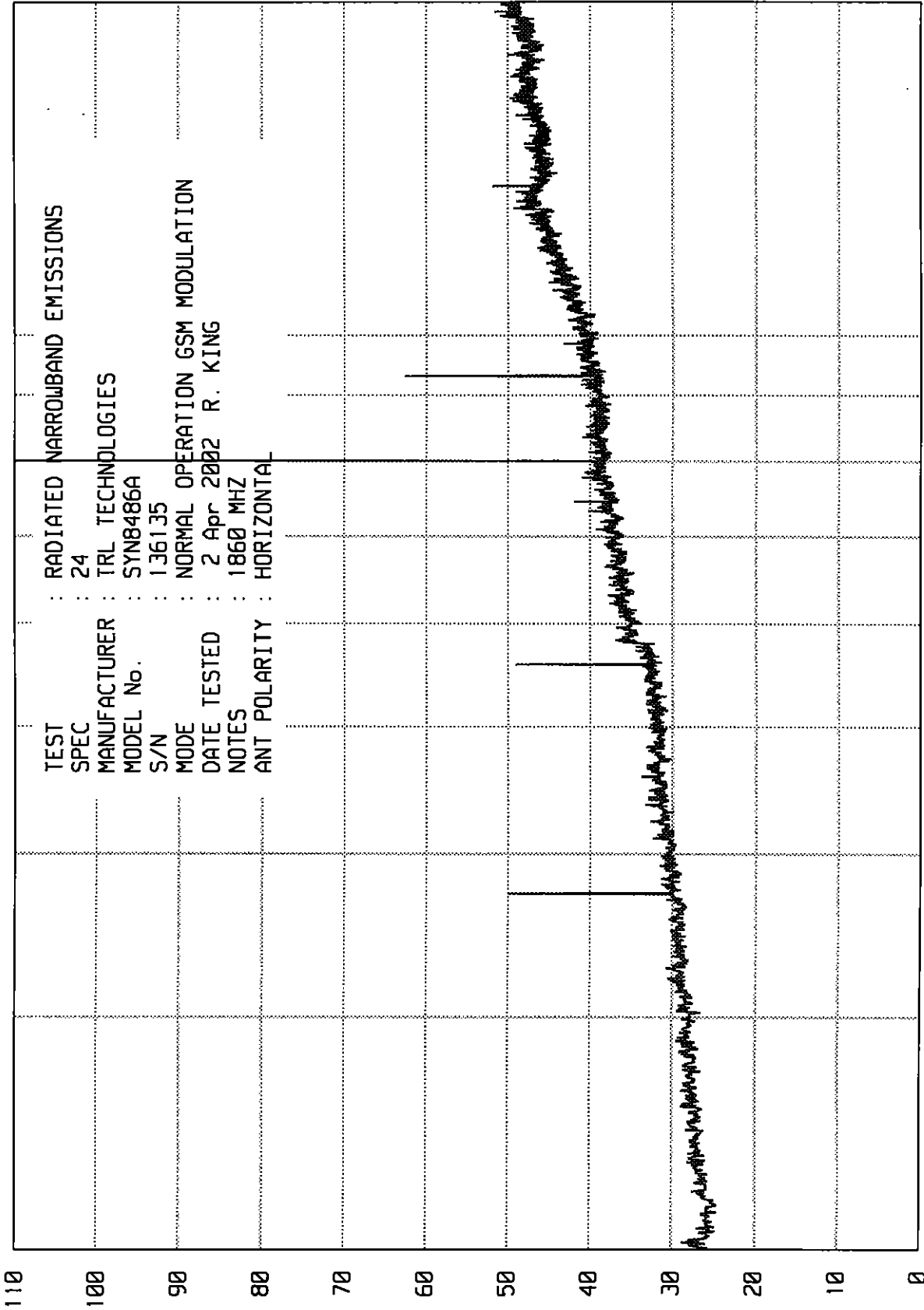
ELITE ELECTRONIC ENGINEERING Co.

Downers Grove, Ill. 60515

UNIU_EM RUN RUN 6

UK98 11/26/81

EE



TEST : RADIATED NARROWBAND EMISSIONS
 SPEC : 24
 MANUFACTURER : TRL TECHNOLOGIES
 MODEL No. : SYN8486A
 S/N : 136135
 MODE : NORMAL OPERATION GSM MODULATION
 DATE TESTED : 2 Apr 2002 R. KING
 NOTES : 1860 MHZ
 ANT POLARITY : HORIZONTAL

RADIATED NARROWBAND EMISSIONS - dBu/m

STOP = 18000

10000

FREQUENCY - MHz

START = 2000

ELITE ELECTRONIC ENGINEERING Co.

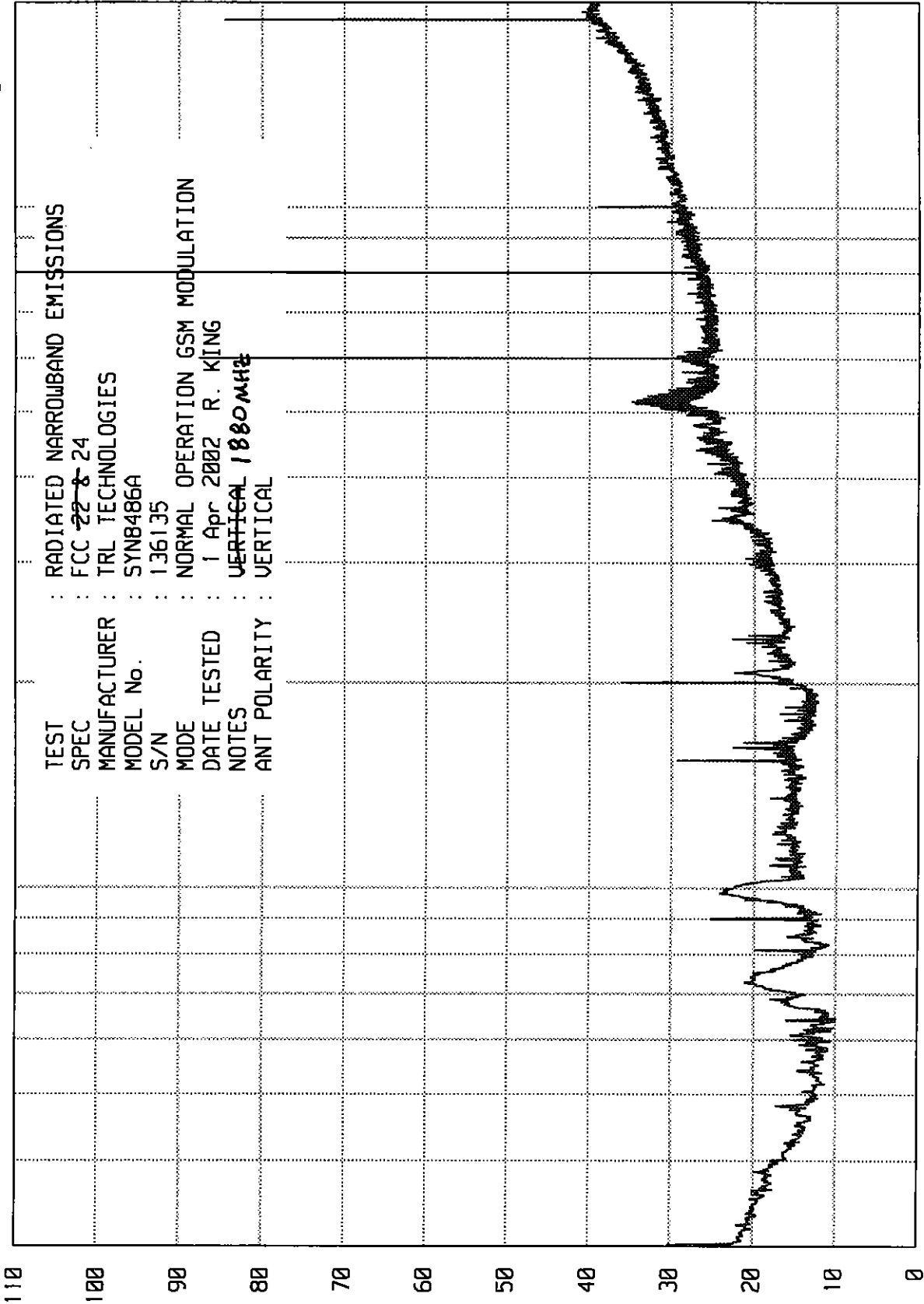
Downers Grove, Ill. 60515

UNIU_EM RUN RUN 1

WKA00 11/26/01

EEC

TEST : RADIATED NARROWBAND EMISSIONS
 SPEC : FCC ~~22~~ 8-24
 MANUFACTURER : TRL TECHNOLOGIES
 MODEL No. : SYN8486A
 S/N : 136135
 MODE : NORMAL OPERATION GSM MODULATION
 DATE TESTED : 1 Apr 2002 R. KING
 NOTES : VERTICAL 1880MHz
 ANT POLARITY : VERTICAL



STOP = 2000

1000

FREQUENCY - MHz

100

START = 30

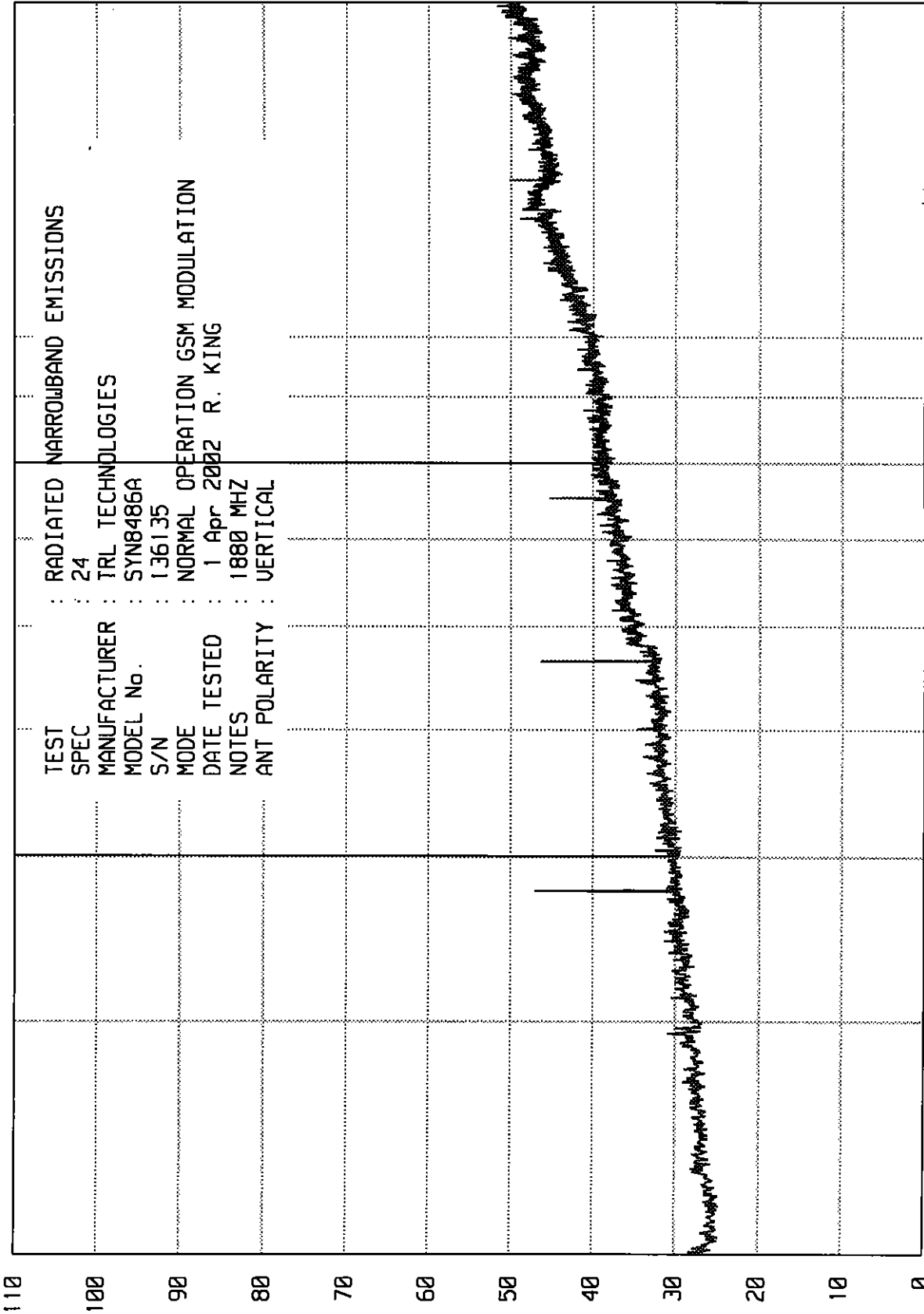
ELITE ELECTRONIC ENGINEERING Co.

Downers Grove, Ill. 60515

UNIV_EM RUN RUN 4

UKA00 11/26/01

EEE



TEST : RADIATED NARROWBAND EMISSIONS
 SPEC : 24
 MANUFACTURER : TRL TECHNOLOGIES
 MODEL No. : SYN8486A
 S/N : 136135
 MODE : NORMAL OPERATION GSM MODULATION
 DATE TESTED : 1 Apr 2002 R. KING
 NOTES : 1880 MHZ
 ANT POLARITY : VERTICAL

RADIATED NARROWBAND EMISSIONS - dBu/m

Page 58 of 67

STOP = 18000

FREQUENCY - MHz

START = 2000

ELITE ELECTRONIC ENGINEERING Co.

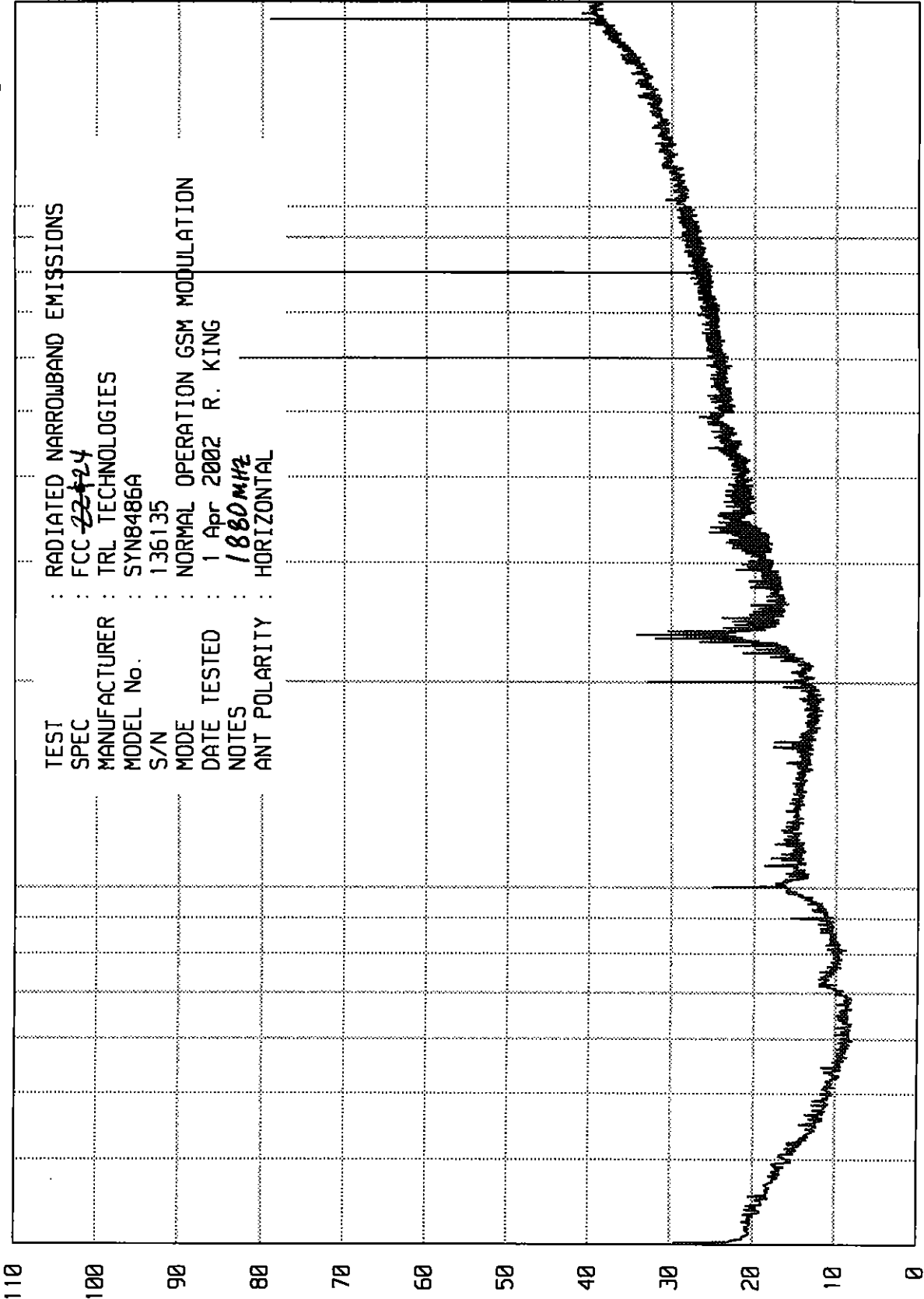
Downers Grove, Ill. 60515

UNIU_EM RUN RUN 1

WKAB 11/26/01

EEC

TEST : RADIATED NARROWBAND EMISSIONS
 SPEC : FCC ~~25424~~
 MANUFACTURER : TRL TECHNOLOGIES
 MODEL No. : SYN8486A
 S/N : 136135
 MODE : NORMAL OPERATION GSM MODULATION
 DATE TESTED : 1 Apr 2002 R. KING
 NOTES : 1880 MHz
 ANT POLARITY : HORIZONTAL



STOP = 2000

FREQUENCY - MHz

START = 30

ELITE ELECTRONIC ENGINEERING Co.

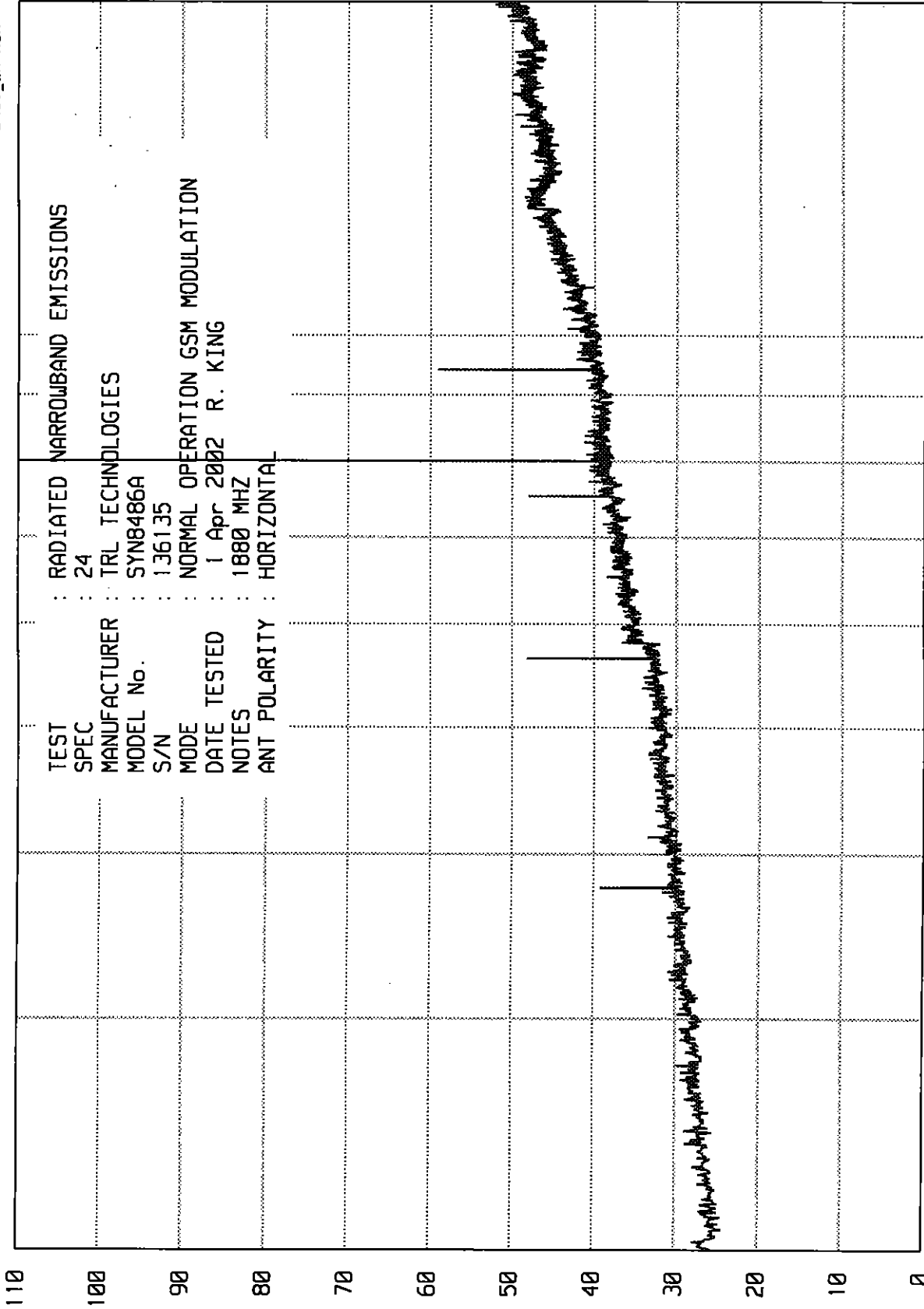
Downers Grove, Ill. 60515

UNTV_EM RUN RUN 4

WKA0 11/26/01

EE

TEST : RADIATED NARROWBAND EMISSIONS
 SPEC : 24
 MANUFACTURER : TRL TECHNOLOGIES
 MODEL No. : SYN8486A
 S/N : 136135
 MODE : NORMAL OPERATION GSM MODULATION
 DATE TESTED : 1 Apr 2002 R. KING
 NOTES : 1880 MHZ
 ANT POLARITY : HORIZONTAL



RADIATED NARROWBAND EMISSIONS - dBu/m

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START = 2000

FREQUENCY - MHZ

10000

STOP = 18000

ELITE ELECTRONIC ENGINEERING Co.

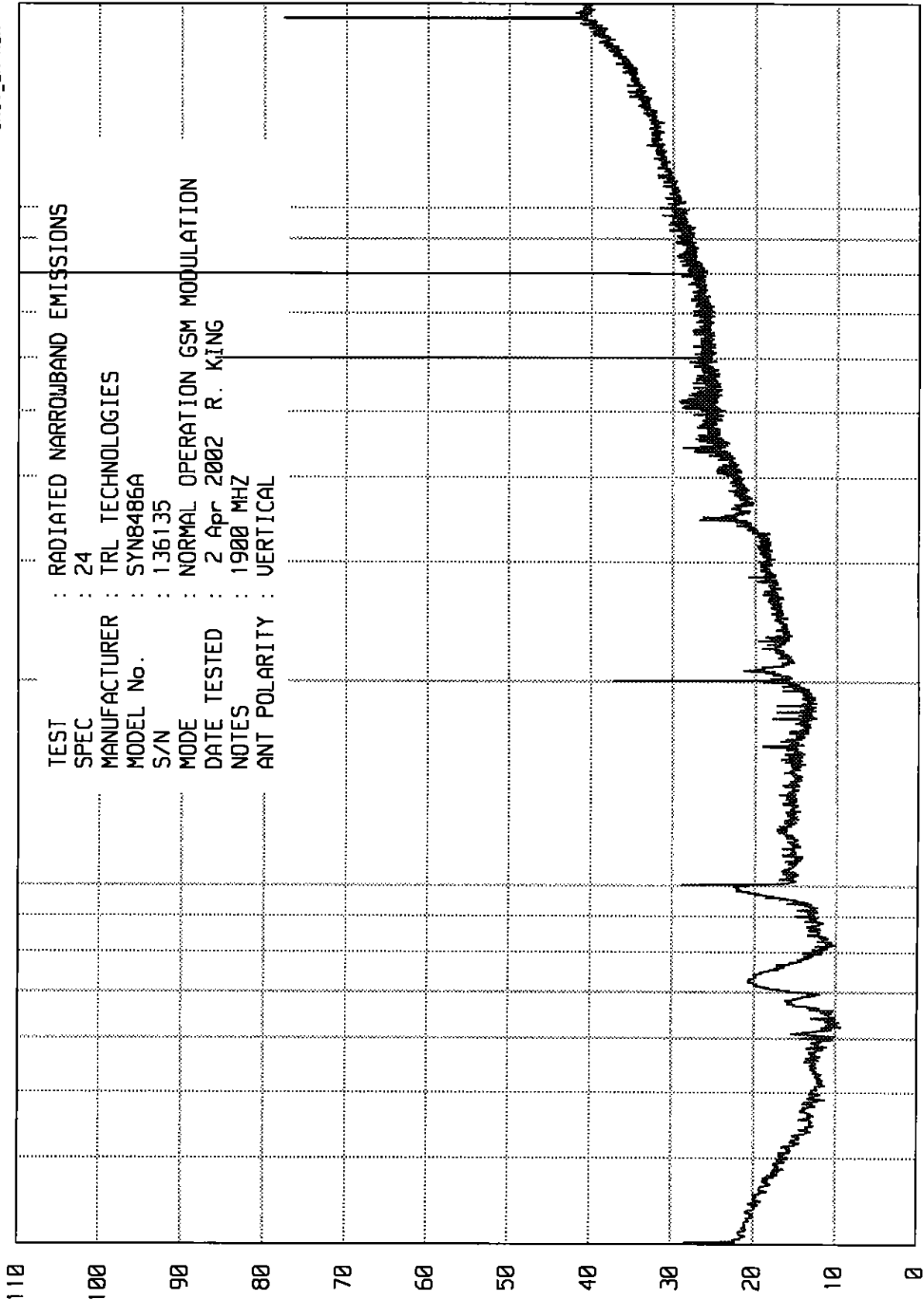
Downers Grove, Ill. 60515

UNIU_EM RUN RUN 7

WJKB 11/26/81

EEC

TEST : RADIATED NARROWBAND EMISSIONS
 SPEC : 24
 MANUFACTURER : TRL TECHNOLOGIES
 MODEL No. : SYN8486A
 S/N : 136135
 MODE : NORMAL OPERATION GSM MODULATION
 DATE TESTED : 2 Apr 2002 R. KING
 NOTES : 1900 MHZ
 ANT POLARITY : VERTICAL



RADIATED NARROWBAND EMISSIONS - dBu/m

START = 30

FREQUENCY - MHz

100

1000

STOP = 2000

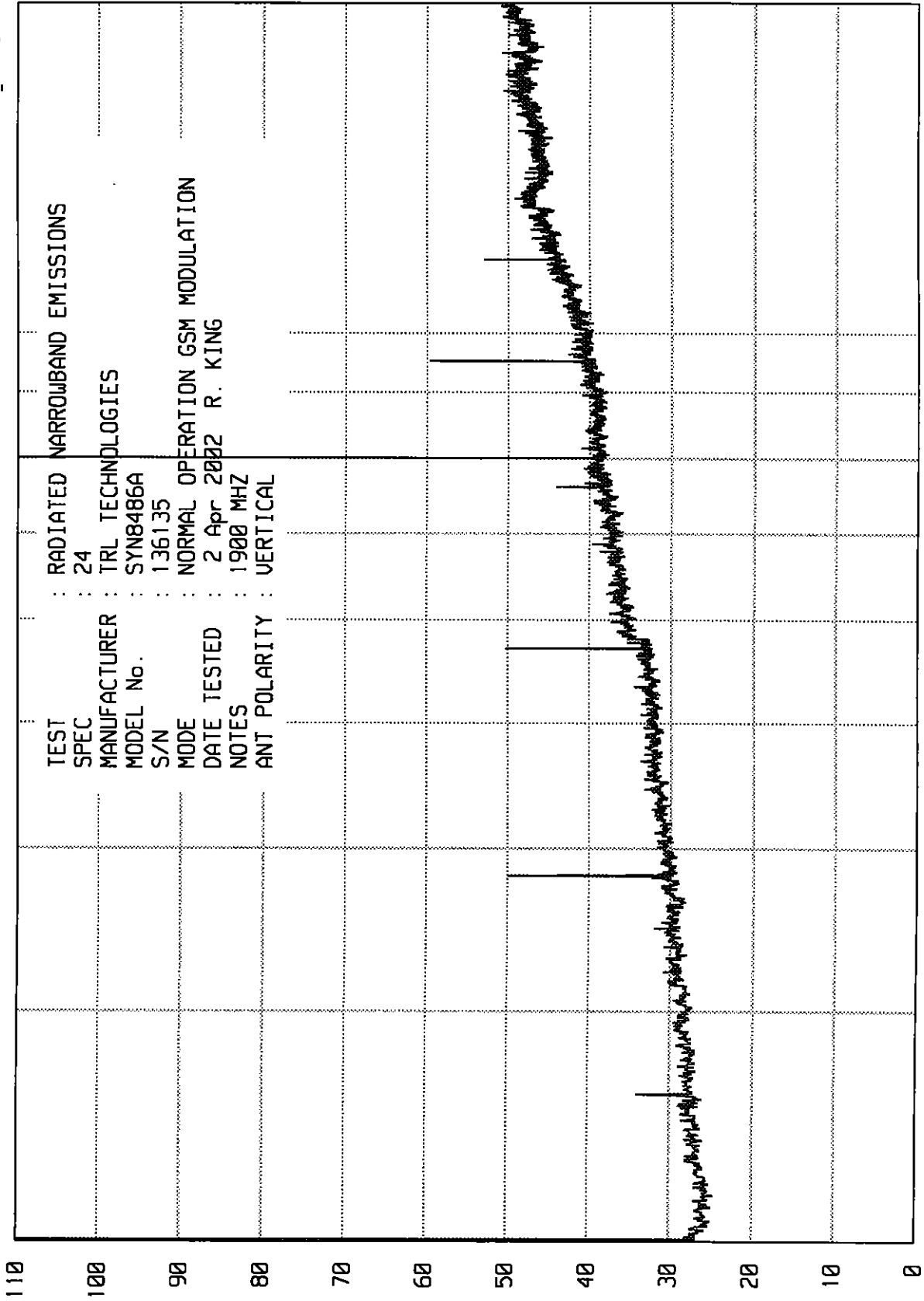
ELITE ELECTRONIC ENGINEERING Co.

Downers Grove, Ill. 60515

UNTV_EM RUN RUN 6

WJKAB 11/26/01

EE



TEST : RADIATED NARROWBAND EMISSIONS
 SPEC : 24
 MANUFACTURER : TRL TECHNOLOGIES
 MODEL No. : SYN8486A
 S/N : 136135
 MODE : NORMAL OPERATION GSM MODULATION
 DATE TESTED : 2 Apr 2002 R. KING
 NOTES : 1900 MHZ
 ANT POLARITY : VERTICAL

RADIATED NARROWBAND EMISSIONS - dBu/m

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STOP = 18000

10000

FREQUENCY - MHz

START = 2000

ELITE ELECTRONIC ENGINEERING Co.

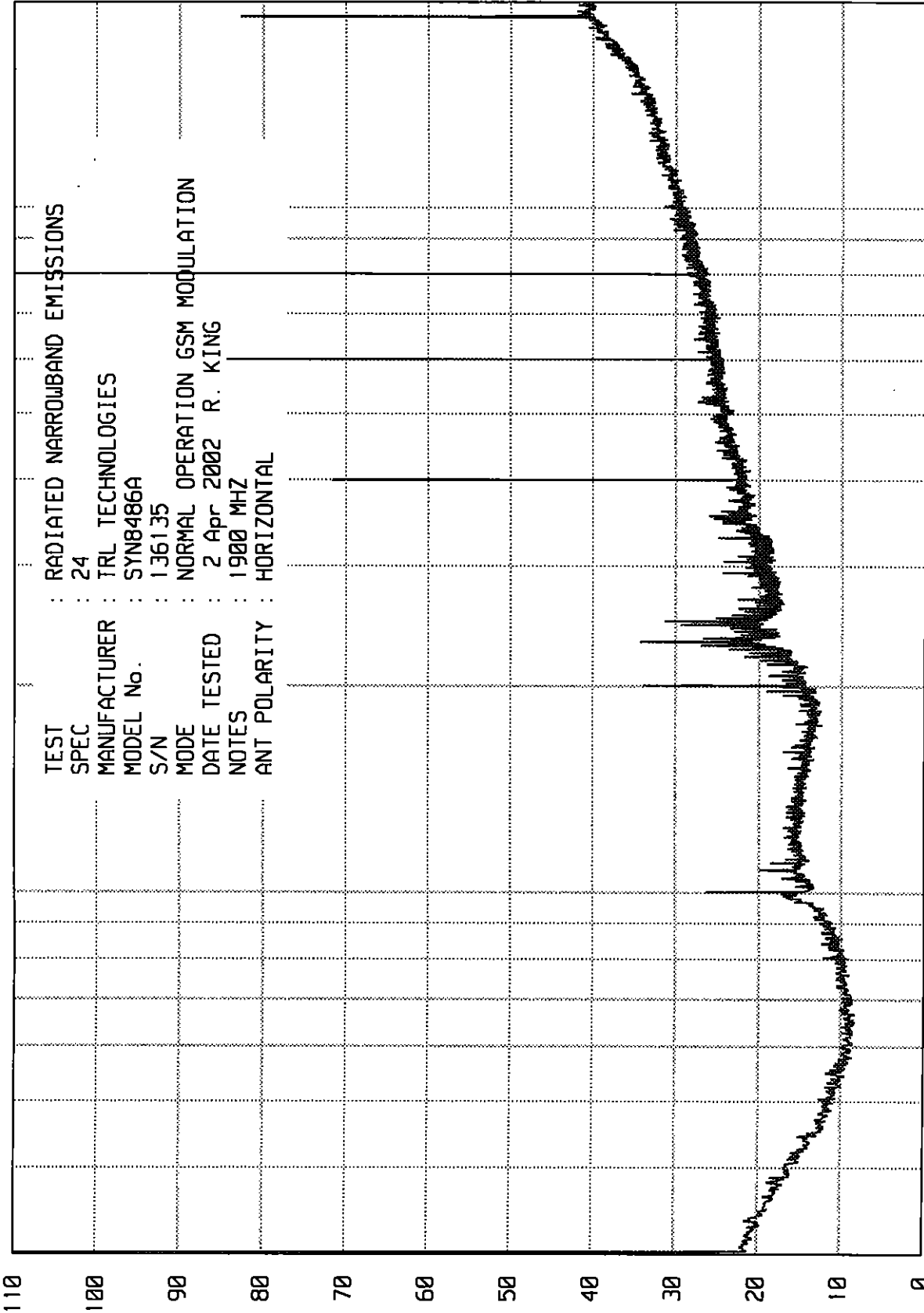
Downers Grove, Ill. 60515

UNIV_EM RUN RUN 7

WJKB 11/26/01

EEC

TEST : RADIATED NARROWBAND EMISSIONS
 SPEC : 24
 MANUFACTURER : TRL TECHNOLOGIES
 MODEL No. : SYN8486A
 S/N : 136135
 MODE : NORMAL OPERATION GSM MODULATION
 DATE TESTED : 2 Apr 2002 R. KING
 NOTES : 1900 MHZ
 ANT POLARITY : HORIZONTAL



RADIATED NARROWBAND EMISSIONS - dBu/m

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STOP = 2000

1000

FREQUENCY - MHz

100

START = 30

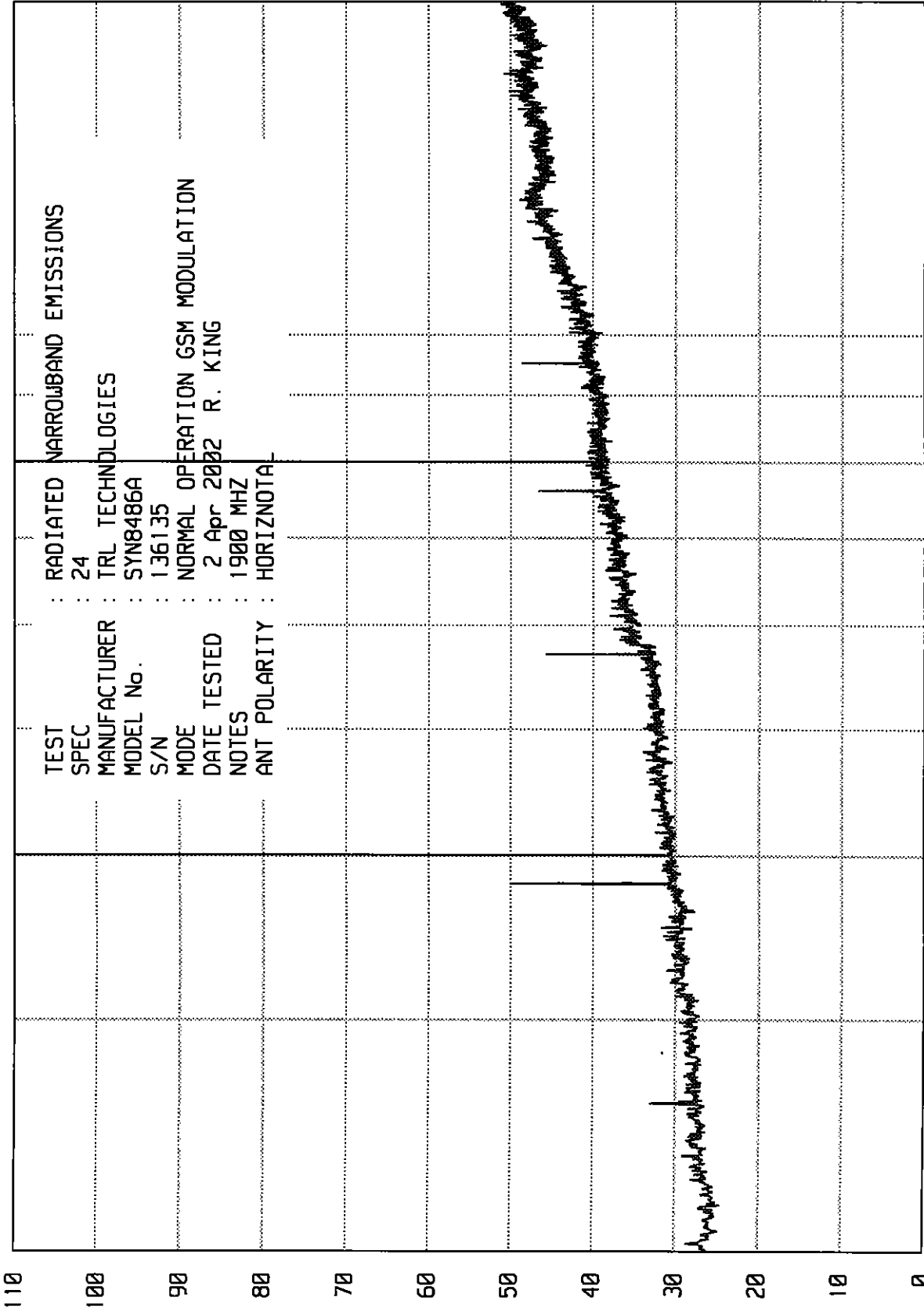
ELITE ELECTRONIC ENGINEERING Co.

Downers Grove, Ill. 60515

UNTV_EM RUN RUN 6

JKR0 11/26/01

EEE



TEST : RADIATED NARROWBAND EMISSIONS
 SPEC : 24
 MANUFACTURER : TRL TECHNOLOGIES
 MODEL No. : SYN8486A
 S/N : 136135
 MODE : NORMAL OPERATION GSM MODULATION
 DATE TESTED : 2 Apr 2002 R. KING
 NOTES : 1900 MHZ
 ANT POLARITY : HORIZNOTAL

RADIATED NARROWBAND EMISSIONS - dBu/m

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START = 2000

FREQUENCY - MHz

10000

STOP = 18000



ETR 30862-01
DATA SHEET

MANUFACTURER : TRL TECHNOLOGIES
MODEL : SYN8486A
S/N : NONE ASSIGNED
SPECIFICATION : FCC-24 OPEN FIELD SPURIOUS RADIATED EMISSIONS
DATE : APRIL 1, 2002
NOTES : GSM @ 1860MHz, FULL OUTPUT
: TEST DISTANCE IS 3 METERS

FREQ. (MHz)	ANT POL	MTR RDG (dBuV)	MATCHED SIGNAL dBm	ANT GAIN dB	CABLE FAC dB	ERP TOTAL dBm	ATTN dB	MIN ATTN dB
3720.0	H	61.3	-33.0	5.6	3.6	-31.0	58.0	40
3720.0	V	54.4	-39.5	5.6	3.6	-37.5	64.5	40
5580.0	H	51.0	-41.0	7.0	4.3	-38.3	65.3	40
5580.0	V	50.0	-39.0	7.0	4.3	-36.3	63.3	40
7440.0	H	43.9	-46.0	7.1	5.7	-44.6	71.6	40
7440.0	V	45.9	-42.0	7.1	5.7	-40.6	67.6	40
9300.0	H	61.4	-24.0	8.3	6.3	-22.0	49.0	40
9300.0	V	60.8	-21.5	8.3	6.3	-19.5	46.5	40
11160.0	H	43.8	-43.5	7.8	6.9	-42.6	69.6	40
11160.0	V	50.3	-33.4	7.8	6.9	-32.5	59.5	40
13020.0	H	48.7	-33.5	8.6	7.5	-32.4	59.4	40
13020.0	V	48.2	-31.5	8.6	7.5	-30.4	57.4	40
14880.0	H	42.4	-31.0	9.0	8.1	-30.1	57.1	40
14880.0	V	44.4	-27.5	9.0	8.1	-26.6	53.6	40
16740.0	H	42.0	-18.0	8.3	8.1	-17.8	44.8	40
16740.0	V	42.4	-18.0	8.3	8.1	-17.8	44.8	40
18600.0	H	46.5	-19.0	7.6	9.0	-20.4	47.4	40
18600.0	V	45.5	-24.0	7.6	9.0	-25.4	52.4	40

CHECKED BY:

Daniel E. Crowder

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ETR 30862-01
DATA SHEET

MANUFACTURER : TRL TECHNOLOGIES
MODEL : SYN8486A
S/N : NONE ASSIGNED
SPECIFICATION : FCC-24 OPEN FIELD SPURIOUS RADIATED EMISSIONS
DATE : APRIL 1, 2002
NOTES : GSM @ 1880MHz, FULL OUTPUT
: TEST DISTANCE IS 3 METERS

FREQ. (MHz)	ANT POL	MTR RDG (dBuV)	MATCHED SIGNAL dBm	ANT GAIN dB	CABLE FAC dB	ERP TOTAL dBm	ATTN .dB	MIN ATTN dB
3760.0	H	56.3	-35.0	5.7	3.6	-32.9	59.9	40
3760.0	V	61.8	-28.0	5.7	3.6	-25.9	52.9	40
5640.0	H	47.2	-43.0	7.0	4.3	-40.3	67.3	40
5640.0	V	49.6	-39.5	7.0	4.3	-36.8	63.8	40
7520.0	H	45.1	-43.0	7.1	5.7	-41.6	68.6	40
7520.0	V	43.8	-45.5	7.1	5.7	-44.1	71.1	40
9400.0	H	58.0	-23.5	8.4	6.3	-21.4	48.4	40
9400.0	V	52.1	-31.0	8.4	6.3	-28.9	55.9	40
11280.0	H	47.1	-34.0	7.9	6.9	-33.0	60.0	40
11280.0	V	55.2	-27.0	7.9	6.9	-26.0	53.0	40
13160.0	H	44.0	-39.0	8.7	7.5	-37.8	64.8	40
13160.0	V	46.6	-36.0	8.7	7.5	-34.8	61.8	40
15040.0	H	38.9	-40.0	9.1	8.1	-39.0	66.0	40
15040.0	V	42.1	-30.0	9.1	8.1	-29.0	56.0	40
16920.0	H	42.2	-30.0	8.4	8.1	-29.7	56.7	40
16920.0	V	43.0	-25.0	8.4	8.1	-24.7	51.7	40
18800.0	H	46.2	-23.0	7.7	9.0	-24.3	51.3	40
18800.0	V	45.6	-23.0	7.7	9.0	-24.3	51.3	40

CHECKED BY:


Daniel E. Crowder



ETR 30862-01
DATA SHEET

MANUFACTURER : TRL TECHNOLOGIES
MODEL : SYN8486A
S/N : NONE ASSIGNED
SPECIFICATION : FCC-24 OPEN FIELD SPURIOUS RADIATED EMISSIONS
DATE : APRIL 1, 2002
NOTES : CW @ 1900MHz, FULL OUTPUT
: TEST DISTANCE IS 3 METERS

FREQ. (MHz)	ANT POL	MTR RDG (dBuV)	MATCHED SIGNAL dBm	ANT GAIN dB	CABLE FAC dB	ERP TOTAL dBm	ATTN dB	MIN ATTN dB
3800.0	H	56.9	-39.0	5.8	3.6	-36.8	63.8	40
3800.0	V	65.8	-27.0	5.8	3.6	-24.8	51.8	40
5700.0	H	50.8	-39.0	7.1	4.3	-36.2	63.2	40
5700.0	V	54.8	-34.0	7.1	4.3	-31.2	58.2	40
7600.0	H	47.3	-42.0	7.2	5.7	-40.5	67.5	40
7600.0	V	47.2	-40.0	7.2	5.7	-38.5	65.5	40
9500.0	H	55.7	-29.0	8.5	6.3	-26.8	53.8	40
9500.0	V	61.0	-22.5	8.5	6.3	-20.3	47.3	40
11400.0	H	49.3	-35.0	8.0	6.9	-33.9	60.9	40
11400.0	V	55.8	-26.5	8.0	6.9	-25.4	52.4	40
13300.0	H	46.2	-30.0	8.8	7.5	-28.7	55.7	40
13300.0	V	51.3	-23.5	8.8	7.5	-22.2	49.2	40
15200.0	H	43.3	-25.0	9.2	8.1	-23.9	50.9	40
15200.0	V	40.2	-38.0	9.2	8.1	-36.9	63.9	40
17100.0	H	42.3	-27.0	8.5	8.1	-26.6	53.6	40
17100.0	V	50.7	-21.0	8.5	8.1	-20.6	47.6	40
19000.0	H	46.7	-25.0	7.8	9.0	-26.2	53.2	40
19000.0	V	46.3	-25.0	7.8	9.0	-26.2	45.2	40

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